

UNDERGRADUATE COURSES

College of Engineering

Biomedical Engineering (EGRB)

EGRB 101. Biomedical Engineering Practicum. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Enrollment is restricted to students in the biomedical engineering department and requires permission of course coordinator. This course involves the introduction of clinical procedures and biomedical devices and technology to biomedical engineering freshmen. Students will tour medical facilities, clinics and hospitals and will participate in medical seminars, workshops and medical rounds. Students will rotate among various programs and facilities including orthopaedics, cardiology, neurology, surgery, otolaryngology, emergency medicine, pharmacy, dentistry, nursing, oncology, physical medicine, ophthalmology, pediatrics and internal medicine.

EGRB 102. Introduction to Biomedical Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 151, MATH 200, MATH 201 or a satisfactory score on the math placement exam. Biomedical engineering is a multidisciplinary STEM field that combines biology and engineering, applying engineering principles and materials to medicine and health care. This course provides students with an introduction to biomedical engineering, beginning with a framework of core engineering principles, expanding to specializations within the field of biomedical engineering and connecting the concepts to real-world examples in medicine and health care.

EGRB 104. Introduction to Biomedical Engineering Laboratory. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. Enrollment is restricted to biomedical engineering majors. This laboratory course introduces students to practical laboratory skills required for biomedical engineering. Following successful completion of this course, students will be able to construct and design simple mechanical-electric prototypes; solder electrical components to a breadboard; construct a bridge measurement circuit in order to measure a physiological signal; use a digital multimeter to analyze a circuit. This course is also a writing-intensive course and will provide students with the skills necessary to analyze and write up the results of their experiments. Non-technical skills that will be introduced in this course include how to set up and maintain a laboratory notebook; record and analyze data in Excel, including how to use Excel formulas, create pivot tables and generate graphs; how to plan and execute an experiment; how to read and write a laboratory report in IMRD format; how to write a design concept paper; oral presentation.

EGRB 105. Successes and Failures in Biomedical Technologies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will look at successes and failures in biomedical engineering and technologies through case studies, as well as consider the ethical implementations and framework for developing evidence-based reasoning. Origins and recent advances in biomedical engineering and technologies will be explored, including applications of biomechanics, bio- and nanotechnologies, medical imaging, rehabilitation engineering and biomaterials.

EGRB 111. Introduction to Biological Systems in Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 151, MATH 200, MATH 201 or a satisfactory score on the math placement exam; and CHEM 100 with a minimum grade of B, CHEM 101, CHEM 102 or a satisfactory score on the chemistry placement exam. The cell is the principle unit of the human body. In this course, students will explore how the cell works from an engineering perspective. Students will learn the essential functions of cells, the components of cells and terminology related to cell biology. The course will also introduce key concepts in engineering, and students will learn how to apply these concepts to mammalian cells.

EGRB 203. Statics and Mechanics of Materials. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 201 and PHYS 207, both with a minimum grade of C. Enrollment is restricted to biomedical engineering majors. The theory and application of engineering mechanics applied to the design and analysis of rigid and deformable structures. The study of forces and their effects, including equilibrium of two- and three-dimensional bodies, stress, strain and constitutive relations, bending, torsion, shearing, deflection, and failure of materials.

EGRB 209. Applied Physiology for Biomedical Engineers. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: MATH 200 with a minimum grade of C. Corequisite: EGRB 111. Enrollment is restricted to biomedical engineering students. This course introduces the concepts of mathematical models and describes physiological systems using applied mathematics and engineering principles. Physiological systems will include a comprehensive study of muscle, nervous, cardiovascular, respiratory, renal and endocrine, beginning with applied biophysical concepts in cell anatomy and physiology leading into the various physiological systems. This course also incorporates a laboratory that uses the knowledge-based tools gained through lecture and implements them in practice using exercises in biochemical and physiological calculations, osmosis, electrical network simulation of diffusion, EEG, blood pressure, ECG and spirometry.

EGRB 215. Computational Methods in Biomedical Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201 with a minimum grade of C. Corequisite: MATH 301, MATH 310 or permission of instructor. Enrollment is restricted to students with sophomore standing in biomedical engineering. The goal of this course is to enhance students' software skills for subsequent biomedical engineering courses and laboratories, as well their careers. The course covers the basic fundamentals of programming in MATLAB, as well as data analysis of biomedical data. An important component of this course is developing problem-solving skills.

EGRB 301. Biomedical Engineering Design Practicum. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRB 101, EGRB 102, EGRB 203, EGRB 209, EGRB 215, EGRE 206 (or equivalent), each with a minimum grade of C. Restricted to students with junior standing in the biomedical engineering program. Explores the professional and ethical responsibilities of a biomedical engineer. Emphasis will be placed on design issues associated with biomedical engineering, teamwork, regulatory issues and human and animal subjects.

EGRB 303. Biotransport Processes. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRB 209, MATH 301 and MATH 310, each with a minimum grade of C. Course involves the study of fundamental principles of fluid mechanics and mass transport as well as application of these principles to physiological systems. Fluid mechanics principles covered will include conservation of mass and momentum, laminar and turbulent flow, Navier-Stokes equations, dimensional analysis, Bernoulli's equation, and boundary layer theory. Mass transport principles will include diffusion, convection, transport in porous media and transmembrane transport. Concepts will be applied to studying diffusion in biological tissues, electrolyte transport, vascular transport, blood flow mechanics and cardiovascular flow. The course will also cover organ-specific transport processes, including oxygen transport in the lungs and blood and mass transport in the kidney.

EGRB 307. Biomedical Instrumentation. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRB 102 and EGRB 209; EGRB 215 or CMSC 210; and EGRE 206, all with minimum grades of C. A study of the physical principles, design and clinical uses of biomedical instrumentation. Analysis and design of low frequency electronic circuits, which are most frequently used in biomedical instruments, will be conducted. Analysis of biosensors, biopotential electrodes, the measurements of biopotential signals including electrocardiogram, electroencephalogram and electromyogram, blood pressure, blood flow, and respiratory system will be conducted. Laboratory work on basic biomedical electronics and instrumentation will be performed.

EGRB 308. Biomedical Signal Processing. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRB 102 and EGRB 209; EGRB 215 or CMSC 210; EGRB 307; EGRE 206; and MATH 301 and MATH 310, all with a minimum grade of C. Explores the basic theory and application of digital signal processing techniques related to the acquisition and processing of biomedical and physiological signals including signal modeling, AD/DA, Fourier transform, Z transform, digital filter design, continuous and discrete systems.

EGRB 310. Biomechanics. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRB 203 and EGRB 209; EGRB 215 or CMSC 210; and MATH 200 and MATH 201, all with a minimum grade of C. Corequisites: MATH 301 and MATH 310. A study of the forces, stresses and strains in the human body during normal function. Emphasis is placed on the mechanics of various components of the body including hard (bone) and soft (skin, vessels, cartilage, ligaments, tendons) tissues from a structure-function perspective. Stress and strain relationships for these biomaterials will be analyzed based upon the fundamentals of engineering mechanics. In addition, the distinctive features of biological materials will be studied with respect to their differences from nonliving materials and elaborated upon in laboratory exercises using material evaluation protocols.

EGRB 315. Device Design Methods. 3 Hours.

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisites: EGRB 203; EGRB 215 or CMSC 210; EGRB 307; MATH 301; and MATH 310, all with a minimum grade of C. The main goal of the course is to introduce a variety of design and prototyping methods for biomedical devices. The focus will be on: (1) using first approximations and Solidworks for mechanical design and (2) using Arduino microcontrollers for controlling sensors and actuators.

EGRB 401. Biomedical Engineering Senior Design Studio. 3 Hours.

Semester course; 9 laboratory hours. 3 credits. Prerequisites: EGRB 301 and EGRB 315, each with a minimum grade of C. Corequisite: STAT 441. Enrollment is restricted to students with senior standing in the Department of Biomedical Engineering or by permission of instructor. A minimum of nine laboratory hours per week is dedicated to the design, development and execution of the senior design (capstone) project for biomedical engineering under the direction of a faculty research adviser in biomedical engineering or an acceptable substitute as determined by the course coordinator. Tasks include team meetings (for team projects), brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects. Monthly progress reports are due to the research adviser and course coordinator. At the end of the first semester, each team will orally present to the BME faculty project background information and discuss potential technical approaches and deliverables.

EGRB 402. Biomedical Engineering Senior Design Studio. 3 Hours.

Semester course; 9 laboratory hours. 3 credits. Prerequisites: Completion of EGRB 401 with a minimum grade of C. A minimum of nine laboratory hours per week is dedicated to the design, development and execution of the senior design (capstone) project for biomedical engineering under the direction of a faculty research adviser in biomedical engineering or an acceptable substitute as determined by the course coordinator. Tasks include team meetings (for team projects), brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects. Monthly progress reports are due to the research adviser and course coordinator. Final project reports must be submitted before the end of the semester. All design teams must participate in the College of Engineering public poster session. At the end of the semester and conclusion of the two-semester design process, teams must present their final designs and deliverables before the BME faculty.

EGRB 403. Tissue Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRB 209 with a minimum grade of C or permission of instructor. Enrollment is restricted to students with junior standing in engineering. Study of the design, development and clinical application of tissue engineered components for use in the human body. Analysis of biology, chemistry, material science, engineering, immunology and transplantation as pertains to various tissue engineered components including blood vessels, bone, cartilage, pancreas, liver and skin.

EGRB 405. Finite Element Analysis in Solid Mechanics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRB 310 and MATH 301, each with a minimum grade of C. Finite element analysis as presented in this course is a numerical procedure for solving continuum mechanics problems that cannot be described by closed-form mathematical solutions. Emphasis will be placed on understanding the theoretical basis for the method, using a commercial software program, and understanding the volume of information that can be generated. Applications to both one- and two-dimensional problems in solid mechanics and biomechanics will be explored.

EGRB 406. Artificial Organs. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRB 209, EGRB 303, EGRB 307 and EGRB 310, each with a minimum grade of C, or permission of instructor. This course explores the design, operating principles and practices regarding artificial organs and their use in the human body. Analysis of dialysis systems for kidney replacement, artificial hearts and heart assist devices, cardiac pacemakers, sensory organ assist and replacement devices, and artificial liver and pancreas devices. Design aspects, legal ramifications, regulatory issues and clinical implantation issues will be addressed.

EGRB 407. Physical Principles of Medical Imaging. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHYS 208 with a minimum grade of C. Enrollment is restricted to students with junior standing in the College of Engineering. A study of the physical principles and basic clinical uses of medical imaging. Analysis of radiation and interaction of radiation, generation and control of X-rays, X-ray diagnostic methods, X-ray computed tomography (CT), magnetic resonance imaging (MRI) and ultrasonic imaging will be conducted. Basic principle of radionuclide imaging also will be introduced.

EGRB 408. Advanced Biomedical Signal Processing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRB 308. This course will briefly review the basic theory of discrete-time signal processing techniques in biomedical data processing. Advanced signal processing techniques including adaptive signal processing, wavelets, spectral estimation and multirate signal processing will be employed. Specific examples utilizing electrocardiogram (ECG) and other biological signals are provided. Topics covered are alternance phenomenon in biological systems, late potential in ECG, intrapotential in ECG and coherence analysis.

EGRB 409. Microcomputer Applications in Biomedical Engineering. 3 Hours.

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: EGRB 307. Covers microcomputer applications (hardware and software) as applied to biomedical science and biomedical engineering. Basic hardware components of a microcomputer are discussed with particular reference to configurations needed for analyzing biomedical events. Software applications including data encoding, data storage, graphical interfaces and real-time processing are explored for analysis of physiological and biomedical signals. Students will develop algorithms using LabView and MatLab to solve problems in biomedical engineering in the laboratories.

EGRB 410. Cellular Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRB 209 with a minimum grade of C. This course will be a detailed study of the structure and function of the cell from an engineering perspective. Fundamental molecular biology, cell biology and biochemistry topics (cellular structure, signal transduction, cell adhesions, cytoskeleton) will be introduced. Engineering principles (kinetics, transport, mechanics, thermodynamics, electrochemical gradient) will be applied to these topics. Emphasis is placed on methods to disrupt, enhance or mimic in vivo cellular function in biomedical applications.

EGRB 411. Cell Mechanics and Mechanobiology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRB 310 and EGRB 410 with minimum grades of C or permission of instructor. Focusing on cellular-extracellular matrix interactions, students will gain a quantitative understanding of the way cells detect, modify and respond to the physical properties within the cell environment. Coverage includes the mechanics of single-molecule polymers, polymer networks, two-dimensional membranes, whole-cell mechanics and mechanobiology. Mechanobiology topics include cancer and development, pulmonary system, cardiovascular system, and the nervous system. Students will gain understanding of techniques in cellular manipulation and quantification of cellular forces.

EGRB 412. Regenerative Engineering and Medicine. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRB 209 or equivalent with minimum grade of C. Students will apply fundamental concepts of cell and molecular biology, biochemistry, medicine and pathology, as well as material science and engineering principles to design novel strategies for cell and drug delivery, tissue engineering and regenerative medicine. Emphasis will be placed on designs and methods to solve current complex biomedical problems.

EGRB 413. Computational and Experimental Models of Cellular Signal Transduction. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRB 215 and EGRB 410 with minimum grades of C. Students will study the process by which an extracellular protein binding event is transduced and interpreted as an incoming signal into a cell. Students will learn the biology of cellular signal transduction and will also learn how to apply computational models and experimental techniques to predict and investigate these pathways. Students will follow the course of a protein within a signal transduction cascade, from binding to a receptor, activating intracellular pathways, inducing new transcription and translation and targeting of the protein to its final location. Students will develop MATLAB-based mathematical models to predict signal transduction dynamics, and then will study experimental techniques that are used to both disrupt and measure signal transduction.

EGRB 415. Cellular and Molecular Engineering Techniques. 3 Hours.

Semester course; 1 lecture and 6 lab hours. 3 credits. Prerequisite: EGRB 209 with a minimum grade of C. Cell and tissue culture techniques are becoming increasingly important in academic laboratories and companies involved in regenerative medicine. This laboratory-based course is designed to introduce basic, hands-on cell culture concepts and techniques needed for academia and industry. Students will be expected to learn molecular engineering techniques by designing and purifying plasmids for mammalian cell transfection. Students will apply mathematics to predict outcomes for culture conditions. Lectures will reinforce basic concepts in cell culture and bioengineering, while the laboratory will be used to practice concepts learned in lecture.

EGRB 420. Assistive Technology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRE 206 and EGRB 209; EGRB 215 or CMSC 210; and EGRB 307, EGRB 308 and EGRB 310, all with a minimum grade of C. Enrollment is restricted to biomedical engineering students or with permission of instructor. This course explores the principles and practice regarding the development of assistive technology for individuals with disabilities. The course will address the human user considerations that need to be taken into account in developing technology for individuals with different disabilities or multiple disabilities. It will also provide a general overview of current technology and software algorithms used. The four main areas of assistive technology that will be considered are for the deaf and hard of hearing, individuals who are blind and visually impaired, individuals with cognitive impairments, and individuals with motor impairments.

EGRB 421. Human Factors Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRB 209 and EGRB 310, both with a minimum grade of C. This course explores the principles and practices regarding ergonomics and human factors engineering and the interaction of biomedical engineering with human function. Analysis of the functions of the human body regarding motion, sensory mechanisms, cognition and interaction with the environment will be included. Interactions of the human body with technology, workplaces, equipment and computers will be examined. Design of workplaces for optimal human performance will be discussed. Analysis of the design and arrangement of controls and displays will be covered.

EGRB 422. Human Performance Measurement Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRB 209, EGRB 307, EGRB 308 and EGRB 421, each with a minimum grade of C. Enrollment is restricted to biomedical engineering majors or with permission of instructor. Course explores the principles and practices of human performance measurement including direct and indirect measurement techniques and analysis. Course addresses the subjective, psychophysical and physiological methods related to the measurement, analysis and quantification of human performance.

EGRB 423. Rehabilitation Engineering and Prostheses. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRB 203 and EGRB 209, both with a minimum grade of C. Enrollment is restricted to biomedical engineering majors or with permission of instructor. This course explores the principles and practices regarding the development of rehabilitation therapy devices and prostheses. The course will further address the human user and factors that must be considered when developing devices and engineering solutions for individuals with different therapy and prosthetic needs. The course will also provide a general overview of current technologies and the engineering principles behind these designs.

EGRB 427. Biomaterials. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRB 209 with a minimum grade of C. Enrollment is restricted to students with junior standing in biomedical engineering or with permission of the instructor. Principles of materials science as it relates to the use of materials in the body. Characterization of biomaterials. Study of the properties of biomedical materials used as implants, prostheses, orthosis and as medical devices in contact with the human body. Analysis of physical, chemical, thermal and physiological response factors associated with materials and implant devices used in the human body.

EGRB 491. Special Topics. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated with different topics. Advanced study of a selected topic in biomedical engineering. See the Schedule of Classes for specific topics to be offered each semester and prerequisites, corequisites or restrictions.

Chemical and Life Science Engineering (CLSE)**CLSE 101. Introduction to Engineering. 3 Hours.**

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisites: course open to first-year students majoring in chemical and life science engineering. Introduction to chemical and life science engineering. Topics covered include ethics and social responsibility; engineering design process; engineering solutions; estimations and approximations; dimensions, units and conversions; mathematics and computer solutions; life-long learning; introduction to the interface between engineering, biology and medicine.

CLSE 102. Methods in CLSE. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: CLSE 101. An introduction to problem formulation and solution methods for chemical and life science engineering. Typical chemical and life science engineering scenarios will be presented. Emphasis will be placed on identifying and formulating problems based on presented scenarios.

CLSE 115. Introduction to Programming for Chemical and Life Science Engineering. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: MATH 200. Introduction to the concepts and practice of structured programming. Topics include problem-solving, top-down design of algorithms, objects, basic syntax, control structures, functions and arrays.

CLSE 201. Chemical Engineering Fundamentals I: Material Balances. 4 Hours.

Semester course; 3 lecture and 1 recitation hours. 4 credits. Prerequisites: CLSE 115, CHEM 101 and CHEM 102, and MATH 200 and MATH 201, or equivalents, all with minimum grades of C. The first of two introductory chemical and life science engineering courses. Covers material balances on steady-state chemical processes.

CLSE 202. Chemical Engineering Fundamentals II: Energy Balances and Engineering Thermodynamics. 4 Hours.

Semester course; 3 lecture and 1 recitation hours. 4 credits. Prerequisites: CLSE 201 with a minimum grade of C, CHEM 101-102 and MATH 200-201 or equivalents. The second of two introductory chemical and life science engineering courses. Covers energy balances on steady-state chemical processes, computer-aided balance calculations, balances on transient processes and introduction to thermodynamics.

CLSE 301. Transport Phenomena I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLSE 202 with a minimum grade of C; PHYS 208 and MATH 301. Basic concepts of transport phenomena as applied to chemical and life science engineering. Topics include transport of mass momentum and energy in single and multidimensions.

CLSE 302. Transport Phenomena II. 4 Hours.

Semester course; 3 lecture and 1 recitation hours. 4 credits. Prerequisites: CLSE 301 and CLSE 305. Concepts of transport phenomena as applied to chemical and life science engineering. Topics include advanced multicomponent, multiphase systems, integral analysis, and an integrated view of momentum, heat and mass transport in unit operations.

CLSE 305. Thermodynamics of Phase Equilibria and Chemical Reactions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLSE 202 with a minimum grade of C and MATH 307. Thermodynamic properties of fluids and mixtures, partial molar quantities, phase equilibria, activity coefficients and correlations, equations-of-state, chemical reaction equilibria for liquid, vapor and multiphase reactions, and the use of equations-of-state and activity/fugacity correlations to obtain the thermodynamic functions required for the calculation of chemical reaction equilibrium constants. Computing using Excel VBA is a required component of this course.

CLSE 306. Industrial Applications of Inorganic Chemistry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 302 and CHEZ 302. Chemical engineering students: EGRC 201 and EGRC 205. A study and analysis of the most important industrial applications of inorganic chemistry, with emphasis on structure/properties correlation, materials and energy balance, availability and logistics of starting materials, economic impact and environmental effects. Crosslisted as: CHEM 306.

CLSE 312. Chemical Reaction Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLSE 301 and 305. Introduces the student to the analysis of reactors via coupling of empirical reaction rates and thermodynamic constraints with reactor material and energy balances. The behavior of the ideal reactor types (batch, CSTR and PFR) is emphasized with attention given to departure from these ideals by real systems.

CLSE 320. Instrumentation Laboratory. 3 Hours.

Semester course; 1 lecture and 6 laboratory hours. 3 credits. Prerequisites: CLSE 301 and CLSE 305. This laboratory introduces students to a variety of measurement instruments used in modern chemical engineering laboratories and process plants. Detailed laboratory reports are required for each of the experiments undertaken by the students.

CLSE 325. Bioengineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLSE 201 and BIOL 151 or BIOL 152. An introductory and survey level course required for all chemical engineering students. This course introduces concepts and principles of chemical engineering to problems and issues in the life sciences, biotechnology and medicine. Students apply heat and mass transfer concepts, separations and controls to topics that include clinical diagnostics, bioanalytical instrumentation, biosensors and biochips, bioprocess engineering including fermentation, biochemical pathway engineering, protein folding and aggregation, bioreactors and tissue engineering.

CLSE 402. Senior Design Studio I (Laboratory/Project Time). 2 Hours.

Semester course; 6 laboratory hours. 2 credits. Prerequisites: senior standing in chemical and life science engineering and participation in a senior design (capstone) project; CLSE 301, 302, 305 and 312. A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project, which should meet appropriate engineering standards and multiple realistic constraints. Tasks include team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

CLSE 403. Senior Design Studio II (Laboratory/Project Time). 2 Hours.

Semester course; 6 laboratory hours. 2 credits. Prerequisites: senior standing in chemical and life science engineering and participation in a senior design (capstone) project; CLSE 402. A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project, which should meet appropriate engineering standards and multiple realistic constraints. Tasks include team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

CLSE 405. Process Synthesis. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLSE 302, 305 and 312. A senior technical elective. Students synthesize flowsheets for existing and newly proposed chemical and biochemical products. Quantitative tools learned in earlier courses are used to examine the technical and economic feasibility of the flowsheets. Written bi-weekly status reports are required from each student and each student completes a process synthesis and analysis as a semester project.

CLSE 409. Process Control in Chemical and Life Science Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLSE 301 and 305. Covers process control as applied to chemical and life science engineering with many practical examples. Topics include time and frequency domain analysis, multivariable processes and applications to chemical and biochemical production and processing.

CLSE 428. Introduction to Polymer Science and Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLSE 302, 305 and 312, and CHEM 302, or equivalents. A senior technical elective. The course offers an introduction to the chemistry, physical properties and processing of polymers. Topics include step and chain polymerization, structure/property relationships, mechanical properties of plastics and elastomers, solution properties, methods for polymer characterization, and processing techniques.

CLSE 440. Unit Operations Laboratory. 3 Hours.

Semester course; 1 lecture and 6 laboratory hours. 3 credits. Prerequisites: CLSE 302, CLSE 305 and CLSE 312. Students carry out experiments with chemical and biochemical reactors, energy exchangers, fluid flow networks and other unit operations. Detailed laboratory reports are required for each of the experiments undertaken.

CLSE 450. Undergraduate Research in Chemical and Life Science Engineering. 1-6 Hours.

Semester course; variable hours. Up to 6 credits. Undergraduate research under the supervision of a faculty member. Specific topics vary depending on the interests of the student and the adviser. Registration requires approval of the student's academic adviser and research adviser.

CLSE 460. Undergraduate Honors Research in Life Sciences Engineering. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Corequisites: BIOL 218, CLSE 302. An undergraduate honors research course for academically talented juniors and seniors requiring advanced work and an honors thesis on a topic relevant to life sciences engineering. Topics and credit hours will be chosen in consultation with a sponsoring faculty member.

CLSE 461. Stem Cell Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 218, CLSE 302. The production and behavior of adult and embryonic stem cells are studied and potential applications for the treatment of disease are surveyed. Stem cell engineering techniques including parthenogenesis, nuclear transfer stem cells and embryonic carcinoma cells are introduced. The use of stem and germ cells for cloning is covered, and ethical considerations involving the use of embryonic human stem cells are discussed.

Computer Science (CMSC)**CMSC 101. Introduction to Computer Science. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 139 or MATH 141 with a minimum grade of C. An introduction to the work of computer scientists, including an overview of current research and application areas as well as career opportunities. Topics include problem-solving, the basics of computer organization, the software engineering life cycle, research resources and social and ethical aspects of technology. Additional topics also include binary, hexadecimal, two's complement, floating point representation, ASCII and Unicode.

CMSC 144. Code Beats With Python. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. An introduction to computer programming in Python by teaching students to create hip hop beats. Teaches fundamental programming concepts including sequencing, syntax, variables, functions, parameters, lists, repetition and modularization. Teaches just enough music theory to ensure that student-made beats sound great, including fundamental concepts such as melody, rhythm, harmony, chord progression and orchestration. Students will complete in-class activities that reinforce class concepts and, if completed correctly, demonstrate a clear understanding of the material.

CMSC 191. Topics in Computer Science. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for credit. Prerequisite: permission of the instructor. This course will teach selected topics in computer science. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

CMSC 210. Computers and Programming. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits. Introduction to object-oriented programming using Python. The course introduces students to structured programming logic and design techniques. The course content also includes instruction in critical thinking and problem-solving skills using contemporary tools. Specific topics include flowcharting, pseudocode and program control structures, including sequence, selection and repetition. This course is not applicable for credit toward the B.S. in Computer Science.

CMSC 225. Essentials of Artificial Intelligence. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits. An introduction and comprehensive overview of artificial intelligence, including its history, how it works, a survey of algorithms that underlie the technology and current and future uses of AI. This course is designed for students from all backgrounds and knowledge in computing.

CMSC 235. Computing and Data Ethics. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Introduction to ethical considerations for computing and working with data, legal implications surrounding data and computational systems, and sociotechnical responsibilities.

CMSC 245. Introduction to Programming Using C++. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 151 or satisfactory score on the Mathematical Placement Test. Students registering for CMSC 245 must have taken the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case in which the stated alternative prerequisite course has been completed at VCU. Students are expected to have fundamental computer skills. Introduction to the concepts and practice of structured programming using C++. Problem-solving, top-down design of algorithms, objects, basic C++ syntax, control structures, functions and arrays. This course is intended for engineering majors.

CMSC 246. Advanced Programming Using C++. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 245. Advanced programming in C++. Topics include program design, objects, classes, inheritance, files, strings, linked lists, stacks, queues, binary trees, recursion, and basic searching and sorting techniques. This course is intended for engineering majors.

CMSC 254. Introduction to Problem-solving. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Introduction to problem solving and implementation of solutions using Python. The course introduces students to concepts and practice of structured programming, problem-solving, top-down design of algorithms, a Python language syntax, control structures and arrays. The course content also includes instruction in critical-thinking and problem-solving skills using contemporary tools. Specific topics include flowcharting, pseudocode and program control structures, including sequence, selection, repetition and modularization. Students may not receive credit for both CMSC 254 and CMSC 210.

CMSC 255. Introduction to Object-oriented Programming. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours (delivered online, face-to-face or hybrid). 4 credits. Prerequisite: CMSC 254 or CMSC 210 with a minimum grade of C. Students are expected to have fundamental computer skills and coding knowledge. Introduction to object-oriented programming using Java. Topics include problem-solving, top-down design of algorithms using control structures, methods, arrays, basic I/O, objects and classes in Java including object-oriented design, inheritance, polymorphism, and exceptions, Java classes for manipulating strings, recursion, and introduction to program testing, UML notation and integrated development environments. Students may not receive credit for more than one of the following: CMSC 255, EGRE 245 and INFO 350.

CMSC 256. Introduction to Data Structures. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours (delivered online, face-to-face or hybrid). 4 credits. Prerequisites: CMSC 255 and MATH 151, each with a minimum grade of C. Corequisite: CMSC 302. Advanced programming using Java. Topics include interfaces, linked lists, stacks, queues, binary trees, and basic searching and sorting techniques. Continued focus on program testing and UML notation. Students working toward a computer science degree or certificate program may not receive credit for both CMSC 256 and EGRE 347.

CMSC 257. Computer Systems. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours (delivered online, face-to-face or hybrid). 4 credits. Prerequisite: CMSC 256 with a minimum grade of C. Topics include Linux essentials; system programming in C; organization of programs/data, arrays and pointers; types, structs and unions; strings; bit/byte operations; memory management; shell programming; input/output, including file handling; debugging; signals; program concurrency using forks and threads; experiments on program performance and optimization techniques.

CMSC 302. Introduction to Discrete Structures. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: CMSC 255 with minimum grade of C. Corequisite: CMSC 256. Logic and proofs, sets, functions, sequences and sums, relations, graphs, trees, induction and recursion, advanced counting techniques (recurrences and combinatorics), probability.

CMSC 303. Introduction to the Theory of Computation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 302 or the equivalent with a grade of C or better. Complexity classes, grammars, automata, formal languages, Turing machines, computability.

CMSC 304. Programming Languages. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 256 with a minimum grade of C. Survey of representative modern programming languages. Formal definition of programming languages including specifications of syntax and semantics. Precedence, infix, prefix and postfix notation. Global properties of algorithmic languages. Sub-routines, co-routines and tasks. List processing, string manipulation, data description and simulation languages. Run-time representation of program and data structures.

CMSC 311. Computer Organization. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: CMSC 302 with a minimum grade of C. Introduction to the basic organization of computers including elementary digital logic design, processor and arithmetic/logic unit design, data paths, memory hierarchy, I/O devices, instruction set architecture and addressing modes. Students working toward a computer science degree or certificate program may not receive credit for both CMSC 311 and EGRE 364.

CMSC 312. Introduction to Operating Systems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 311 or EGRE 364. Computer systems design, inter-process communications, multi-threading, I/O processing, secondary memory organization, command languages, memory management and job scheduling.

CMSC 320. Software Engineering and Web Development. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits. Prerequisite: CMSC 210 or CMSC 254. Introduction to software engineering and web development. The course introduces students to the software development process, including design, development and testing principles. Students will apply these principles in the development of a web application. This course is not applicable for credit toward any College of Engineering degrees.

CMSC 330. Data Science Skills. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits. Prerequisite: CMSC 210 or CMSC 254. Introduction to data science skills. The course introduces students to the foundations of data science and the tools used to collect, analyze and represent data. Students will apply these principles in both analysis and visualization projects. This course is not applicable for credit toward any College of Engineering degrees.

CMSC 340. Cybersecurity Skills. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits. Introduction to cybersecurity skills. The course introduces students to cybersecurity terminology, standards and best practices. Students will apply these practices as part of a cybersecurity-focused project. This course is not applicable for credit toward any College of Engineering degrees.

CMSC 355. Fundamentals of Software Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 256 or EGRE 347, either with a minimum grade of C. Provides an overview of how to engineer software systems, including all stages of the software development process based on agile principles. Familiarizes students with modern software tooling and the principles of software quality and testing. Students will work in teams to gain experience in software development methodology, write specification and design documents, and develop a prototype.

CMSC 391. Topics in Computer Science. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for credit. Prerequisite: permission of the instructor. This course will teach selected topics in computer science. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

CMSC 401. Algorithm Analysis with Advanced Data Structures. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 256 with a grade of C or better and CMSC 302 with a grade of C or better. Introduction to algorithm analysis and complexity classes. Advanced data structures topics including multiple linked lists, height-balanced trees, B-trees, hashing and graph representation; incorporating data structures into object-oriented design. Analysis of various searching and sorting algorithms. Algorithm design topics include divide-and-conquer, dynamic programming and greedy methods.

CMSC 404. Compiler Construction. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 401 and 403. A first course in compiler theory and construction. Formal description of languages, underlying theory and design techniques for compilers, lexical analysis, syntax analysis, syntax-directed translation, intermediate languages, run-time system management, code generation, code optimization, compiler-building tools.

CMSC 408. Databases. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 303. Introduction to databases. Database design and the entity-relationship model. Relational database design, normalization and decomposition. Relational algebra. SQL. Data definition language. Data manipulation language. Data query language. Queries, subqueries, functions, procedures, cursors, views, triggers, indexes and transactions. Security, performance, and scalability of databases. Database installation, configuration and administration. MySQL and the web.

CMSC 410. Introduction to Quantum Computing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 401 and MATH 310, both with a minimum grade of B. Introduction to quantum information processing: state vectors and density operators, tensor product space, unitary evolution, no-go theorems, measurement, qubit, gate model of quantum computing, quantum complexity theory, quantum error correction, quantum algorithms, and quantum machine learning.

CMSC 411. Computer Graphics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 355 and MATH 310. Presents mathematical techniques for graphic development and transformation, curve and surface approximation and projections, graphical languages and data structures and their implementation, graphic modeling.

CMSC 412. Social Network Analysis and Cybersecurity Risks. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 401 with a minimum grade of C. Covers network models, link prediction and analysis, centrality measures, random networks, power-laws and preferential attachment, small world phenomenon and decentralized search, community structure, information propagation in networks, and security and privacy issues in OSNs.

CMSC 413. Introduction to Cybersecurity. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 257 with a minimum grade of C. This course provides introduction and basic concepts of computer security, cyber attacks, cyber defense, cyber forensics and cyber ethics.

CMSC 414. Computer and Network Security. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 401 with a minimum grade of C. Corequisite: CMSC 312. This course covers the best practices of computer systems and network security. Key topics include security architecture, cryptographic systems and security management tools.

CMSC 415. Introduction to Cryptography. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 401 with a minimum grade of C. This course provides a rigorous and theoretical introduction to modern cryptography. Key topics include symmetric key encryption and authentication, public key encryption, and digital signatures.

CMSC 420. Software Project Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 355 with a minimum grade of C. Study of the logistics of team software development. Students work in teams to gain experience in software management and develop the components of a larger software product. Topics include risk management, project planning, quality management, configuration management and software testing.

CMSC 425. Introduction to Software Analysis and Testing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 355 with a minimum grade of C. Enrollment is restricted to majors in the computer science program. A practical introduction to testing complex software applications. An introduction to concepts and techniques used in the analysis of software, including basic and advanced control flow and data flow analyses. Using analytic results to derive test data and validate the correct implementation of programs. Advanced testing strategies including random, structural, mutation and fuzzing.

CMSC 426. Software as a Service. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 355 with a minimum grade of C. Enrollment is restricted to majors in the computer science program. Students will examine the challenges, opportunities and open problems of software-as-a-service deployed on commodity cloud computing platforms. Covers relevant software architectures and API design principles. Includes concepts of modern software frameworks for software development, cloud computing for software deployment and software operations. Students participate in projects that use modern tooling to develop, deploy and monitor a software application.

CMSC 427. Design and Implementation of User Interfaces. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to majors in the computer science program. This course investigates the design and implementation of user interfaces and the evaluation of user experiences. Particular emphasis is placed on creating professional-quality designs and implementations and on evaluating these implementations with end-users. Students will create their own UIs as well as critique others to develop a deep understanding of what works in practice.

CMSC 428. Mobile Programming: iOS. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 355, with a minimum grade of C. This course covers the fundamentals of Swift, Xcode and iOS for programming and design of iOS applications. Background in object-oriented programming and access to a computer with Xcode platform is required.

CMSC 435. Introduction to Data Science. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 401 with a minimum grade of C. This course covers understanding, representation, storage, retrieval, preprocessing and analysis of data. Specific topics include data quality and preprocessing, database management systems, data warehouses, selected methods for scalable unsupervised and supervised data analysis, and assessment of results generated by these methods. Students will be engaged in analysis of real-life data from data preprocessing, through data analysis, to the assessment of a knowledge product.

CMSC 436. Artificial Intelligence. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 310 with a minimum grade of C. Enrollment is restricted to majors in the computer science program. Covers problem spaces, problem-solving methods, game playing, knowledge representatives, expert systems, natural language understanding.

CMSC 437. Introduction to Natural Language Processing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 401 with a minimum grade of C. Enrollment is restricted to majors in the computer science program. Covers rule-based and statistical methods for creating computer programs that analyze, generate and understand human language. Topics include regular expressions and automata, context-free grammars, probabilistic classifiers, and machine learning. Word-level, syntactic and semantic processing are all considered. Application to real-world problems such as spell-checking, Web search, automatic question answering, authorship identification and developing conversational interfaces.

CMSC 438. Machine Learning. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 257 and MATH 310 with minimum grades of C. Enrollment is restricted to majors in the computer science program. The course will assume undergraduate-level background in algorithms, linear algebra, calculus, statistics and probability. Upon successful completion of this course, the student will be able to understand basic concepts and techniques in machine learning. Topics covered will include: probabilistic and optimization-based view of machine learning, linear models, deep nonlinear models, deep networks for specific domains such as large language models and generative models for images.

CMSC 440. Data Communication and Networking. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 257 with a minimum grade of C. Enrollment is restricted to majors in the College of Engineering. This course explores computer networking, focusing on the applications and protocols that run on the Internet. Students will take a top-down approach to the layered network architecture, studying applications first and then proceeding down the network "stack" toward the physical link. Students will examine the operation of applications such as the web, FTP, e-mail and DNS. At the transport layer, students will study both connectionless UDP and connection-oriented TCP, with an in-depth study of TCP operation, specifically flow control and congestion control. Data communications are explored through various data routing protocols. Additional topics include network security and wireless/mobile networking.

CMSC 441. Senior Design Studio I (Laboratory/Project Time). 2 Hours.

Semester course; 6 laboratory hours. 2 credits. Prerequisites: CMSC 355; and UNIV 200 or HONR 200 or equivalent, both with minimum grades of C. Corequisite: CMSC 451. Enrollment is restricted to computer science majors with senior standing who have 24 credits in computer science courses. A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project for the computer science major. Tasks include team meetings, brainstorming, sponsor advising, researching, designing, implementing, reviewing, testing and validating projects. Each student will participate, either individually or as part of a team, in a project or other experience approved by the course coordinator or sponsored by another computer science faculty member. Students will submit a detailed written description of their proposed project or experience and will present orally some aspect of what they have learned and/or done during the semester. This course cannot be counted as upper-level CMSC electives for students graduating under bulletins prior to 2008-09.

CMSC 442. Senior Design Studio II (Laboratory/Project Time). 2 Hours.

Semester course; 6 laboratory hours. 2 credits. Prerequisites: CMSC 408, CMSC 441 and CMSC 451, each with a minimum grade of C. Corequisite: CMSC 452. Enrollment is restricted to computer science majors with senior standing who have 24 credits in computer science courses. A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project for the computer science major. Tasks include team meetings, brainstorming, sponsor advising, researching, designing, implementing, reviewing, testing and validating projects. Each student will participate, either individually or as part of a team, in a project or other experience approved by the course coordinator or sponsored by another computer science faculty member. Students must continue on the same project that was started in CMSC 441 and CMSC 451. A final project report and presentation are due at the conclusion of the two-semester project or experience. This course cannot be counted as upper-level CMSC electives for students graduating under bulletins prior to 2008-09.

CMSC 445. Introduction to Game Development. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CMSC 255. Enrollment is restricted to computer science majors and minors. A comprehensive course designed to introduce students to the foundational concepts and tools essential for game design and development. Students gain hands-on experience with industry-standard game engines to build and deploy their own games. Working both individually and collaboratively in teams, students develop a practical understanding of the creative and technical processes involved in bringing a game from concept to reality.

CMSC 451. Senior Project I. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisites: CMSC 355 with minimum grade of C; and UNIV 200 or HONR 200 or equivalent. Corequisite: CMSC 441. Enrollment is restricted to computer science majors with senior standing who have 24 credits in computer science courses. This weekly seminar presents and discusses topics relevant to senior-level computer science students in support of the capstone project and upcoming graduation. A single course coordinator manages and administers the course and schedules the various faculty lectures and guest speakers. Topics include, but are not limited to, the following: proposal writing; project planning and management; scheduling resources and budgeting for software development projects; patents and intellectual property; entrepreneurship; ethical, legal and social issues in computing; and professional responsibilities of computer scientists. Each student will write and revise a research paper on a technical topic associated with his or her project or experience. A final project report and presentation, which will include a discussion of associated legal, social and/or ethical issues, are due at the conclusion of the two-semester project or experience. The courses in this sequence cannot be counted as upper-level CMSC electives for students graduating under bulletins prior to 2008-09.

CMSC 452. Senior Project II. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisites: CMSC 408, CMSC 441 and CMSC 451, each with a minimum grade of C. Corequisite: CMSC 442. Enrollment is restricted to students with senior standing in the computer science department. This weekly seminar presents and discusses topics relevant to senior-level computer science students in support of the capstone project and upcoming graduation. A single course coordinator manages and administers the course and schedules the various faculty lectures and guest speakers. Topics include, but are not limited to, the following: proposal writing; project planning and management; scheduling resources and budgeting for software development projects; patents and intellectual property; entrepreneurship; ethical, legal and social issues in computing; and professional responsibilities of computer scientists. Each student will write and revise a research paper on a technical topic associated with his or her project or experience. Students must continue on the same project that was started in CMSC 451. A final project report and presentation, which will include a discussion of associated legal, social and/or ethical issues, are due at the conclusion of the two-semester project or experience. The courses in this sequence cannot be counted as upper-level CMSC electives for students graduating under bulletins prior to 2008-09.

CMSC 491. Topics in Computer Science. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated for credit with different content. Prerequisite: permission of instructor. This course will cover selected topics in computer science. See the Schedule of Classes for specific topics to be offered each semester.

CMSC 492. Independent Study. 2-4 Hours.

Semester course; variable hours. 2, 3 or 4 credits per semester. Maximum 4 credits per semester; maximum total of 6 credits. Generally open only to students of junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. The student must submit a proposal for investigating some area or problem not contained in the regular curriculum. The results of the student's study will be presented in a report.

Electrical and Computer Engineering (EGRE)

EGRE 101. Introduction to Engineering. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Course open to first-year students majoring in electrical or computer engineering. Introduction to engineering through instruction on basic concepts of engineering. Topics will include an introduction to basic circuit components and circuit analysis, digital logic design and programming. General topics important to all engineers will also be covered, such as mathematics, improving written and oral communication skills, teamwork, ethics and life-long learning. The laboratory introduces fundamental testing, measurement, troubleshooting methodology and proper laboratory notebook maintenance. Engineering design and analysis is also emphasized through a team-based design that involves designing, building and programming a robot.

EGRE 206. Electric Circuits. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: MATH 200; and one of EGRE 101, EGRB 102 or CLSE 101, or both EGMN 190 and EGMN 203, or both EGMN 102 and EGMN 190, as applicable per department, all with minimum grades of C. Pre- or corequisite: MATH 201. An introduction to electrical circuit theory and its application to practical direct and alternating current circuits. Topics include Kirchhoff's Laws (review from departmental prerequisites, as applicable), fundamental principles of network theorems, transient and steady-state response of RC, RL and RLC circuits by classical methods, time-domain and frequency-domain relationships, phasor analysis and power. Laboratory work, practical applications and integral laboratory demonstrations emphasize and illustrate the fundamentals presented in this course.

EGRE 207. Electric Circuits II. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: EGRE 206, with a minimum grade of C. An introduction to higher level electric circuit theory, including the study of basic active components, such as diodes and operational amplifiers. Emphasis will be placed on design rather than analysis. The laboratory exercises will serve to train students in the art of designing a circuit to perform specific tasks and to conform to specific design parameters.

EGRE 245. Engineering Programming. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: MATH 151 with a minimum grade of C. Enrollment restricted to electrical and computer engineering majors. Students are expected to have fundamental computer skills. Introduction to the concepts and practice of structured programming using C. Problem-solving, top-down design of algorithms, basic C syntax, control structures, functions, arrays, files and strings.

EGRE 246. Advanced Engineering Programming. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: EGRE 245 with a minimum grade of C. Enrollment is restricted to electrical and computer engineering majors. Advanced programming for engineering applications in C. Topics include recursion, searching and sorting techniques, data structures, program design and problem solving, and software testing.

EGRE 254. Digital Logic Design. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 101, EGRB 102 or CLSE 101; or both EGMN 190 and EGMN 203; or both EGMN 102 and EGMN 190, as applicable per department, all with minimum grades of C. An introduction to digital logic design with an emphasis on practical design techniques and circuit implementations. Topics include number representation in digital computers, Boolean algebra, theory of logic functions, mapping techniques and function minimization, design of combinational, clocked sequential and interactive digital circuits such as comparators, counters, pattern detectors, adders and subtractors. An introduction on designing digital circuits using schematic capture, logic simulation and hardware description languages is included. Students will use the above basic skills in the laboratory to design and fabricate digital logic circuits using discrete logic and field programmable gate arrays.

EGRE 303. Electronic Devices. 3 Hours.

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisites: EGRE 306 and MATH 301, both with a minimum grade of C. An introduction to solid state electronic devices covering the fundamentals of atomic structure, band theory, free carrier statistics and charge transport in solids as well as terminal electrical characteristics of semiconductor devices. The course covers basic device physics of p-n junctions, metal-semiconductor junctions, metal-oxide semiconductor capacitors and transistors, light-emitting and -detecting devices, and materials and device characterization methods, including four-probe, Hall effect, I-V, C-V, and carrier lifetime, and optical spectroscopy.

EGRE 306. Introduction to Microelectronics. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 207 and MATH 301, both with a minimum grade of C. This course covers the analysis, modeling and design of electrical circuits which contain electronic devices. Students will learn to design analog circuits to specifications through laboratory problems, a design project and circuit simulation.

EGRE 307. Integrated Circuits. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 306 and EGRE 337, both with a minimum grade of C. Corequisite: EGRE 336. Analysis, modeling, design and measurement of advanced MOSFET and bipolar analog integrated circuits. Topics include active filters, differential amplifiers, frequency response and feedback topologies. Operational amplifier circuit topologies are used as a means of studying input, gain, level shift and output stages. Circuit design techniques are explored for mixed signal analog-digital circuits. This course provides the opportunity for a group design project of an integrated circuit chip, using advanced software tools for simulation and physical layout.

EGRE 309. Introduction to Electromagnetic Fields. 3 Hours.

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisites: EGRE 207, MATH 301, MATH 307 and PHYS 208, all with a minimum grade of C. This course provides an introduction to the concept of electromagnetic fields. Topics include electrostatics, magnetostatics, scalar and vector potentials, and work and energy in fields, as well as the analysis and understanding of the phenomena associated with static electric and magnetic fields. Laboratory exercises will serve to reinforce students' understanding of fields and train them in methods to measure, quantify and analyze electromagnetic phenomena.

EGRE 310. Electromagnetic Fields and Waves. 3 Hours.

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: EGRE 309 with a minimum grade of C. This course covers the fundamentals of time-varying electromagnetic fields. Topics include electromagnetic induction, Maxwell's equations, wave propagation, guided waves, transmission lines and antennas. Laboratory exercises will serve to reinforce students' understanding of time-varying fields and waves and train them in methods to measure, quantify and analyze dynamic electromagnetic phenomena.

EGRE 334. Introduction to Microfabrication. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: CHEM 101, MATH 201 and PHYS 208, all with a minimum grade of C. This course gives an overview of microscale device fabrication and testing for a general audience. A wide variety of new terms, equipment and processes are presented. Fundamentals of photolithography, mask making, diffusion, oxidation, ion implantation, film deposition and etching are covered. Laboratory work consists of safety training, hands-on fabrication experience and testing. A laboratory chip test is fabricated from start to finish and then tested. The test chip includes basic integrated circuit elements as well as solar cells.

EGRE 335. Signals and Systems. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 206, EGRE 245 and MATH 301, all with a minimum grade of C. Presents the concept of linear continuous-time and discrete-time signals and systems, their classification, and analysis and design using mathematical models. Topics to be covered: linear systems and their classification, differential and difference equations, convolution, Fourier series, Fourier transforms, the Laplace and Z transforms and their application, continuous-time to discrete-time conversion.

EGRE 336. Introduction to Communication Systems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 337 with a minimum grade of C. Introduction to the theory and application of analog and digital communications including signal analysis, baseband transmission, amplitude and angle modulation, digital modulation, baseband digital communication, and design considerations.

EGRE 337. Statistical Information Processing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 335 with a minimum grade of C. This class presents an introduction to probability, random variables, random processes and statistics with applications in electrical and computer engineering.

EGRE 347. Applied Embedded Programming. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: EGRE 246 with a minimum grade of C. Programming languages and techniques for engineering applications in embedded systems. Topics include object-oriented programming techniques, program development and testing on embedded systems, and interfacing embedded computer systems to physical components and sensors. Several different programming languages, programming tools and the use of standard libraries for applications such as data processing and security will be explored.

EGRE 364. Microcomputer Systems. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 246 and 254, both with a minimum grade of C. Basic computer organization, microprocessor instruction sets and architectures, assembly language programming and the function of computer memory and I/O subsystems will be discussed. The laboratory is designed to reinforce the lectures by providing the opportunity to study the workings of a simple computer system in detail using simulation models and real hardware. Students will write and execute assembly language programs and make use of commercial design automation tools.

EGRE 365. Digital Systems. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 246 and 254, both with a minimum grade of C. Corequisite: EGRE 364. Focuses on the design of modern digital systems. Topics covered include: introduction to modeling, simulation, synthesis and FPGA design techniques using VHDL; microprocessor peripherals and interfacing; embedded system hardware and software design issues.

EGRE 404. Senior Design Studio I (Laboratory/Project Time). 2 Hours.

Semester course; 6 laboratory hours. 2 credits. Prerequisites: for electrical engineering majors: EGRE 207, EGRE 246, EGRE 254 and EGRE 335; and completion of three from: EGRE 306, EGRE 309, EGRE 310, EGRE 337 and EGRE 364, or completion of EGRE 347, EGRE 364 and EGRE 365; for computer engineering majors: EGRE 207, EGRE 335, EGRE 347, EGRE 364 and EGRE 365. Corequisite: any electrical or computer engineering technical elective. All prerequisite courses must be completed with a minimum grade of C. Enrollment is restricted to students with senior standing in electrical engineering or computer engineering and participation in a senior design (capstone) project. A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project, which should meet appropriate engineering standards and multiple realistic constraints. Tasks include team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

EGRE 405. Senior Design Studio II (Laboratory/Project Time). 2 Hours.

Semester course; 6 laboratory hours. 2 credits. Prerequisite: EGRE 404 with a minimum grade of C. Enrollment is restricted to students with senior standing in electrical engineering or computer engineering and participation in a senior design (capstone) project. A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project, which should meet appropriate engineering standards and multiple realistic constraints. Tasks include team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

EGRE 406. Senior Design Studio I - VIP (Laboratory/Project Time). 2 Hours.

Semester course; 6 laboratory hours. 2 credits. Prerequisites: for electrical engineering majors: EGRE 207, EGRE 246, EGRE 254, EGRE 335, and three credits of ENGR 497 during the two semesters prior to enrollment; and completion of three from: EGRE 306, EGRE 309, EGRE 310, EGRE 337 and EGRE 364, or completion of EGRE 347, EGRE 364 and EGRE 365; for computer engineering majors: EGRE 207, EGRE 335, EGRE 347, EGRE 364, EGRE 365 and three credits of ENGR 497 during the two semesters prior to enrollment. Corequisite: any electrical or computer engineering technical elective. All prerequisite courses must be completed with a minimum grade of C. Enrollment is restricted to students with senior standing in electrical engineering or computer engineering, and participation in a senior design (capstone) project associated with their vertically integrated project team. A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project, which should meet appropriate engineering standards and multiple realistic constraints. Tasks include team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

EGRE 407. Senior Design Studio II - VIP (Laboratory/Project Time). 2 Hours.

Semester course; 6 laboratory hours. 2 credits. Prerequisite: EGRE 406 with a minimum grade of C. Enrollment is restricted to students with senior standing in electrical engineering or computer engineering and participation in a senior design (capstone) project associated with their vertically integrated project team. A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project, which should meet appropriate engineering standards and multiple realistic constraints. Tasks include team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

EGRE 426. Computer Organization and Design. 3 Hours.

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: EGRE 364 or CMSC 311 with a minimum grade of C. This course presents the foundation for computer design at the register transfer level. Starting from an instruction set architecture, students will learn the process used to design a data path and control unit to implement that instruction set. In addition, the topics of computer components and structures, data paths and control unit organizations, I/O and memory systems, interrupt systems, pipelining, and multiprocessing will be discussed. In addition to reinforcing the lecture material, the laboratory exercises will teach students the art of modeling and designing computer system components using a hardware description language.

EGRE 428. Introduction to Integrated Systems Design. 2 Hours.

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisites: EGRE 364 and EGRE 365, both with a minimum grade of C. This course provides an introduction to senior capstone design for computer engineers. Topics include hardware/software project design methodologies, integrated hardware and software design tools, life cycle costs analysis and requirements and specification analysis. Students are also introduced to concepts and design tools for FPGA and system-on-a-chip devices. Lectures are intended to support tasks required to execute a successful senior capstone experience. These tasks include, but are not limited to, project configuration management, customer interaction skills, requirements elicitation, simulation, procurement, design, testing and validation.

EGRE 429. Advanced Digital Systems Design. 2 Hours.

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisite: EGRE 428 with a minimum grade of C. This course provides students with theoretical and practical foundations for advanced embedded systems design and cyber physical system applications. It extends the concepts introduced in EGRE 428. Special emphasis is placed on the design of advanced embedded computing platforms for cyber physical system applications. Topics covered include: introduction to cyber physical systems; cyber physical systems theory; FPGA and system-on-a-chip design environments; designing, developing and implementing cyber physical systems using FPGA and system-on-a-chip technology; real-time computing and operating systems; real-time sensor networks; engineering design standards; and verification and validation of complex designs. In the laboratory the students will use state-of-the-art system development tools to design, construct, test and verify a system-on-a-chip-based system to meet appropriate engineering standards and multiple realistic system constraints.

EGRE 435. Microscale and Nanoscale Fabrication. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 306 and EGRE 334, both with a minimum grade of C. This course presents the design tools and techniques for designing a fabrication process as well as a device design and layout for advanced microscale and nanoscale devices. A number of different types of device technologies are covered, incorporating electronic, micromechanical and microfluidic devices and sensors. In the laboratory section of the course, students work in design teams to develop a complete fabrication process and design layout for a microscale device to meet appropriate engineering standards and multiple realistic constraints. Computer simulations and computer-aided design tools are used in the final design. The laboratory section of this course accomplishes the design phase of the senior design capstone project, which is presented at the end of semester and fabricated in the subsequent course, EGRE 436.

EGRE 436. Advanced Microscale and Nanoscale Fabrication. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 435 with a minimum grade of C. This course presents a detailed analysis of the physics and modeling of the fundamental processes used in semiconductor processing. Emphasis is placed on the non-ideal effects that cause realistic processes to deviate from first order models, including second order effects such as interactions on the atomic level and the influence of crystal defects. Processes covered in detail include oxidation, diffusion, ion implementation, thin film deposition and plasma etching techniques.

EGRE 444. Communication Systems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 336 with a minimum grade of C. Design and analysis of analog and digital communication systems, pulse modulation, information and digital transmission, digital modulation, information theory and coding will be treated. Emphasis is placed on the student gaining an appreciation for and an understanding of the role of optimization and trade-offs by considering bandwidth requirements, signal-to-noise ratio limitations, complexity and cost of analog and digital communication systems.

EGRE 454. Automatic Controls. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: EGRE 335, EGMN 305 or EGMN 315 with a minimum grade of C. For computer engineering or electrical engineering majors, the prerequisite is EGRE 335 with a minimum grade of C. This course covers the design and analysis of linear feedback systems. Emphasis is placed upon the student gaining mathematical modeling experience and performing sensitivity and stability analysis. The use of compensators to meet systems design specifications will be treated. Topics include: an overview and brief history of feedback control, dynamic models, dynamic response, basic properties of feedback, root-locus, frequency response and state space design methods. The laboratory will consist of modeling and control demonstrations and experiments of single-input/single-output and multivariable systems, analysis and simulation using MATLAB/Simulink and other control system analysis/design/implementation software.

EGRE 455. Control Systems Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 454 with a minimum grade of C. This course covers the use of state space methods to model analog and digital linear and nonlinear systems. Emphasis is placed on the student gaining mathematical modeling experience, performing sensitivity and stability analysis and designing compensators to meet systems specifications. Topics treated will include a review of root locus and frequency design methods, linear algebraic equations, state variable equations, state space design and digital control systems (principles and case studies). The students will use complex dynamic systems for analysis and design.

EGRE 471. Power System Analysis. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 309 with a minimum grade of C. Provides a comprehensive overview of electrical power system operation and design. Students develop models and tools for investigating system behavior and have opportunities for using those tools in design processes. At the completion of the course students will be able to develop appropriate models for an interconnected power system, perform power flow analysis, economic dispatch, power system protection and controls. Students will also be able to write a basic power flow computer program.

EGRE 491. Special Topics. 1-5 Hours.

Semester course; variable hours. 1-5 credits. May be repeated with different topics for a total of 21 credits. Advanced study of a selected topic in electrical or computer engineering. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

EGRE 492. Independent Study in Electrical and Computer Engineering. 1-5 Hours.

Semester course; variable hours. 1-5 credits. May be repeated with different content for a total of 9 credits. Prerequisite: permission of the instructor. Students must submit a written proposal to be approved by the supervising instructor prior to registration. Investigation of specialized electrical or computer engineering problems through literature search, mathematical analysis, computer simulation and/or laboratory experimentation. Written and oral progress reports as well as a final report and presentation are required.

Engineering (ENGR)**ENGR 100. Engineering Student Success. 0 Hours.**

Semester course; seminar hours. 0 credits. Enrollment is restricted to new first-year students in the School of Engineering; required for students admitted conditionally. Students will meet for a 90-minute class once per week for five weeks. The course is dedicated to helping students understand the expectations and responsibilities of being a college student. Presentations will center on planning the semester, academic professionalism, study skills and test-taking strategies, financial literacy, health and wellness, time management, and the Honor Code. Seminars will be supplemented throughout the semester with online assignments to reinforce the discussions. Graded as pass/fail.

ENGR 101. Introduction to Engineering. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: admission to the School of Engineering or permission of instructor. Introduces basic circuits including resistors, diodes, transistors, digital gates and motors. Simple electromechanical systems are considered including motors, gears and wheels. The laboratory introduces fundamental circuit testing and measurement, and proper laboratory notebook writing; students are required to analyze, build and test a digitally controlled robot.

ENGR 111. Innovation Shop Training I. 0.5 Hours.

Semester course; 1 laboratory hour. 0.5 credits. Enrollment restricted to students in the School of Engineering. The course provides training on innovation shop safety, includes a tour of the shop, measuring and layout tools and techniques, use of general manual and powered hand tools. Students will be instructed on the use of a bench-top drill press, deburring and finishing tools, 3D printing, laser engraving and thermoforming equipment. Students need to achieve a minimum score of 76% in the class to attain Level I (Blue) certification. Only certified students have permission to use tools and equipment covered in this training. Graded as Pass/Fail.

ENGR 121. Engineering Fundamentals. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Open only to non-engineering majors in Certificate in Product Innovation program. Introduces engineering fundamentals to students from non-engineering disciplines. Particular focus is the engineering problem-solving process as applied to open-ended problems. Students will be introduced to the different types of engineering, examine engineering issues and apply the engineering problem-solving process.

ENGR 211. Innovation Shop Training II. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisite: ENGR 111. Enrollment restricted to students in the School of Engineering. The course provides training on machine/innovation shop safety, blueprint reading, measuring and layout tools and techniques, and use of general and powered hand tools. Students will be instructed on sawing, sanding, drilling and tapping operations, 3D printing and laser engraving/cutting equipment. Hands-on graded assignment is the part of the course.

ENGR 291. Special Topics in Engineering. 1-5 Hours.

Semester course; variable hours. 1-5 credits. Prerequisite: to be determined by the instructor. Specialized topics in engineering designed to provide a topic not covered by an existing course or program. General engineering or multidisciplinary. May be repeated with different content. Graded as pass/fail or normal letter grading at the option of the instructor. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

ENGR 296. Part-time Internship Experience. 0 Hours.

Semester course; 0 credit. Students may attempt this course a total of six times. Enrollment restricted to School of Engineering majors. The student works part time in an approved internship and must work a minimum of 90 hours, but less than 300 hours during the semester. The student works to meet learning objectives while gaining practical experience relevant to their major. The student completes assignments to document, assess and reflect on their learning experience. The supervisor and student both complete evaluations of the learning experience. Graded pass/fail.

ENGR 303. Junior Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. This course provides students an opportunity to explore business and leadership topics. Topics include the fundamentals of product design and new product development, manufacturing and quality systems, finances and financial reports, ethics in the workplace, intellectual property, teamwork, leadership and communications. Students will be assigned selected readings, written compositions and oral presentations. This course prepares the student to participate in the Engineering Laboratory/Manufacturing Internship.

ENGR 311. Innovation Shop Training III. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisite: ENGR 211. Enrollment is restricted to students with Level II (Red) certification. The Level III (Green) course provides basic training on set-up and operation of manual milling machines and the lathe. The course covers cutting tool, speed and feed calculation. Students must develop a technological process and machine metal parts per assigned drawings on vertical mill and lathe. They will also use other techniques and equipment that were covered in previous levels. Students need to achieve a minimum score of 76 % in the class to attain Level III (Green) certification. Only certified students have permission to use tools and equipment covered in this training.

ENGR 395. Professional Development. 1 Hour.

Semester course; 1 lecture and 1 workshop hour. 1 credit. Enrollment is restricted to majors in the School of Engineering. Professional development course to help prepare students to find a job and succeed in a professional environment, and specifically to work as an intern or in a cooperative education position. Topics covered include career paths; job searches; resume and cover letter writing; preparing for the interview; personal assessment of interests, values and strengths; networking; professional and ethical behavior on the job; overview of legal issues related to hiring, such as nondisclosure agreements and noncompete clauses; overview of personal finance management at the first job; workplace safety; and expectations and requirements for internships and cooperative education positions.

ENGR 396. Internship Experience. 0 Hours.

Semester course; 0 credit. Students may attempt this course a total of three times. Enrollment restricted to School of Engineering majors. The student works in an approved internship and must work a minimum of 300 hours during the semester. The student works to meet learning objectives while gaining practical experience relevant to their major. The student completes assignments to document, assess and reflect on their learning experience. The supervisor and student both complete evaluations of the learning experience. Graded pass/fail.

ENGR 398. Cooperative Education Experience. 0 Hours.

Semester course; 0 credits. Students may attempt this course a total of four times. Prerequisite: ENGR 395. Restricted to School of Engineering majors in good academic standing. The student works full-time in an approved cooperative education position. The student works to meet specific learning objectives while gaining practical experience relevant to their major. The student completes assignments to document, assess and reflect on their learning experience. The supervisor/mentor and student both complete midterm and final evaluations of the learning experience. Graded pass/fail.

ENGR 399. Cooperative Education Experience II. 3 Hours.

Semester course; 3 credits. Prerequisite: ENGR 398. Restricted to School of Engineering majors in good academic standing. A student that has completed at least one work term in a full-time approved cooperative education position completes an additional full-time work term. The student works to meet specific learning objectives while gaining practical experience relevant to their major. The student completes assignments to document, assess and reflect on their learning experience. The supervisor/mentor and student both complete midterm and final evaluations of the learning experience.

ENGR 402. Senior Design Studio (Seminar). 1 Hour.

Continuous courses; 1 lecture hour. 1-1 credit. Prerequisites: senior standing and participation in a senior design (capstone) project; completion of ENGR 402 to enroll in ENGR 403. This weekly seminar presents and discusses topics relevant to senior-level engineering students in support of the capstone project and upcoming graduation. A single course coordinator manages and administers the course and schedules the various faculty lectures and guest speakers. Topics include, but are not limited to, the following: proposal writing, project planning and management, scheduling resources and budgeting for technical projects, patents and intellectual property, quality systems (six sigma, ISO standards, statistical process control), entrepreneurship, creativity and innovation and professional registration.

ENGR 403. Senior Design Studio (Seminar). 1 Hour.

Continuous courses; 1 lecture hour. 1-1 credit. Prerequisites: senior standing and participation in a senior design (capstone) project; completion of ENGR 402 to enroll in ENGR 403. This weekly seminar presents and discusses topics relevant to senior-level engineering students in support of the capstone project and upcoming graduation. A single course coordinator manages and administers the course and schedules the various faculty lectures and guest speakers. Topics include, but are not limited to, the following: proposal writing, project planning and management, scheduling resources and budgeting for technical projects, patents and intellectual property, quality systems (six sigma, ISO standards, statistical process control), entrepreneurship, creativity and innovation and professional registration.

ENGR 410. Review of Internship. 1 Hour.

Semester course; 1 credit. Prerequisites: chemical, electrical and computer, or mechanical engineering major and experience to satisfy the engineering internship requirements. Students complete oral presentations and written reports summarizing the internship experience.

ENGR 411. Fundamentals of Engineering Exam Preparation. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: senior or graduate standing, or permission of instructor. This course prepares students for taking the fundamentals of Engineering Exam. Passing the FE Exam is the first step to getting a Professional Engineering license. This course is not intended to teach the various subject matters, but to review the subject areas and help students prepare as well as possible for the examination.

ENGR 490. Engineering Seminar. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated with different content. Prerequisite: permission of the instructor. A series of specialized topics in engineering that are of general interest but not covered by an existing course or program. Lectures will be presented in seminar format by speakers from business, industry, government and academia. Subjects will be multidisciplinary in nature. Graded as pass/fail or normal letter grading at the option of the instructor.

ENGR 491. Special Topics in Engineering. 1-5 Hours.

Semester course; variable hours. 1-5 credits. Prerequisite: determined by the instructor. Specialized topics in engineering designed to provide a topic not covered by an existing course or program. General engineering or multidisciplinary. May be repeated with different content. Graded as pass/fail or normal letter grading at the option of the instructor. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

ENGR 492. Independent Study in Engineering. 1-5 Hours.

Semester course; variable hours. 1-5 credits. May be repeated with different content. Prerequisite: permission of the instructor. Students must submit a written proposal to be approved by the supervising instructor prior to registration. Investigation of specialized engineering problems that are multidisciplinary or of general interest through literature search, mathematical analysis, computer simulation and/or laboratory experimentation. Written and oral progress reports as well as a final report and presentation are required. Graded as pass/fail or normal letter grading at the option of the instructor.

ENGR 496. Internship Review. 0 Hours.

Semester course; 0 credits. Prerequisite: ENGR 296 or ENGR 396. Restricted to School of Engineering majors. This course is to be taken following the completion of a minimum of 300 hours of approved internship experience relevant to the student's major and documents that a student has fulfilled all internship requirements, including a final evaluation by the employer, a final self-evaluation, a final report describing the experience and a final oral presentation about the experience. Graded pass/fail.

ENGR 497. Vertically Integrated Projects. 2 Hours.

Semester course; 3 or 6 laboratory hours. 0, 1 or 2 credits. May be repeated for a maximum total of eight credits. Enrollment requires permission of the project faculty adviser. This course provides undergraduate students the opportunity to participate in multiyear, multidisciplinary projects under the guidance of faculty and graduate students in their areas of expertise. As they address research and development issues, students learn and practice many different professional skills, make substantial technical contributions to the project, and experience many different roles on a large, multidisciplinary design/discovery team. Students must earn a minimum of four credits in this course with a minimum grade of C in order for these credits to be eligible to count toward a technical or departmental elective. More restrictive requirements may be imposed by individual departments. Note: When the limit allowed by the specific department is reached, students can continue to be engaged through the zero-credit option.

ENGR 498. Review of Cooperative Education Experience. 0 Hours.

Semester course; 0 credits. Prerequisite: ENGR 398. Restricted to School of Engineering majors. This course is completed following the final work term of a cooperative education experience and is required to obtain transcript notation to document that a student has fulfilled all the requirements of the school's cooperative education program. The requirements include a final evaluation by the employer, a final self-evaluation, a final report describing the experience and a final oral presentation about the experience.

Mechanical and Nuclear Engineering (EGMN)**EGMN 102. Engineering Statics. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 200 with a minimum grade of C or permission of instructor. Corequisite: PHYS 207 or permission of instructor. The theory and application of engineering mechanics applied to the design and analysis of rigid structures. Equilibrium of two- and three-dimensional bodies. The study of forces and their effects. Applications to engineering systems.

EGMN 103. Mechanical and Nuclear Engineering Practicum I. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. Students will perform a sequence of laboratory modules designed to provide practical hands-on exposure to important topics, equipment and experimental methods in mechanical and nuclear engineering. Topics covered include communication, optimization, reverse engineering, mechanics, thermodynamics and electric circuits.

EGMN 110. Engineering Visualization. 2 Hours.

Semester course; 1 lecture and 2 laboratory hours. 2 credits. Enrollment is restricted to mechanical engineering majors or with permission of the instructor. The creation and interpretation of graphical communication for engineering students. Two- and three-dimensional part an assembly representation. Dimensioning and tolerancing as a link between design and manufacturing. An introduction to solid modeling and virtual prototyping. The course will impart proficiency in computer-aided design applications of fundamental and practical importance to engineering students.

EGMN 111. Great Inventions: How They Work and Their Impact on Society. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course explores how creativity and innovation have led to a broad range of significant engineering inventions in areas such as engines, mechanical flight and rockets, electrification, engineering materials, mass production, industrial agriculture, computers, telecommunications, medical devices, refrigeration, and clean and sustainable energy, including nuclear energy. The course discusses the historical context for each invention, how the invention works and the impact of the invention on society.

EGMN 190. Introduction to Mechanical and Nuclear Engineering. 1 Hour.

Semester course; 1 lecture hour. 1 credit. The course will introduce students to the engineering profession, present basic mechanical and nuclear engineering concepts and include seminars presented by alumni, industry and experts in their fields.

EGMN 201. Dynamics and Kinematics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 207, EGMN 102 and MATH 201, with a minimum grade of C in each, or permission of the instructor. Kinematics and kinetics of particles. Kinematics of rigid bodies; translation and fixed-axis rotation relative to translating axes, general planar motion, fixed-point rotation and general motion. Kinetics of rigid bodies: center of mass, mass moment of inertia, product of inertia, principal-axes, parallel-axes theorems. Planar motion, work-energy method. Design of cams, gears and linkages.

EGMN 202. Mechanics of Deformables. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGMN 102 and MATH 201, with a minimum grade of C in both, or permission of the instructor. An introductory course covering the mechanics of deformable solids. Subjects include stress, strain and constitutive relations; bending of beams; torsion; shearing; deflection of beams; column buckling; fatigue; failure theory; analysis and design of bar-type members.

EGMN 203. Mechanical and Nuclear Engineering Practicum. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. Students will perform a sequence of laboratory modules designed to provide practical hands-on exposure to important topics, equipment and experimental methods in mechanical and nuclear engineering. Topics covered include additive manufacturing, radiation detection and measurement, radiation shielding, data acquisition and computer interfacing, coding for instrumentation control.

EGMN 204. Thermodynamics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 207 and MATH 201 with a minimum grade of C in both, or permission of the instructor. Fundamental concepts of thermodynamics; first and second law of thermodynamics; entropy and equilibrium; equations of state; properties of pure fluids; molecular interpretation of thermodynamic properties; phase equilibria; work and heat; power cycles; chemical reactions.

EGMN 210. Computational Methods. 2 Hours.

Semester course; 1 lecture and 2 laboratory hours. 2 credits. Prerequisite: MATH 200 with a minimum grade of C. Enrollment is restricted to mechanical engineering majors or with permission of the instructor. This course focuses on engineering problem-solving skills using computational methods, including Excel and MATLAB programming. Topics include analytical and algorithmic solutions, data representation, pseudocodes, loops and logical branching, plotting data, finding the roots of equations, matrix mathematics, and solving simultaneous equations.

EGMN 215. Engineering Visualization and Computation. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Enrollment restricted to mechanical engineering majors or with permission of the instructor. Programming in Excel and MATLAB will be introduced. The creation and interpretation of graphical communication for engineering students. Two- and three-dimensional part and assembly representations. Dimensioning and tolerancing as a link between design and manufacturing. An introduction to solid modeling and virtual prototyping. The course will impart proficiency in computer and graphical applications of fundamental and practical importance to engineering students.

EGMN 300. Mechanical Systems Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGMN 201 and EGMN 202, with a minimum grade of C in both, or permission of the instructor. Basic principles of applied mechanics and materials employed for the design of machine elements and mechanical systems; state of stress, deformation and failure criterion is applied to bearings, brakes, clutches, belt drives, gears, chains, springs, gear trains, power screws and transmissions.

EGMN 301. Fluid Mechanics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 207 and EGMN 204, with a minimum grade of C in each, or permission of instructor. Corequisite: MATH 301 or permission of instructor. Basic and applied fluid mechanics; fluid properties; application of Bernoulli and Navier-Stokes equations; macroscopic mass, momentum and energy balances; dimensional analysis; laminar and turbulent flow; boundary layer theory; friction factors in pipes and packed beds; drag coefficients; compressible flow; flow measurements; numerical simulation; applications to the operation and design of turbo machinery.

EGMN 302. Heat Transfer. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGMN 204 and EGMN 301, MATH 301 and MATH 307, with a minimum grade of C in each, or permission of instructor. This course includes an overview of the basic modes of heat transfer: conduction, convection and radiation. It provides an in-depth discussion of transient and steady-state heat conduction in one-, two- and three-dimensional space, and both analytical and numerical approaches are discussed. Additional concepts include free and forced convection in external and internal flow configurations.

EGMN 303. Thermal Systems Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301, EGMN 204 and EGMN 301, with a minimum grade of C in each, or permission of the instructor. Fundamentals of heat transfer, thermodynamics and fluid mechanics applied to the analysis, design, selection and application of energy conversion systems.

EGMN 305. Sensors/Measurements. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301 with a minimum grade of C, PHYS 208 and STAT 541; or permission of instructor. Introduction to sensors and their utilization for measurement and control; sensor types: electromechanical, electro-optical, electro-chemical; applications in medicine, chemical manufacturing, mechanical control and optical inspection.

EGMN 309. Material Science for Engineers. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CHEM 101 or permission of instructor. The study of materials from a microscopic or atomic level. Consideration of mechanical, electrical, thermal, magnetic and optical properties of metals, ceramics, polymers and composites. Thermal processing for modification of properties, dislocation and phase transformation. Material selection for design with consideration of economic, environmental and societal issues.

EGMN 311. Solid Mechanics Lab. 1.5 Hour.

Semester course; 0.5 lecture and 3 laboratory hours. 1.5 credits. Prerequisites: EGMN 201 and EGMN 202, both with a minimum grade of C, or permission of the instructor. Corequisite: UNIV 200 or HONR 200. Experiments will be conducted on fundamental principles of solid mechanics, materials and dynamics. Topics covered include testing of materials for tensile, compression, bending and torsional loads, vibrations and material microstructure.

EGMN 312. Thermal Sciences Lab. 1.5 Hour.

Semester course; 0.5 lecture and 3 laboratory hours. 1.5 credits. Prerequisites: EGMN 301; and UNIV 200 or HONR 200, each with a minimum grade of C, or permission of the instructor. Experiments will be conducted on fundamental principles of fluid mechanics, thermodynamics and heat transfer. Topics covered include hydrostatics, Bernoulli equation, impact jets, aerodynamic force, heat pump thermodynamics cycles, heat exchangers and convection heat transfer.

EGMN 315. Process and Systems Dynamics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301, EGRE 206, EGMN 201 and PHYS 207, all with a minimum grade of C; or permission of instructor. Undergraduate course covering the analysis of chemical, fluid, mechanical and electrical dynamic systems. Pedagogically, a single approach is taught that applies to any of the systems in any of these disciplines using conservation equations and constitutive relationships to build the systems of differential equations needed for the analysis. The mathematical structures of the types of differential equations typically generated in dynamic physical systems are reviewed and both analytical and numerical solution techniques are taught. Finally, the tools used to develop control components for systems in these areas are covered along with the mathematical tools (e.g., Laplace transforms) needed for their analysis.

EGMN 321. Numerical Methods. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301; and EGMN 215 or EGMN 210, all with minimum grades of C, or permission of instructor. A study of numerical algorithms used in error analysis, computing roots of equations, solving linear algebraic equations, curve fitting, numerical differentiation and integration, numerical methods for ordinary differential equations and a brief introduction to numerical methods for partial differential equations. The course content is tailored for mechanical engineering applications.

EGMN 351. Nuclear Engineering Fundamentals. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Restricted to mechanical engineering majors. Prerequisite: MATH 200 with a minimum grade of C or permission of the instructor. An introductory course to familiarize students with the concepts, systems and application of nuclear energy. Topics include radioactivity, fission, fusion, reactor concepts, biological effects of radiation, nuclear propulsion and radioactive waste disposal. Designed to provide students with a broad perspective of nuclear engineering.

EGMN 352. Nuclear Reactor Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301; and EGMN 359 or EGMN 455 with a minimum grade of C; or permission of instructor. This course introduces the fundamental properties of the neutron, the reactions induced by neutrons, nuclear fission, the slowing down of neutrons in infinite and finite media, diffusion theory, the 1-group or 2-group approximation, point kinetics, and fission-product poisoning. Provides students with the nuclear reactor theory foundation necessary for reactor design and reactor engineering problems.

EGMN 355. Radiation Safety and Shielding. 3 Hours.

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: EGMN 351 with a minimum grade of C, or permission of instructor. Fundamentals of radiation safety and shielding with focus on sources of radioactivity, interaction of radiation with matter, biological effects of radiation, dosimetry, attenuation of gamma rays and neutrons and effectiveness of shielding methods.

EGMN 356. Nuclear Instrumentation and Measurements. 3 Hours.

Semester course; 6 laboratory hours. 3 credits. Prerequisite: EGMN 355 with a minimum grade of C or permission of instructor. Provides an in-depth study of radiation detection systems. Students will understand both the practical operation of detection systems as well as the physical processes involved in radiation detection, attenuation and shielding.

EGMN 359. Nuclear Power Plants. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGMN 351 with a minimum grade of C. Corequisite: EGMN 204 or permission of instructor. Design and analysis of nuclear power plants – both existing and planned. Topics include survey of reactor types and common design characteristics; the conversion of thermal energy to electricity; the control and operation of nuclear reactors through an analysis of the coupling of the reactors and the power plant; reactor transient analysis; and nuclear safety design.

EGMN 401. Mechanical Engineering Leadership. 3 Hours.

Semester course; 9 laboratory hours. 3 credits. Enrollment restricted to students with junior or senior standing in mechanical engineering and permission of the instructor. Senior/junior students will serve as lab teaching assistants in EGMN 110, EGMN 203, EGMN 210, EGMN 311 or EGMN 312. Leadership skills will be honed as the senior/junior students guide, lead and supervise other students as they complete hands-on learning modules and/or design, conduct, analyze and report on experiments in one of these lab courses.

EGMN 402. Senior Design Studio (Laboratory/Project Time). 2 Hours.

Semester course; 6 laboratory hours. 2 credits. Prerequisite: UNIV 200 or HONR 200; EGMN 300 or EGMN 303; EGMN 420; and four courses from EGMN 300, EGMN 301, EGMN 302, EGMN 303, EGMN 315, EGMN 321, EGMN 352, EGMN 355, EGMN 416 and EGMN 421. All prerequisite courses must be completed with minimum grades of C. Enrollment is restricted to students with senior standing participating in a senior design (capstone) project. A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project, which should meet appropriate engineering standards and multiple realistic constraints. Tasks include team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

EGMN 403. Senior Design Studio (Laboratory/Project Time). 2 Hours.

Continuous course; 6 laboratory hours. 2 credits. Prerequisite: senior standing and participation in a senior design (capstone) project; EGMN 402. A minimum of six laboratory hours per week dedicated to continuing the execution phase of the senior design (capstone) project, which should meet appropriate engineering standards and multiple realistic constraints. Tasks include team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

EGMN 416. Mechatronics. 3 Hours.

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: EGRE 206 with a minimum grade of C, or permission of instructor. Lecture materials and laboratory experiments focus on the fundamentals of design-oriented mechanical, electrical and computer systems integration. Specifically, students learn analog and digital electronic design, data acquisition, transducers, actuator technologies and control, design with microprocessors and embedded electronics, and application of control theory.

EGMN 418. HVAC: Heating, Ventilation and Air Conditioning. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGMN 301, EGMN 302 and EGMN 303. Introduction to the fundamentals of HVAC systems, including basic terminology, psychometrics, HVAC system components, types of HVAC systems for various building requirements, physiological considerations and environmental indices, control of thermal comfort and indoor air quality, heat gain or loss in spaces to be conditioned, basic heating and cooling load calculations.

EGMN 420. CAE Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGMN 201 and either EGMN 215 or both EGMN 110 and EGMN 210, all with minimum grades of C, or permission of the instructor. Review of geometric modeling, engineering visualization tools applicable to engineering design. Develop visual thinking and communication skills with assistance of computer modeling tools. Emphasis placed on creative design, application of physical laws, and hands-on virtual or physical projects. Topics include review of kinematics/dynamics of commonly used planar mechanisms and programming techniques for motion simulation. Interdisciplinary projects will be assigned to assess students' design knowledge.

EGMN 421. CAE Analysis. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: EGMN 202; either EGMN 215 or both EGMN 110 and EGMN 210; and MATH 301 and MATH 307, all with minimum grades of C, or permission of the instructor. Application of computer-aided techniques to the analysis of engineering problems utilizing linear algebra, computer calculations of matrices and numerical solution of governing differential equilibrium equations common to all fields of engineering. Students will be exposed to formulations of finite element methods of analysis. Emphasis is placed on practical aspects of structural FE modeling. Analysis programs such as ANSYS, MSC/PATRAN, MSC/NASTRAN and/or MATLAB are utilized.

EGMN 422. Design and Additive Manufacturing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGMN 420 or permission of the instructor. Design and additive manufacturing is the use of layer-based processes for producing parts directly from computer-aided design models without part-specific tooling. In this course students will learn about various AM technologies focusing upon their potential to support rapid prototyping and manufacturing processes coupled with the important research challenges associated with AM. This course will expand students' knowledge in design and applied engineering as they model, fabricate, test, discuss and iterate upon mechanical 3D objects they design throughout the semester.

EGMN 425. Introduction to Manufacturing Systems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: senior standing in the School of Engineering or permission of the instructor. Basic principles of systems analysis and modeling applied to manufacturing processes and operations; numerical control, programmable controllers, flexible manufacturing systems, group technology, process planning and control, modeling and simulation of factory operations.

EGMN 426. Manufacturing Processes. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: senior standing in the School of Engineering or permission of the instructor. Introduction to the operation and design of metal fabrication processes; analysis of metal casting, extrusion, rolling, forging, wire and rod drawing; review of metal removal and joining methods; economic and business considerations.

EGMN 427. Robotics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: senior standing in the School of Engineering or permission of the instructor. Introduction to the state-of-the-art and technology of robotics and its applications for productivity gain in industry.

EGMN 428. Polymer Processing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGR 301 and 302, with a minimum grade of C in both, or permission of the instructor. Basic principles of momentum and heat transfer applied to the analysis of polymer processing operations; introduction to polymer rheology; operation and design aspects of extruders, blown film, injection molding, thermoforming and compression molding machinery.

EGMN 435. Design for Manufacturing and Assembly. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: senior standing in the School of Engineering or permission of the instructor. Methodologies used in the synthesis and analysis of product design in order to optimize manufacturing and assembly; relationship of design to the production processes, materials handling, assembly, finishing, quality and costs with emphasis on both formed and assembled products.

EGMN 436. Engineering Materials. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: senior standing in the School of Engineering or permission of the instructor. Materials properties and their modification as related to engineering properties and design; elastic and plastic stress-strain behavior of materials along with diffusion in solids, phase equilibria, and phase transformations; materials selection considerations include design, fabrication, mechanical failure, corrosion, service stability as well as compatibility and function in the human body.

EGMN 437. Principles of Polymer Engineering. 3 Hours.

Semester course; 3 lecture and 1 laboratory hours. 3 credits. Prerequisites: EGMN 202 with a minimum grade of C, or permission of the instructor. Basic principles of mechanics applied to the mechanical design and fabrication of polymers; introduction to polymer structure, rubber elasticity, and viscoelasticity; mechanical properties, plastic part design and plastic materials selection; fabrication processes.

EGMN 450. Nuclear Reactor Control and Dynamics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301, EGMN 201 and EGMN 455, with a minimum grade of C in each, or permission of instructor. An introduction to control theory and its applications for nuclear engineering students. Modeling and development of differential equations for nuclear systems. Analysis of nuclear reactor dynamics in the time and frequency domains. Application of feedback control techniques to reactor operation, stability and performance.

EGMN 451. Nuclear Safety and Security. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGMN 455 with a minimum grade of C, or permission of the instructor. A study of technological risks and security issues related to nuclear power. Analysis of nuclear reactor system components and operational features that are relevant to safety; reactor containment; safety analysis of nuclear power plants using deterministic and probabilistic models; methods for human, environmental and ecological risk assessment; NRC regulations and procedures; safeguarding against natural (earthquake, tornadoes) and human (domestic and international) threats; classification and consequences of accidents including historical case studies.

EGMN 453. Economics of Nuclear Power Production. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGMN 359 or EGMN 455 with a minimum grade of C, or permission of instructor. Fundamentals of engineering economic analysis are applied to energy supply, demand, prices and production with specific emphasis on nuclear energy, the capital cost of nuclear power plants, the nuclear fuel cycle and associated energy technologies.

EGMN 455. Nuclear Power Plants. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGMN 204 and EGMN 352, each with a minimum grade of C, or permission of instructor. Design and analysis of nuclear power plants. Review of thermodynamic cycles and reactor types; analysis of the coupling of the reactor and the power plant; thermal and mechanical design of steam turbines; turbogenerators; auxiliary systems; design synthesis and heat balance calculations; operation of nuclear reactors.

EGMN 456. Reactor Design and Systems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGMN 302, EGMN 303 and EGMN 352; and EGMN 359 or EGMN 455, all with a minimum grade of C; or permission of instructor. Engineering principles of nuclear reactors, emphasizing power reactors. Specific topics include power plant thermodynamics, reactor heat generation and removal (single-phase as well as two-phase coolant flow and heat transfer), and structural mechanics. The course also covers engineering considerations in reactor design.

EGMN 491. Special Topics in Engineering. 1-5 Hours.

Semester course; variable hours. 1-5 credits. May be repeated with different content. Prerequisite: determined by the instructor. Specialized topics in engineering designed to provide a topic not covered by an existing course or program. General engineering or multidisciplinary. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

EGMN 492. Independent Study in Engineering. 1-5 Hours.

Semester course; variable hours. 1-5 credits. May be repeated with different content. Enrollment requires permission of the instructor. Students must submit a written proposal to be approved by the supervising instructor prior to registration. Investigation of specialized engineering problems that are multidisciplinary or of general interest through literature search, mathematical analysis, computer simulation and/or laboratory experimentation. Written and oral progress reports as well as a final report and presentation are required.

College of Health Professions

Allied Health Professions (ALHP)

ALHP 202. Creative Expressions of Healing and Resilience. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will take students on a journey exploring ways that people from diverse backgrounds use creative expression (e.g. story, poetry, painting, drawing, dance, music, etc.) to help them define the meaning of life events. During the course, students will explore creative expression from a variety of people who have experienced some major life event and have used creative expression as a part of their healing. In addition, students will have the opportunity to discover their own voice in creative expression through a variety of interactive exercises.

ALHP 300. Communication Strategies in Health Services. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course explores the principles of effective communication in health services. Students will discuss the tenets of relationship-centered care and how communication promotes healthy interpersonal relationships between their clients/patients, their colleagues and within themselves. Students will learn key communication techniques to help develop rapport and relationships. Students will also have an opportunity to engage in working through conflict resolution and facilitating challenging and sensitive conversations.

ALHP 310. Introduction to Health Care Professions. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Provides an introduction to health professions and careers with an emphasis on allied health. Introduces concepts of professionalism and interprofessional collaboration in the health care services environment; basic knowledge of issues and trends in health promotion and delivery; and cultural and economic factors impacting health equity and access.

ALHP 320. Person-centered Care. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Provides an introduction to person-centered care and examines the relationships between patients, their families and health care providers. Emphasizes the role that these relationships and interactions play in the current health care services system and how they lead to better quality of care, increased satisfaction with health care providers and improved health outcomes. Introduces concepts of professionalism and interprofessional collaboration in the health care services environment; basic knowledge of issues and trends in health promotion and delivery; and cultural and economic factors impacting health equity and access.

ALHP 325. Introduction to Rehabilitation Services. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Provides an overview of rehabilitative services. Familiarizes students in the areas of chronic illness and disability in interdisciplinary rehabilitation professions and settings. Introduces public policy and legislation pertinent to rehabilitation services.

ALHP 330. Human Growth and Development for the Health Professions. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Examines the major theories and research of human development across the lifespan. Focuses on physical, emotional, social and cognitive aspects. Emphasizes how developmental processes relate to persons, including those who experience illness and disability.

ALHP 340. Health Care Technology and Innovation. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Emphasizes the "hows and whys" of recent advances and disrupters in health care information systems. Students will design a life-saving (or money-making) app.

ALHP 391. Special Topics. 1-4 Hours.

Semester course; 1-4 credits. Prerequisite: permission of instructor. Offered for undergraduate level. Interdisciplinary study through lectures, tutorial study or independent research of selected topics not provided in other courses.

ALHP 410. Professional and Clinical Ethics. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Emphasizes the ethical responsibility of health care providers and health services professionals. Discusses the role of professions' codes of ethics and the role of personal values. Provides students with tools to navigate ethical problems and tensions in the health care environment.

ALHP 415. Health Care Financing and Budgeting. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Examines payment for health care services. Shows how the results of financial operations are recorded and evaluated. Develops basic skills for financial management of health care organizations.

ALHP 416. Health Care Economics. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Prerequisite: ECON 210. This course introduces basic knowledge of microeconomics principles/concepts/theories as tools for understanding health and health care issues, explores the fundamentals of health and health services as markets, as well as how these may differ from markets for other goods and services. In addition, this course discusses market failure and the role of government in the demand and supply sides of health care. Finally, this course introduces basic concepts of economic evaluation methods in health care where students will learn the meaning of equity and efficiency in the health care system.

ALHP 420. Positive Organizational Leadership Development. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Focuses on the development of leadership skills. Introduces students to positive organizational scholarship and its impact on organizational performance/outcomes and employee engagement. Provides students with an opportunity to identify and develop their leadership characteristics.

ALHP 425. Health Care Management and Performance. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Examines the role of managers in health care organizations and effective management of organizational performance, including quality.

ALHP 430. Overview of Research in the Health Professions. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Prerequisites: UNIV 200 and STAT 210. Emphasizes the preparation of professionals as consumers of research who will find, understand, interpret and apply research findings in their professional practice. Stresses the capacity to critically analyze and utilize research findings and evaluate the outcomes of programs, interventions and services.

ALHP 435. Health Care Career Development and Planning in Allied Health Professions. 3 Hours.

Semester course; 2 lecture (delivered online or face-to-face) and 1 field experience hours (60 service hours). 3 credits. Prerequisite: ALHP 310. Emphasizes the preparation of students for job search or future professional and educational opportunities. Provides an opportunity for service learning and relevant experiential, applied learning in a health services field. Graded as satisfactory/unsatisfactory.

Clinical Laboratory Sciences (CLLS)**CLLS 201. Introduction to Clinical Laboratory Science. 1 Hour.**

Semester course; 1 lecture hour. 1 credit. Open to students on the Monroe Park Campus who are interested in clinical laboratory science/medical technology as a career. Presentation and discussion of clinical laboratory science including an introduction to each of the specific areas of concentration, job opportunities in the profession and a tour of a hospital laboratory. Graded as pass/fail.

CLLS 202. Introduction to Infectious Disease and Societal Impacts. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits. Presentation and discussion of infectious diseases and the impact that these diseases have had on the way that we live. Recent and historical infectious disease outbreaks will be discussed, including transmission, prevention and outcomes. Changes that occurred in society due to these outbreaks will also be discussed.

CLLS 300. Basic Concepts. 1.5 Hour.

Semester course; 1 lecture and 1 laboratory hours. 1.5 credits. An introduction to the basic concepts/techniques applicable to all laboratory science areas. Includes optical physics, quality control, laboratory safety, medical terminology and pipetting techniques along with other basic subjects.

CLLS 301. Hematology. 1.5-3.5 Hours.

Semester course; 2 lecture and 3 laboratory hours. 1.5-3.5 credits. May be repeated for 3.5 credits. Enrollment restricted to CLS majors. Provides a study of the blood and blood-forming tissues. Focuses on basic hematologic techniques and accurate identification of normal and abnormal hematologic cells. Introduces the hemostatic mechanism. Correlates the roles of normal hematologic cells with normal hematologic homeostasis. This course qualifies for the option of proficiency credits for certified medical laboratory technicians.

CLLS 302. Abnormal Hematology. 1.5-4 Hours.

Semester course; 2.5 lecture and 3 laboratory hours. 1.5-4 credits. May be repeated for a total of 4 credits. Prerequisite: CLLS 301. Enrollment restricted to CLS majors. Provides a study of the blood and blood-forming tissues. Focuses on basic hematologic techniques and normal and abnormal cell identification accuracy. Correlates the roles of abnormal cells with pathological conditions. Focuses on abnormal hemostasis. This course qualifies for the option of proficiency credits for certified medical laboratory technicians.

CLLS 304. Urine and Body Fluid Analysis. 1-2 Hours.

Semester course; 1.5 lecture and 1 laboratory hours. 1-2 credits. A study of the principles and practices of urinalysis, kidney function, cerebrospinal fluid and other body fluids.

CLLS 306. Immunohematology. 2.5-4.5 Hours.

Semester course; 2.5 lecture and 4 laboratory hours. 2.5-4.5 credits. Prerequisite: CLLS 310. A study of the theory and principles of blood banking with an emphasis on methods and techniques used in the laboratory for cell typing, cross-matching and antibody identification.

CLLS 307. Introduction to Pathogenic Microbiology. 1-3 Hours.

Semester course; 3 lecture hours. 1-3 credits. May be taken as 1 credit each for study of basic parasitology, mycology or virology. Includes fundamentals of parasites, fungi and viruses as potentially pathogenic microorganisms.

CLLS 308. Pathogenic Bacteriology. 3-5 Hours.

Semester course; 3 lecture hours and 4 laboratory hours. 3-5 credits. Emphasis is placed on pathogenic bacteria, techniques, pathogenesis, epidemiology, isolation and identification, and antimicrobial susceptibility testing.

CLLS 310. Clinical Immunology. 3-4.5 Hours.

Semester course; 3.5 lecture and 2 laboratory hours. 3-4.5 credits. Introduces the basic principles of immunology, serology and molecular diagnostics. Emphasis is placed on laboratory evaluation of the immune response including both cellular and humoral aspects. Serologic techniques are practiced in the laboratory sessions.

CLLS 311. Clinical Chemistry and Instrumentation I. 3-5 Hours.

Semester course; 3 lecture and 4 laboratory hours. 3-5 credits. A study of human physiology and metabolism in health and various disease states. Topics include energy and nitrogen metabolism and proteins in body fluids. Emphasis is placed on the application of quantitative analytical methods and instrumentation for the chemical characterization of body fluids to provide clinically useful information for the diagnosis and treatment of diseases.

CLLS 312. Clinical Chemistry and Instrumentation II. 4-5 Hours.

Semester course; 4 lecture and 2 laboratory hours. 4-5 credits.

Prerequisite: CLLS 311 or permission of the instructor. A study of human physiology and metabolism in health and various disease states. Topics include water and ion balance, clinical enzymology, therapeutic drug monitoring, and toxicology. Emphasis is placed on the application of quantitative analytical methods and instrumentation for the chemical characterization of body fluids to provide clinically useful information for the diagnosis and treatment of diseases.

CLLS 337. Clinical Education. 1 Hour.

Semester course; 120 clock hours. 1 credit. Supervised clinical experience in hospitals across the state is designed to give the student a broader clinical education and to provide venipuncture experience. In addition to the application of academically acquired knowledge, this affiliation provides an opportunity for the student to correlate each area of study into one composite picture for final laboratory diagnosis. Closer working relationships with other allied health personnel is an important aspect of this affiliation. Graded as pass/fail.

CLLS 407. Interpretive Immunoematology. 2-2.5 Hours.

Semester course; 2.5 lecture hours. 2-2.5 credits. Prerequisites: CLLS 306 and 310, or permission of instructor. Advanced study of the principles of immunoematology and immunology with major emphasis on blood group systems and blood components. Includes the application of laboratory data and techniques to solve problems in blood banking and immunology.

CLLS 408. Advanced Microbiology. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLLS 307 and 308, or permission of instructor. Advanced study of the principles of pathogenic microbiology. Includes the application of laboratory data and techniques to solve problems in the clinical microbiology laboratory.

CLLS 409. Interpretive Hematology. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLLS 301-302 and 485, or permission of instructor. Advanced study of the principles of hematopoiesis and their pathophysiological correlation to hematological disorders. Interpretation of morphological findings are correlated with case histories. Includes homeostatic problems.

CLLS 410. Advanced Clinical Chemistry and Instrumentation. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLLS 311-312, or permission of instructor. Presents an advanced study of (1) the principles of clinical chemistry as related to intermediary metabolism and pathology and (2) laboratory and hospital information systems. Includes the application of laboratory data and technologies to solve problems in analytical methods and instruments.

CLLS 411. Principles of Education/Management. 2.5-3.5 Hours.

Semester course; 3 lecture hours. 2.5-3.5 credits. Introduces fundamental educational theories and practice, principles of management and employee relations and health-care issues from a global perspective with an emphasis on multicultural diversity. Stresses the application of these theories in the clinical laboratory.

CLLS 412. Senior Seminar. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Seminars are presented on various aspects of professionalism, experimental design and critical evaluation of scientific literature. A simulated registry exam is given at the conclusion. Graded as pass/fail.

CLLS 415. Special Topics in Clinical Laboratory Sciences. 1-6 Hours.

Semester course; 1-6 credits. Course provides for tutorial studies, laboratory experience and/or library assignments in specialized areas for those students who have previous course work or laboratory experience in a specific subject.

CLLS 438. Research Paper. 1 Hour.

Semester course; 1 lecture hour. 1 credit. This course is designed to introduce the student to the fundamentals of scientific writing.

CLLS 483. Biochemistry Practicum. 1-4.5 Hours.

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisites: CLLS 311-312. Individual participation in hospital chemistry laboratories. Students gain practical experience in the use of procedures and instruments by working with the staff. After gaining competence, students are expected to perform and sign out routine laboratory work under supervision. Graded as pass/fail.

CLLS 485. Hematology Practicum. 1-4.5 Hours.

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisites: CLLS 301-302. Individual participation in hospital hematology laboratories. Students gain practical experience in the use of procedures and instruments by working with the staff. After gaining competence, the students are expected to perform and sign out routine laboratory work under supervision. Graded as pass/fail.

CLLS 493. Clinical Microbiology Practicum. 1-4.5 Hours.

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisites: CLLS 307-308. Individual participation in hospital bacteriology laboratories. Students gain practical experience in the performance and use of procedures by working with the clinical staff. After gaining competence, the students are expected to properly perform and sign out routine laboratory work under supervision. Graded as pass/fail.

CLLS 494. Miscellaneous Clinical Practicum. 1-4.5 Hours.

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisites: CLLS 301-302, 308, 310, 311-312 or permission of instructor. Students gain practical experience in the use of instruments and the performance of procedures by working with the clinical staff. After gaining competence, students are expected to properly perform and sign out routine laboratory work under supervision. Graded as pass/fail.

CLLS 496. Blood Bank Practicum. 1-4.5 Hours.

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisite: CLLS 306. Individual participation in hospital blood bank laboratories and Virginia Blood Services. Students gain practical experience in the use of procedures and instruments by working with the staff. Donor drawing and component preparation is observed. After gaining competence, the students are expected to properly perform and sign out routine laboratory work under supervision. Graded as pass/fail.

Clinical Radiation Sciences (CLRS)**CLRS 101. Introduction to Clinical Radiologic Sciences. 1 Hour.**

Semester course; 1 lecture hour. 1 credit. Presentation and discussion of the art and science of medical imaging and therapeutics. Radiography, nuclear medicine, radiation therapy, sonography and other radiologic technologies will be discussed in terms of career specialties within the profession.

CLRS 201. Radiographic Imaging and Exposure I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 205. Corequisites: CLRS 232 and CLRS 201. Introduction to radiographic equipment and the imaging process. Covers topics including equipment operation and manipulating radiation exposure to produce quality radiographs. Presents information that prepares students for clinical practice. Emphasizes clinical problem-solving as it relates to patient variables, pathology and technical exposure factors.

CLRS 203. Pathophysiology I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Presentation of the principles of disease and an introduction to various conditions of illness involving body systems.

CLRS 204. Pathophysiology I and II. 3 Hours.

Continuous courses; 3-3 lecture hours. 3-3 credits. Prerequisites: BIOL 205, PHIS 206 and PHIZ 206. Completion of CLRS 203 to enroll in CLRS 204. Presentation of the principles of disease and an introduction to various conditions of illness involving body systems.

CLRS 205. Exploring Radiologic Sciences. 1 Hour.

Semester course; 1 lecture hour. 1 credit. A general overview of the wide variety of imaging and treatment modalities in radiologic sciences will be presented. Emphasis will be on understanding how these modalities are utilized in today's complex health care environment, as well as the role of the technologist/therapist.

CLRS 206. Cross-sectional Anatomy. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Prerequisite: permission of instructor. A general overview of cross-sectional anatomy at representative levels will be presented. Emphasis will be on identifying major muscles, organs, bones and vessels on diagrams, photographs and images.

CLRS 208. Foundations of Patient Care. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Legal, ethical and technical foundations of patient care will be explored with emphasis on the application of these principles to common radiologic situations.

CLRS 211. Radiographic Procedures I. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: CLRS 208 with a minimum grade of C. Combines the study of anatomy and physiology and positioning for diagnostic radiographic examinations of the upper extremity, thorax, abdomen, lower extremity, spine and pelvis. Requires demonstration of competence in radiographic procedures, including positioning of simulated patients, manipulation of radiographic equipment and evaluation of radiographs.

CLRS 212. Radiographic Procedures II. 2 Hours.

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisite: CLRS 211 with a minimum grade of C. Continuation of CLRS 211 with emphasis on anatomy and physiology and positioning for diagnostic radiographic examinations of routine contrast studies and basic headwork. Requires students to demonstrate competence in radiographic procedures, including positioning of simulated patients, manipulation of radiographic equipment and evaluation of radiographs.

CLRS 232. Radiation Safety. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Provides an overview of radiation protection as it applies to the radiation sciences. Emphasizes radiation sources, detection and regulations. Discusses radiation protection responsibilities of the radiologic technologist for patients, personnel and the public.

CLRS 294. Introduction to Clinical Education I. 0.5 Hours.

Semester course; 60 clinical hours. 0.5 credit. Prerequisite: CLRS 208 with a minimum grade of C. Introduction to clinical experience supervised by clinical faculty and affiliate facility staff. Introduces students to the clinical process and equipment, and provides practical experience in routine, basic procedures.

CLRS 295. Introduction to Clinical Education II. 1 Hour.

Semester course; 120 clinical hours. 1 credit. Prerequisites: CLRS 201, 211, 232 and 294 with a minimum grade of C in all. Continued introduction to clinical experience supervised by clinical faculty and affiliate facility staff. Provides additional practical experience in routine, basic procedures.

CLRS 300. Introduction to Sonography. 2 Hours.

Semester course; 2 lecture hours. 2 credits. This course is restricted to students in the clinical radiation sciences program. Introduces sonography as a career to include ultrasound equipment operation, sonography safety, legal and ethical issues, ultrasound image orientation and interpretation, professional organizations, and employment opportunities.

CLRS 301. Sonography Physics and Instrumentation I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment restricted to clinical radiation sciences majors. Introduces ultrasound instrumentation, propagation principles and interactions to include, but not limited to, sound waves, interaction of sound with different mediums, transducer design, display modes, sound beams, resolution, ultrasound equipment function, 2-D and real-time imaging.

CLRS 302. Sonography Physics and Instrumentation II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 301. Enrollment restricted to clinical radiation science majors. Expands upon discussion of material introduced in prerequisite course along with implementing ultrasound instrumentation, propagation principles and interactions. Introduces new concepts such as sound waves, image processing, hemodynamics, Doppler, ultrasound artifacts and quality assurance.

CLRS 303. Orientation to Nuclear Medicine. 2 Hours.

Semester course; 1 lecture and 2 clinical hours. 2 credits. Prerequisites: CLRS 208 and CLRS 232 both with a minimum grade of C. Designed to acquaint the student with the field of nuclear medicine in general and the Program in Nuclear Medicine Technology in particular. It also provides an introduction to clinical practice.

CLRS 305. Orientation to Radiation Therapy. 2 Hours.

Semester course; 1 lecture and 2 laboratory hours. 2 credits. Prerequisites: CLRS 208 and CLRS 232, both with a minimum grade of C. Introduction to the clinical process, equipment and history of radiation therapy. Information will be presented that prepares the student to begin clinical practice. Clinical rotations and lab exercises are designed to expose the student to various aspects of radiation therapy.

CLRS 309. Oncologic Patient Care. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 208 with a minimum grade of C. Pre- or corequisite: CLRS 305. Covers the basic concepts of patient care specific to radiation therapy, including consideration of physical and psychological conditions. Patient interactions, patient examinations, asepsis, local and systemic reactions, nutrition and medications are discussed. Factors influencing patient health during and following a course of radiation will be identified.

CLRS 311. Abdominal Sonography I. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Enrollment is restricted to clinical radiation science majors. Investigates cross-sectional anatomy, pathology, image production/interpretation and sonography scanning techniques/protocols related to abdominal sonography.

CLRS 312. Radiographic Procedures III. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 212 with a minimum grade of C. Continuation of CLRS 211 and 212 to cover additional and alternative positions for routine radiographic examinations as well as special studies of circulatory, reproductive, urinary, skeletal and central nervous systems. Discusses equipment, procedures and strategies for performing pediatric, trauma, mobile and operating room radiographic exams. Includes small group simulation opportunities.

CLRS 313. Abdominal Sonography II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 311. Enrollment is restricted to clinical radiation science majors. Investigates cross-sectional anatomy, pathology, image production/interpretation and sonography scanning techniques/protocols related to abdominal sonography, breast and small parts.

CLRS 314. Pathology and Treatment Principles I. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisites: CLRS 309 and CLRS 323 with a minimum grade of C in both. Presents the fundamentals of the disease processes for cancer of the following: skin, thorax, genitourinary, gynecological, head and neck, central nervous system, and breast. Discusses malignant condition, etiology and epidemiology, patient workup, and methods of treatment. Attention to patient prognosis, treatment results and the effects of combined therapies. Requires demonstration of competence in selected radiotherapeutic procedures, including positioning of simulated patients and the manipulation of equipment.

CLRS 316. Introduction to Vascular Sonography. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: CLRS 302 or permission of the department chair. Enrollment is restricted to clinical radiation sciences majors or by permission of the department chair. Introduces basic anatomy, pathology and evaluation techniques of basic vascular anatomy, including venous, extracranial cerebrovascular and visceral vascular anatomy. Presents processes for performing venous, extracranial and visceral vascular protocols.

CLRS 317. Nuclear Medicine Procedures I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: two semesters of general chemistry. Pre- or corequisite: CLRS 303. Presents the techniques employed in the performance of routine nuclear medicine procedures. Topics include anatomy and physiology, pathology, patient preparation, contraindications, radiopharmaceuticals, dose route of administration, biodistribution, imaging protocols, equipment setup, and common findings.

CLRS 318. Nuclear Medicine Procedures II. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 317 with a minimum grade of C. Presents the techniques employed in the performance of routine nuclear medicine procedures. Topics include anatomy and physiology, pathology, patient preparation, contraindications, radiopharmaceuticals, dose route of administration, biodistribution, imaging protocols, equipment setup, and common findings.

CLRS 319. Nuclear Medicine Procedures III. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 318 with a minimum grade of C. Presents the techniques employed in the performance of routine nuclear medicine procedures. Topics include anatomy and physiology, pathology, patient preparation, contraindications, radiopharmaceuticals, dose route of administration, biodistribution, imaging protocols, equipment setup, and common findings.

CLRS 320. Radiographic Imaging and Exposure II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 201 and CLRS 201 both with a minimum grade of C. Emphasizes federal regulations and monitoring of the imaging system components that may affect radiographic quality through improper functioning. Provides in-depth exploration of digital imaging.

CLRS 321. Nuclear Medicine Physics and Instrumentation I. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Pre- or corequisite: CLRS 303. Corequisite: CLRS 321. Presents the physical principles of atomic structure, electromagnetic spectrum, units of measurement, radioactive decay and attenuation in matter. Operation of radiation equipment will include statistical applications and quality control procedures.

CLRS 322. Nuclear Medicine Physics and Instrumentation II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 317, CLRS 321 and CLRS 321 with a minimum grade of C in all. Corequisite: CLRS 322. Presents advanced applications in physics and the operating principles of nuclear medicine imaging devices and related quality control procedures.

CLRS 323. Radiation Therapy, Techniques and Applications. 4 Hours.

Semester course; 4 lecture hours. 4 credits. Pre- or corequisite: CLRS 305. Presents the basic concepts of dosimetry and treatment planning. Various external beam techniques and applications, depth dose data and summation of isodose curves are discussed. Modalities of treatment, patient setup, dose measurement and verification also are included.

CLRS 325. Sonography Professional Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 311 and CLRS 329. Enrollment restricted to clinical radiation science majors. Integrates various didactic and clinical concepts as they relate to the professional practice of diagnostic medical sonography.

CLRS 329. Obstetric and Gynecologic Sonography I. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Enrollment is restricted to clinical radiation science majors. Introduces female cross-sectional anatomy, pathology, image production and interpretation, and scanning techniques/protocols related to basic obstetric and gynecologic sonography.

CLRS 331. Radiographic Imaging Equipment. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 320 with a minimum grade of C. Presents the principles and operation of general and specialized X-ray equipment. Emphasizes the equipment necessary to perform radiographic, fluoroscopic and tomographic examinations.

CLRS 332. Radiographic Pathology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 204 and CLRS 393 with a minimum grade of C or permission of instructor. Provides introduction to the study of radiographic pathology through reading and observation of film interpretation. Emphasizes recognition of common disease processes as demonstrated radiographically and, via advanced imaging modalities; where appropriate, understanding how to vary positioning and techniques to produce optimally diagnostic images; and the role of different imaging modalities in the evaluation of disease.

CLRS 339. Obstetric and Gynecologic Sonography II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 329. Enrollment is restricted to clinical radiation science majors. Introduces maternal and fetal pathology, including fetal congenital abnormalities, placental and umbilical cord anomalies, and fetal neural, thoracic, cardiac, abdominal, urogenital and skeletal abnormalities. Image interpretation and scanning techniques/protocols related to obstetric sonography are discussed.

CLRS 341. Radiation Physics. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisites: PHYS 101, PHYS 101 or PHYS 201 and CLRS 232 with a minimum grade of C. Discusses fundamentals of the atom, electricity and magnetism. Emphasizes the production of X- and gamma rays, and the interaction of radiation with matter.

CLRS 342. Physics for Radiation Therapy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 323 and CLRS 341 with a minimum grade of C in both. Includes a discussion of the properties of electromagnetic and particulate radiation. Details of production, interactions, treatment units, measurement of radiation, radioactivity and brachytherapy are presented.

CLRS 390. Research Methods in the Radiologic Sciences. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisites: STAT 210 and junior standing or permission of instructor. The fundamentals of the research process will be presented for analysis and discussion. Elements of research appropriate to the radiologic sciences will be reviewed. Emphasis will be on the ability to critically review research studies along with the selection and design of a research project.

CLRS 393. Clinical Education I. 2-5 Hours.

Semester course; 2-5 clinical hours. 2-5 credits (120 contact hours per credit). Prerequisites: CLRS 208 with a minimum grade of C; and CLRS 201, CLRS 300, CLRS 303 or CLRS 305 with a minimum grade of C. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain practical experience in routine, basic procedures and observe more advanced procedures.

CLRS 394. Clinical Education II. 2-4 Hours.

Semester course; variable clinical hours (120 hours per credit). 2-4 credits. Prerequisite: CLRS 393 with a minimum grade of C. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain practical experience in routine, basic procedures and observe more advanced procedures.

CLRS 395. Clinical Education III. 2-6 Hours.

Semester course; variable clinical hours (120 hours per credit). 2-6 credits. Prerequisite: CLRS 394 with a minimum grade of C. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain additional practical experience in routine as well as advanced procedures.

CLRS 398. Introduction to Research. 1 Hour.

Semester course; 1 credit. Prerequisite: CLRS 390. Provides students the opportunity to explore and investigate a topic of special interest in their area of concentration under the supervision of a faculty adviser. Emphasizes the application of research concepts to writing a research project proposal.

CLRS 400. Contemporary Topics in Radiologic Sciences. 4 Hours.

Semester course; 4 lecture hours. 4 credits. Enrollment restricted to clinical radiation sciences majors with junior standing or higher. Introduces issues and concepts relevant to the radiologic sciences such as leadership, professionalism, emerging technologies, and ethics and law. Applies advanced topical areas to both general radiologic sciences and individual professional concentrations.

CLRS 401. Introduction to Pediatric Sonography. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 311. Enrollment is restricted to clinical radiation science majors. Investigates anatomy, pathology, image production/interpretation and ultrasound scanning techniques/protocols specific to entry-level pediatric ultrasound imaging. Examines anatomical areas such as the pediatric bowel, spine, hips and head/brain.

CLRS 403. Advanced Patient Care for the Imaging Professional. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 208 with a minimum grade of C and junior standing or permission of instructor. Explores advanced patient care techniques and age-specific considerations in the radiation sciences. Emphasizes the application of advanced patient care principles.

CLRS 404. Ultrasound Pathology and Preliminary Writing. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLRS 313 and CLRS 339. Enrollment is restricted to clinical radiation science majors. Introduces case studies pertaining to the ultrasonic evaluation of small parts, abdominal organs, pelvic anatomy and obstetrics to increase and assesses the critical-thinking skills needed to proficiently write preliminary ultrasound reports.

CLRS 405. Principles of Mammography. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLRS 201 and CLRS 320 with a minimum grade of C in both and senior standing or permission of instructor. Presentations and discussions designed to provide an overview of the principles of mammography. Topics include history, anatomy, physiology and pathology of the breast; exposure techniques; and quality control. Focuses on routine and specialized positioning of the breast and image evaluation to prepare students for practical experience in mammography.

CLRS 406. Introduction to MRI. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 341 with a minimum grade of C or permission of instructor. An introduction to the elements of magnetic resonance imaging, including instrumentation, physical principles, image production and quality, MR safety, magnetic resonance angiography and imaging applications.

CLRS 407. Introduction to PET/CT. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 408. Overview of PET and PET/CT focusing on instrumentation, radiopharmaceuticals and its diagnostic application in neurology, oncology and cardiology.

CLRS 408. Introduction to Computed Tomography (CT). 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 341 with a minimum grade of C or permission of instructor. Provides the student with an overview of computed tomography. Topics include computed tomography physical principles, data acquisition/image reconstruction, equipment and terminology. Patient care issues (i.e., preparation, monitoring) and basic quality control will be introduced.

CLRS 410. Routine Computed Tomography Procedures. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisites: CLRS 206 and 408, or permission of instructor. Presents routine procedures used in computed tomography imaging. Reviews examinations and protocols involving the head, chest, abdomen and extremities.

CLRS 412. Radiation Therapy Treatment Planning. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits.

Prerequisites: CLRS 323 and CLRS 342 with a minimum grade of C in both or permission of instructor. An introduction to routine 2-D and 3-D treatment planning for the most common forms of cancer including prostate, rectum, lung, breast, and head and neck regions. Simulated lab training using a treatment planning system will be included. Emphasis will be on the rationale and process of treatment planning for patients undergoing radiation therapy.

CLRS 415. Pathology and Treatment Principles II. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisite: CLRS 314 with a minimum grade of C. A continuation of CLRS 314.

Presents the fundamentals of the disease process for the following cancers: gastrointestinal, lymphomas and hematological malignancies, bone tumors, childhood tumors, and eye and orbital tumors. Discusses patient workup and prognosis, treatment results, and the effects of combined therapies. Radiotherapeutic emergencies, palliation and combined modality treatment also will be discussed. Emphasis will be placed on traditional and advanced technology and its applications in treatment delivery in radiation oncology. Requires demonstration of competence in selected radiotherapeutic procedures, including positioning of simulated patients and the manipulation of equipment.

CLRS 416. Advanced Vascular Sonography. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: CLRS 302 or permission of the department chair. Enrollment is restricted to clinical radiation sciences majors or by permission of the department chair. Introduces advanced anatomy, pathology and evaluation techniques of vascular anatomy, including arterial, intracranial cerebrovascular, dialysis grafts and visceral vascular anatomy. Presents processes for performing arterial, transcranial Doppler, dialysis mapping, and visceral vascular protocols and physiologic testing.

CLRS 417. Nuclear Medicine Procedures IV. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 319 with a minimum grade of C. Presents the techniques employed in the performance of advanced nuclear medicine procedures. Topics include anatomy and physiology, pathology, patient preparation, contraindications, radiopharmaceuticals, dose route of administration, biodistribution, imaging protocols, equipment setup, and common findings.

CLRS 420. Introduction to Vascular-Interventional Radiology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: departmental approval. Introduction to the basic techniques of vascular and interventional radiologic procedures with emphasis on the anatomy demonstrated, equipment, contrast agents, and the role and responsibilities of the technologist.

CLRS 421. Vascular-Interventional Radiology Procedures. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 420.

Enrollment restricted to clinical radiation science majors or by permission of department chair. Presents an overview of common vascular-interventional radiology procedures to include arteriography (abdominal, peripheral, pulmonary, cardiac and carotid/cerebral) as well as vascular and nonvascular interventions (filter placement, embolization, venous access and management of fluid collection, urinary disease and biliary disease). Emphasis is placed on instrumental, technique and imaging parameters.

CLRS 430. Radiobiology. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLRS 232 with a minimum grade of C and senior standing or permission of instructor.

Presents the principles of biologic responses to radiation, including factors influencing radiation effects, tissue sensitivity and tolerance. Clinical application in radiography, nuclear medicine and radiation therapy are reviewed.

CLRS 450. Musculoskeletal Sonography. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: CLRS 302 or permission of the department chair. Enrollment is restricted to clinical radiation sciences majors or by permission of the department chair. Introduces musculoskeletal anatomy, pathology, image production and interpretation, and scanning techniques/protocols related to musculoskeletal sonography to include, but not limited to, the following joints: shoulder, elbow, hand/wrist, hip, knee, ankle/foot.

CLRS 453. Quality Management in Nuclear Medicine. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLRS 322 and CLRS 322 with a minimum grade of C in both. Explores the quality assurance parameters in a nuclear medicine department. Emphasis is given to the performance of tests to assess survey meters, spectrometers, dose calibrators, gamma cameras and SPECT imaging systems. Additionally, quality assurance is discussed in terms of radiopharmaceuticals, radioimmunoassay laboratories and patient management.

CLRS 455. Quality Management in Radiation Therapy. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLRS 323 and CLRS 342 with a minimum grade of C. Designed to provide the student with knowledge of the concepts and principles of quality assurance. The performance of various tests including purpose, sources of malfunction and action guidelines will be discussed.

CLRS 461. Radiopharmaceutical: Preparation and Quality Control. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLRS 319, CLRS 322 and CLRS 322, all with a minimum grade of C. Provides the technical knowledge necessary for the preparation and quality control of radiopharmaceutical agents for in-vivo and in-vitro nuclear medicine studies.

CLRS 471. Radiology Imaging Procedures for Radiologist Assistants I and II. 3 Hours.

Continuous courses; 3-3 lecture hours. 3-3 credits. Prerequisites: CLRS 332, CLRS 403, CLRS 403 and permission of instructor. Completion of CLRS 471 to enroll in CLRS 472. Establishes a framework for radiologist assistants' participation in patient examinations for diagnostic inspection and/or therapeutic treatment. Emphasizes establishment of fundamental radiology procedures that follow American College of Radiology Standards for principles and practices producing high-quality radiographic care. Includes basic radiology procedures in genitourinary, gastrointestinal, pediatric, thoracic, musculoskeletal selections and vascular/interventional specialties. Addresses legal, ethical and professional issues concerning radiologist assistants.

CLRS 472. Radiology Imaging Procedures for Radiologist Assistants I and II. 3 Hours.

Continuous courses; 3-3 lecture hours. 3-3 credits. Prerequisites: CLRS 332, CLRS 403, CLRS 403 and permission of instructor. Completion of CLRS 471 to enroll in CLRS 472. Establishes a framework for radiologist assistants' participation in patient examinations for diagnostic inspection and/or therapeutic treatment. Emphasizes establishment of fundamental radiology procedures that follow American College of Radiology Standards for principles and practices producing high-quality radiographic care. Includes basic radiology procedures in genitourinary, gastrointestinal, pediatric, thoracic, musculoskeletal selections and vascular/interventional specialties. Addresses legal, ethical and professional issues concerning radiologist assistants.

CLRS 475. Medical Imaging Fundamentals for Radiologist Assistants. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 332, CLRS 403, CLRS 403 and permission of instructor. Promotes an understanding of methods and techniques for the systematic observation of static and dynamic diagnostic images for the purpose of evaluating the presence of abnormalities, anomalies and pathological conditions. Includes protocols for drafting memoranda of initial observations based on image assessment.

CLRS 480. Applied Radiology Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: departmental approval. Relates basic concepts in management to the radiologic environment and explores the relationship between the radiologic facility and the health care system.

CLRS 481. Applied Pharmacology for Radiologic Sciences. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment restricted to clinical radiation science majors. Covers general pharmacology including the study of drug groups, dosages, administrations and reactions of drugs common to patients. Special emphasis on contrast media and other agents commonly used in medical imaging and therapy.

CLRS 488. Senior Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: senior standing in department. Designed to allow students to integrate the various individual courses into a single perspective as it relates to the radiation sciences. Addresses timely professional issues, including the need for lifelong learning and participation in professional organizations, as well as preparing for certification and future employment.

CLRS 492. Directed Study: Radiologic Sciences. 1-4 Hours.

Semester course; 1-4 independent study hours. 1-4 credits. A maximum of 6 credits can apply toward graduation requirements. Enrollment restricted to clinical radiation science majors. Provides the opportunity for individualized research projects, tutorial studies, special clinical work or other topics not available in formal course work.

CLRS 493. Clinical Education IV. 1-5 Hours.

Semester course; variable clinical hours (120 hours per credit). 1-5 credits. Prerequisite: CLRS 395 with a minimum grade of C. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain additional practical experience in routine, basic and advanced procedures.

CLRS 494. Clinical Education V. 1-5 Hours.

Semester course; variable clinical hours (120 hours per credit). 1-5 credits. Prerequisite: CLRS 493 with a minimum grade of C. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain additional practical experience in routine, basic and advanced procedures.

CLRS 498. Senior Project. 2 Hours.

Semester course; 2 seminar hours. 2 credits. Prerequisites: CLRS 390, CLRS 398 and senior standing in department. Emphasizes the application of research concepts in the design, implementation and presentation of a project under the supervision of a faculty adviser. Students investigate a topic of interest in their area of concentration.

Clinical Radiation Sciences Lab (CLRZ)**CLRZ 201. Radiographic Imaging and Exposure I Laboratory. 1 Hour.**

Semester course; 2 laboratory hours. 1 credit. Prerequisite: CLRS 205. Pre- or corequisite: CLRS 201. Designed to introduce students to the fundamentals of radiographic image production. Requires performance of laboratory exercises to become familiar with equipment operation and manipulate radiation exposure variables to produce quality images.

CLRZ 321. Nuclear Medicine Physics and Instrumentation Laboratory I. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: CLRS 303. Corequisite: CLRS 321. Presentation of the applications and techniques employed in the operation of nuclear medicine non-imaging devices. Labs will emphasize the use of survey meters, dose calibrator and scintillation counting device.

CLRZ 322. Nuclear Medicine Physics and Instrumentation Laboratory II. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisites: CLRS 321 and CLRZ 321 with a minimum grade of C in both. Corequisite: CLRS 322. Evaluation of applications of different imaging techniques and computer processing utilized in nuclear medicine. Emphasizes the use of single and multiple channel analyzers, planar and SPECT acquisition, and image processing.

CLRZ 403. Advanced Patient Care for the Imaging Professional. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisite: CLRS 208 or permission of instructor. Pre- or corequisite: CLRS 403. This course provides simulated experience in performing advanced patient care techniques related to the radiation sciences. Topics include cardiac rhythm interpretation, advanced cardiac life support, urinary catheterization, tracheostomy care, basic laboratory skills, basic respiratory therapy skills, pulse oximetry, IV therapy and pharmacology, and conscious sedation.

CLRZ 405. Principles of Mammography Lab. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisites: CLRS 201 and CLRS 320, or permission of instructor. Pre- or corequisite: CLRS 405. Provides simulated experience in performing positioning of the breast. Students will be expected to demonstrate competence in positioning the breast phantom for a variety of routine and specialized projections. In addition, quality control procedures specific to mammography will be performed.

CLRZ 461. Radiopharmacy Laboratory. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisites: CLRS 319, CLRS 322 and CLRZ 322, all with a minimum grade of C. A simulated radiopharmacy laboratory will focus on operation of laboratory equipment in the compounding of radiopharmaceuticals.

Gerontology (GRTY)**GRTY 200. Disrupting Ageism: An Exploration of Diversity and Aging. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Provides an exploration of issues related to social roles, power, intersectionality and how they impact aging – with an emphasis on gender and sexual minorities. Also focuses on aging within communities of privilege, as well as barriers and opportunities for positive aging among diverse populations.

GRTY 410. Introduction to Gerontology. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. A survey of the field of aging with attention to physical, psychological, social, economic and cultural ramifications of age.

Health Care Management (HCMG)**HCMG 300. Health Care Organization and Services. 3 Hours.**

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Examines the structure and function of the U.S. health services delivery system. Examines the role and responsibilities of health care professions and occupations, and technology and financing arrangements in the delivery system.

Rehabilitation Counseling (RHAB)**RHAB 201. Introduction to Rehabilitation Services. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. This course has been designed to expose the student to the history and development of the rehabilitation movement. Topics explored include basic concepts and philosophies of rehabilitation, psychological and vocational adjustments of the disabled, and an examination of selected rehabilitation methods.

RHAB 202. General Substance Abuse Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is designed to help the student develop an appreciation of society's attitude about the use of drugs and alcohol, and each individual's responsibility in decisions about the use of drugs. Discussion is offered on specific characteristics of drugs, how addiction occurs and role of rehabilitation after addiction.

RHAB 321. Introduction to Substance Abuse. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: RHAB 202. Introduction to substance abuse as a progressive family disease with consideration of basic contributing factors (physiological, psychological and sociocultural builds on foundation established in RHAB 202); exposure to multidisciplinary rehabilitative approaches to arresting the disease, as well as some knowledge of intervention; brief mention of the highlights of the continuum of care available in the recovery process.

RHAB 452. Crisis Intervention with the Substance Abuser. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: RHAB 321, RHAB 322 and RHAB 523, or permission of instructor. Focus on the application of concepts discussed in theory in the recovery process course; sharing of difficulties and successes with crisis intervention by individuals already in the field; provision of new and more refined techniques under the direction of experts demonstrating their applicability.

RHAB 495. Practicum in Rehabilitation. 6,9 Hours.

Semester course; 3 credits. Prerequisite: permission of instructor. Designed to provide opportunities for observation and participation in rehabilitation and related settings. Experiences are systematically related to theoretical concepts.

College of Humanities and Sciences**African American Studies (AFAM)****AFAM 104. Sociology of Racism. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. The course will explore the direct and indirect ways in which racial attitudes are acquired, their effect on individuals and society, and the institutional and ideological manifestations of racism as a "faith system," as exploitation and as a form of human conflict. The central focus of interest will be on black-white relationships. Crosslisted as: SOCY 104.

AFAM 105. Survey of African History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of African civilizations from prehistory to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Africa's place in the world. First semester: to 1800. Second semester: 1800 to the present. Crosslisted as: HIST 105.

AFAM 106. Survey of African History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of African civilizations from prehistory to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Africa's place in the world. First semester: to 1800. Second semester: 1800 to the present. Crosslisted as: HIST 106.

AFAM 111. Introduction to Africana Studies. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Using a multidisciplinary approach, this course will familiarize students with important events developments, personalities and other phenomena that help facilitate the study and understanding of peoples of African descent dispersed throughout the world from their early continental African past to their present existence.

AFAM 121. Tap Technique I. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Beginning study and training in the principles of tap technique with emphasis upon style, body alignment, spatial patterning, flexibility, strength and kinesthetic awareness to move the body in the style required for tap dancing. Crosslisted as: DANC 121.

AFAM 122. Tap Technique I. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Beginning study and training in the principles of tap technique with emphasis upon style, body alignment, spatial patterning, flexibility, strength and kinesthetic awareness to move the body in the style required for tap dancing. Crosslisted as: DANC 122.

AFAM 126. African-Caribbean Dance I. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Dance based on the movements and rhythms of Africa and the Caribbean. Crosslisted as: DANC 126.

AFAM 127. African-Caribbean Dance I. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Dance based on the movements and rhythms of Africa and the Caribbean. Crosslisted as: DANC 127.

AFAM 151. Jazz Dance Technique I. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Prerequisite: DANC 102 or permission of instructor. Study and training in the principles and concepts of jazz technique. Emphasis on body alignment, flexibility, balance, rhythmic awareness and mastery of isolated movements of body parts. The course includes the exploration of the relationship between jazz music and jazz dance. Crosslisted as: DANC 151.

AFAM 152. Jazz Dance Technique I. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Prerequisite: DANC 102 or permission of instructor. Study and training in the principles and concepts of jazz technique. Emphasis on body alignment, flexibility, balance, rhythmic awareness and mastery of isolated movements of body parts. The course includes the exploration of the relationship between jazz music and jazz dance. Crosslisted as: DANC 152.

AFAM 200. Introduction to African Societies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course introduces the student to the African continent, its peoples and cultures. It covers such general characteristics as the physical and geographical features, climate, topography, traditional economies, languages, religions, social systems and other cultural features that are traditional to its people. Crosslisted as: ANTH 200/INTL 200.

AFAM 201. Theories and Foundations of Africana Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the origins of African American studies in the civil rights and Black Power movements. Examines critical issues and perspectives in the discipline from its inception to the present day. Possible topics include black nationalism, neo-colonialism, Kawaia theory, black women's studies, Afrocentrism, Egyptology, black queer studies, critical race theory, diaspora theory and community engagement.

AFAM 204. Africa in Transition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: AFAM/ANTH/INTL 200 or permission of instructor. The impact of modern social change upon the traditional aspects of African life. Various aspects of social change as it applies to Africa today will be explored.

AFAM 211. Africana Social and Political Thought. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Guides students in identifying and mapping the continuities and discontinuities in political and social thought of the African world. Through an exploration of the various works of scholars, activists and artists, this course will expose students to nondominant narratives in an effort to expand the breadth and depth of interdependence in Africana contributions to ideas such as, but not limited to, the arts, justice, equality and human emancipation.

AFAM 291. Topics in African American Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of nine credits. A study of specialized areas of African American studies.

AFAM 302. Politics of the Civil Rights Movement. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The main objectives of the course are to introduce and examine the personalities and activities of the modern Civil Rights Movement. The course provides the historical background leading up to the peak years of the struggle for racial equality in America. It has special focus on the events of the 1960s and particularly their implication for the current state of U.S. Civil Rights. Crosslisted as: POLI 302.

AFAM 303. Black Theatre. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the major developments in the evolution of black theatre through readings and studio performances in black-related and black theatre dramaturgy. Crosslisted as: THEA 303.

AFAM 305. Oppression, Resilience and the Black Family. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the historical and contemporary experiences of Black families, with a central focus on the resilience and contributions of Black families in the U.S. Engages in intersectional analysis of systems of oppression and the full range of Black family structures. Centers Black liberation and Black joy. Crosslisted as: GSWS 305/SOCY 305.

AFAM 307. Black Religion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An analysis of the role of religion in the lives of blacks with an emphasis on African religions and philosophies, the black church in America, and the roles of the various faiths, sects and cults. Crosslisted as: RELS 307/INTL 307.

AFAM 309. Gender and Global Health. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines how health policies produce and regulate gendered bodies and sexualities. Topics may include how colonial medicine and health policies of detection, diagnosis, surveillance, quarantine and confinement were implemented as methods of social control. Analyzes continuities between colonial medicine and more contemporary interventions that in the name of individual and communal health attempt to shape proper sexualities and gendering. Crosslisted as: ANTH 309/INTL 309/GSWS 309.

AFAM 310. Black Health Matters: Social Determinants of Health in the African American Community. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines health inequalities and health inequities in the U.S. Explores the primary health concerns and issues relating to the African American community. Focuses on social determinants of infant mortality, cardiovascular disease, AIDS, violence and cancer, as well as the impact these determinants have on the overall health status of African Americans.

AFAM 311. African Diaspora Experiences. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Traces the geography and history of dispersed African peoples from their motherland to all parts of the world and reveals the cultural, social, political and economic developments of peoples of African descent worldwide. Surveys the evolution and implication of the trans-Atlantic, trans-Saharan, and trans-Indian Ocean slave trade, in particular the dimensions of experiences of African-descended peoples with emphasis not only on North and South America but also the Caribbean, Europe, Asia, Papua New Guinea and Australia.

AFAM 318. Politics of Race, Class and Gender. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the racial, class and gender influences on the history and development of political values, conflicts, processes, structures and public policy in the United States. Crosslisted as: POLI 318/GSWS 318.

AFAM 322. Personality and Behavior of the African American. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. A study of personality factors such as motivation, ego-functioning and the socialization processes, with special emphasis on living conditions of African-Americans. Crosslisted as: PSYC 322.

AFAM 330. Blackness and Media: Representations of Race, Gender and Culture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Explores (re)imaginings of Black social life across a variety of media and forms of popular culture. Examines global representations of Blackness in economic, political and cultural contexts. Possible areas of focus include fashion, TV/film, music, new media, social media, visual art, sports and museum space.

AFAM 333. Geography of Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, peoples, livelihoods, settlement patterns and cultural groupings of sub-Saharan Africa. Crosslisted as: URSP 333/INTL 333.

AFAM 338. Ferguson, USA: The Criminalization of Race in Historical Perspective. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Examines African American encounters with the criminal justice system from the era of emancipation to the present day. Possible topics include constructions of race; the science of criminality; extra-legal violence; the civil rights movement and black power; prison politics; mass incarceration; the school-to-prison pipeline; Black Lives Matter.

AFAM 342. African-American Art. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the art forms produced by Americans of African origin from the 17th century to the present with an emphasis on contemporary trends in black art. Crosslisted as: ARTH 342.

AFAM 343. Black Political Thought. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An historical and sociological perspective on the political and social ideas of black thinkers from David Walker to the present. Crosslisted as: POLI 343.

AFAM 345. African-American Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. In this course, students will discuss and analyze the dynamics of the black experience in the American political system. The status of African-Americans in the United States and the struggle for racial equality will be examined, as will the manner in which American institutions have responded to these phenomena. Students will examine the race/class metric in African-American politics, particularly policies of Affirmative Action as a black progress strategy. Crosslisted as: POLI 345.

AFAM 346. Mental Health Across the African Diaspora. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Surveys theory and research on the interaction of culture and mental illness focusing primarily on populations of African descent in a seminar format. Topics to be addressed, through the lens of the Africana world, include epidemiological and ethnographic research on major psychiatric disorders, culture-bound syndromes and idioms of distress, mental health of immigrants and refugees, and cross-cultural competence in clinical practice.

AFAM 347. African American Children and Families. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Reviews cultural variations in the physical, cognitive, emotional and social development of African American children. Addresses historical and contemporary frameworks of child development and highlights the strengths and limitations of extant research paradigms in the study of African American children. Considers integrity-based approaches that explain the developmental competencies of African American children in response to environmental risks that exceed normative expectations.

AFAM 350. Studies in the Music of the African Continent and Diaspora. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 6 credits. Prerequisite: MHIS 243 or MHIS/AFAM 250. An in-depth examination of selected topics and issues in African-derived musical and cultural traditions. See the Schedule of Classes for specific topics to be offered each semester. Crosslisted as: MHIS 350/INTL 370.

AFAM 356. African Government and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will introduce students to the basic outlines of government and politics in Africa. The course will consider such topics as colonialism, elitism, and nationalism and modernization strategies. Using the comparative approach, the course will primarily focus on West, East and Central Africa. Crosslisted as: POLI 356/INTL 356.

AFAM 357. Politics of Southern Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of racial and political developments in the southern tip of Africa. While South Africa will be the primary focus of analysis, other countries in the region such as Zimbabwe, Angola and Mozambique will be studied. Crosslisted as: POLI 357/INTL 357.

AFAM 358. African Art and Architecture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of African art and architecture from prehistoric times to the present. Special emphasis is placed on form, content, function and meaning, as well as the impact of African art on modern and African-American art. Crosslisted as: ARTH 358.

AFAM 361. Americans from Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the history and culture of blacks in the United States, designed to analyze some of the most important aspects of black life and the attitudes of the dominant society within which blacks lived. The second semester emphasizes the changing status, expectations and ideologies of black Americans in the 20th century. First semester: to 1877. Second semester: since 1877. Crosslisted as: HIST 361.

AFAM 362. Americans from Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the history and culture of blacks in the United States, designed to analyze some of the most important aspects of black life and the attitudes of the dominant society within which blacks lived. The second semester emphasizes the changing status, expectations and ideologies of black Americans in the 20th century. First semester: to 1877. Second semester: since 1877. Crosslisted as: HIST 362.

AFAM 363. African Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of regional and/or cultural traditions of African literature with special attention paid to socio-political perspectives. Crosslisted as: ENGL 363/INTL 366.

AFAM 365. Caribbean Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A survey of West Indian writings. Attention will be given to African, European and Amerindian influences, as well as to the emergence of a West Indian literary tradition. Crosslisted as: ENGL 365/INTL 367.

AFAM 379. African-American Literature: Beginnings Through the Harlem Renaissance. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An examination of the culture and literature of African Americans from their roots in Africa and the African Diaspora to the Harlem Renaissance. Authors may include Wheatley, Douglass, DuBois, Hurston, Hughes and Cullen. Crosslisted as: ENGL 379.

AFAM 382. African-American Literature: Realism to the Present. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An examination of the culture and literature of African-Americans from the Harlem Renaissance to the present day. Authors may include Wright, Ellison, Hayden, Brooks, Walker and Morrison. Crosslisted as: ENGL 382.

AFAM 387. History of West Africa to 1800. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the transformation of West African societies from early times to 1800, with emphasis on the rise of states and empires, the introduction, spread and impact of Islam, the Atlantic slave trade and its effects, and colonialism. Crosslisted as: HIST 381.

AFAM 388. Africa: Social, Cultural and Economic History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of economic, social and cultural developments in Africa from the beginning of the 19th century to the present, with emphasis on agricultural and industrial development, trade, Africa's involvement in the world economy, changes in labor systems, racial dominance, African initiatives and resistance, religion and social evolution, and Africa in world affairs. Crosslisted as: HIST 384.

AFAM 389. Southern Africa Since 1600. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the history and culture of the peoples of southern Africa. Deals with the areas that presently are the Republic of South Africa, Lesotho, Swaziland, Botswana, Namibia and Zimbabwe. Emphasizes the interaction among the various communities and ethnolinguistic groups in southern Africa. Crosslisted as: HIST 383.

AFAM 390. Forced and Coerced Labor in Africa and the Americas. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines a broad range of forced and coerced labor in Africa and selected parts of the Americas, including the United States, Canada and the Caribbean, from around the 17th century to the 20th century. The role that gender and race played in slavery and coerced labor will be given particular attention. Crosslisted as: GSWS 390/HIST 380.

AFAM 391. Topics in African American Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of nine credits. A focused study of specialized areas of African American studies.

AFAM 392. Caribbean History to 1838. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An exploration of changes in the structure of Caribbean society from the late 15th century to 1838, with emphasis on the development of plantation slavery, social stratification, race, slave resistance, the Haitian Revolution, African cultural patterns and abolition. Crosslisted as: HIST 376.

AFAM 393. Akhenaten to Cleopatra. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of Egyptian history from the period of the Empire (New Kingdom, c. 1570 B.C.) through the Ptolemaic Age of Cleopatra (c. 30 B.C.). Particular areas of concentration will include the Amarna Period of Akhenaten and various aspects of Egyptian daily life.

AFAM 394. Service-learning in African American Health. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: AFAM 310. Open to African-American studies majors only. Provides an overview of critical public health issues and intervention strategies that may influence life chances and disease susceptibility among African-Americans through a service-learning format.

AFAM 399. Interdisciplinary Research Methods. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces students to the interdisciplinary processes whereby those working in the field develop their arguments and interpretations concerning the black experience. Students will develop increased skills in library research and an awareness of the importance of such methodologies as archaeology, oral history, case studies, participant observations, experiments and surveys. Students will be introduced to the need for critical analysis, the role of biases and frames of references and the reason why scholars working in the field often reach different conclusions with reference to issues of fact, interpretation and significance.

AFAM 411. Applied Concepts in Africana Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: AFAM 111 with a minimum grade of C. Pre- or corequisite: AFAM 399. Explores the processes and challenges involved in studying the experiences of African-descended peoples, with a focus on the development of an idea or observation into a finished and well-executed research product. Investigates how these processes unfold in the works of specific black studies researchers, as they capture the varied consciousnesses, histories and social forces surrounding black life in America, Africa and throughout the diaspora.

AFAM 416. The Origin and Evolution of the Idea of Race. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103 or AFAM 103 or permission of instructor. This course is an exploration of the origins and social history of the "idea" of race from the Middle Ages to the end of the 20th century. Using both historical and anthropological scholarship, the course presents an analytical framework for race as a sociocultural phenomenon. Crosslisted as: ANTH 416.

AFAM 420. Women of Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103 or AFAM 103. This course looks at the traditional roles of women in African societies and examines how women have coped in different environments. It focuses on the institutionalized aspects of similarities and differences in women's lives in pastoral and horticultural societies and those with mixed economies, and will contrast these with women's roles in large state societies of Africa and in the modern urbanized context. Crosslisted as: ANTH 420/INTL 420.

AFAM 440. Modern and Contemporary Art and Architecture of Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARTH 292 with a minimum grade of C or permission of instructor. A study of the impact on African art and architecture of Colonialism, urbanization and modernization. Special emphasis is placed on the search for a new identity by contemporary African artists. Crosslisted as: ARTH 440.

AFAM 451. Religion, Racism and Social Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: RELS 340/INTL 341, WRLD 210 or WRLD 220; UNIV 200 or HONR 200. Explores the complex history and contemporary relationships between religion, racism and social justice. Crosslisted as: INTL 451/RELS 451.

AFAM 491. Topics in African-American Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of 9 credits; 3 credits may be applied to the African-American studies minor. An in-depth study of specialized areas of African-American studies.

AFAM 492. Independent Study. 1-4 Hours.

Semester course; variable hours. Variable credit. Maximum 4 credits per semester. Maximum total of 4 credits in all independent study courses. Prerequisites: completion of 12 credits in African-American studies courses; junior or senior standing.

AFAM 493. Internship in Africana Studies. 3 Hours.

Semester course; 3 field experience hours. 3 credits (minimum of 50 work hours per credit). Prerequisites: AFAM 201, AFAM 211 and AFAM 311. Enrollment is restricted to African American studies majors of junior or senior standing; permission from the department chair or internship coordinator is also required. Students will be placed in internships that provide real-life experience working with populations of African descent with the goal of defining, improving, affirming and/or validating black experiences in the African diaspora. Graded as pass/fail.

AFAM 494. Internship in African American Health. 3 Hours.

Semester course; 150 clock hours in appropriate organization. 3 credits. Prerequisites: AFAM 310, either AFAM/ANTH/INTL/WMNS/GSWS 309 or AFAM/PSYC 322, and AFAM 394. Applicants must be approved by the internship coordinator. Open to African-American studies majors of senior standing only. Students are placed in organizations that offer supervised work or research experience in a health setting appropriate to their interests. A final report must be submitted upon completion of the internship.

AFAM 499. Capstone Seminar in Africana Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: AFAM 111, AFAM 211, AFAM 311 and AFAM 399. Enrollment is restricted to African American studies majors of senior standing. Involves the planning and execution of a research project grounded in the methodology of African American studies.

American Studies (AMST)**AMST 195. Richmond. 1 Hour.**

15 contact hours. 1 credit. A series of mini-courses dealing with aspects of Richmond's literary and historical importance from the city's beginning to the present.

AMST 216. Reading Race. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An inquiry into the origins and evolution of race and racism through diverse literary and cultural texts that examine the historical and current structures that sustain racial inequities and that explore efforts to challenge and address such inequities. Individual sections may focus on a specific literature of diversity. Graded as pass/fail.

AMST 359. Studies in African American Literature: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An in-depth study of a literary genre; an aesthetic, cultural or political theme in African American literature; or a major writer or writers in African American literature. See the Schedule of Classes for specific topics to be offered each semester. Topics will vary by section. Crosslisted as: ENGL 359.

AMST 391. Topics in American Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once for credit. Selected issues or problems in American civilization with materials drawn from such areas as history, the social sciences, philosophy, literature, the arts and mass communications.

AMST 394. Perspectives in American Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: 6 credits in American-related courses. An introduction to the methods, significant works and major trends in American studies. May be taken for American literature credit by English majors. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

Anthropology (ANTH)**ANTH 103. Introduction to Anthropology. 3 Hours.**

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A general survey of anthropology with emphasis on learning about and from global cultures, and on the four fields of anthropology.

ANTH 105. Introduction to Archaeology. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A survey of archaeological sites, methods and theories from around the world, from the earliest human cultures, to the rise and spread of civilizations, to the modern era. Crosslisted as: INTL 104.

ANTH 110. REAL Experience in Anthropology. 1 Hour.

Semester course; 1 field experience hour. 0-1 credit. Prerequisite: ANTH/INTL 103 or ANTH 105. Enrollment requires the permission of the faculty supervisor. Introduces students to anthropological research. Students will participate in various stages of anthropological work, such as research design, data collection and analysis, and public outreach, working alongside an anthropology faculty member who will provide direct oversight of their contributions. The course enables students to participate in anthropological work from when they first encounter the major and promotes their continued involvement in that work throughout their academic career. Graded as pass/fail.

ANTH 200. Introduction to African Societies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course introduces the student to the African continent, its peoples and cultures. It covers such general characteristics as the physical and geographical features, climate, topography, traditional economies, languages, religions, social systems and other cultural features that are traditional to its people. Crosslisted as: AFAM 200/INTL 200.

ANTH 210. Biological Anthropology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103. Explores the disciplinary subfield of biological anthropology. Emphasis on the history and study of humans as biological organisms. Topics include genetic, social and ecological determinants of variation in human growth and biological diversity, as well as human adaptation and adaptability, disease, diet, and nutrition.

ANTH 220. Cultural Anthropology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103. Explores the disciplinary subfield of social and cultural anthropology. Provides an overview of key themes and theories in the subject, as well as the analytical and methodological tools to critically consider cultural difference, social organization and social change, with reference to a representative range of culture areas and the empirical fields studied by cultural anthropologists.

ANTH 230. Anthropological Linguistics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103. Explores the disciplinary subfield of anthropological linguistics. Emphasis is on the interactions between language and culture from a comparative perspective, as well as the relationship between language and social identities and relationships. Also an introduction to the field's methodology, research techniques, analytical tools and their applications.

ANTH 250. Death: Myth and Reality. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of intellectual and emotional responses to death and dying with emphasis upon their role in the development of religious thought and practice. Special attention will be paid to the death theme in literature, funeral practices and beliefs concerning the afterlife in selected world religions. Crosslisted as: RELS 250.

ANTH 301. Human Evolution. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisite: UNIV 200 or HONR 200 with a minimum grade of C. Introduces the range of human diversity as well as a broad understanding of evolution and evolutionary biology, particularly as it applies to hominid evolution. Specific topics include basic genetics, primatology, paleontology and the hominin fossil record. Crosslisted as: BIOL 341.

ANTH 302. Archaeological Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 105/INTL 104 and UNIV 200 or HONR 200 with a minimum grade of C. Covers the basic theoretical perspectives and tools of archaeology, including analysis and interpretation of archaeological materials. Students will review the intellectual history of archaeology, applying a variety of theoretical approaches to archaeological data sets and sites.

ANTH 303. Archaeological Methods and Research Design. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisites: ANTH 105/INTL 104 and UNIV 200 or HONR 200 with a minimum grade of C. Introduces the basic practices of archaeology, including planning, excavation, artifact analysis, documentary research, mapping, dating sites and artifacts, and interpretation and presentation of findings. Students will participate in an active field research program and will apply methods at an active site and lab.

ANTH 304. Sociology of Families. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. The family in its social and cultural context. Analysis of child rearing, marriage, kinship, family crises and family change in various societies around the world. Crosslisted as: SOCY 304/GSW 304.

ANTH 307. Human Osteology. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisite: ANTH 210. Corequisite: ANTH 307. Emphasizes human skeletal development and the identification of specific bones and their anatomical landmarks, including the determination of side for paired bones. Also discussed are methods of estimating age, sex and stature from human skeletal remains and application of human skeletal data to broader anthropological questions.

ANTH 309. Gender and Global Health. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines how health policies produce and regulate gendered bodies and sexualities. Topics may include how colonial medicine and health policies of detection, diagnosis, surveillance, quarantine and confinement were implemented as methods of social control. Analyzes continuities between colonial medicine and more contemporary interventions that in the name of individual and communal health attempt to shape proper sexualities and gendering. Crosslisted as: AFAM 309/INTL 309/GSW 309.

ANTH 310. Forensic Anthropology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 210 or FRSC 300 with a minimum grade of C. A comprehensive overview of forensic anthropology including its development and the theory and methodology on which it is based. Crosslisted as: FRSC 310.

ANTH 312. History of Human Settlement. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A cultural and historical geography of human migration and settlement over the earth. Topics may include agricultural and urban systems, exploration, colonization and imperialism, and changing relationships with the environment, during and since the Middle Ages. Crosslisted as: URSP 312.

ANTH 315. Field Methods and Research Design in Cultural Anthropology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103, and ANTH 220 or ANTH 230. Overview of quantitative and qualitative anthropological field techniques as well as the ethical dimension of anthropological fieldwork. Basics of research design, effective methodology and writing grant proposals.

ANTH 321. Gender and Culture in Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103 and AFAM/ANTH/INTL 200; or AFAM 111. Promotes an understanding of certain issues and conditions of women and their developing positions and statuses on the African continent. Among the topics to be considered are health and reproductive issues, women as political agents (vis-à-vis men), human rights debates, environmental practices, customary and traditional rites versus modernization, law and justice, and the concept of African feminism.

ANTH 328. Language, Culture and Cognition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 220 or 230. Introduces theoretical and methodological foundations for the study of language from sociocultural perspectives. The perspectives include linguistic, philosophical, psychological, sociological and anthropological contributions to the understanding of verbal and nonverbal communication as a social activity embedded in cultural contexts. No prior training in linguistics is presupposed. Crosslisted as: FRLG 328/ENGL 392/LING 392.

ANTH 330. Languages of Past Cultures: Historical Linguistics and Anthropology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 230, ANTH/ENGL/LING 390 or ANTH 328/ENGL 392/FRLG 328/LING 392. Considers the basic principles of diachronic linguistics in terms of the questions that historical linguists ask and the kinds of data they have at their disposal to answer them. Discusses uses of linguistic data in the reconstruction of past cultures in different parts of the world, analyzing strengths and weaknesses of such data and suggesting ways in which it can be usefully combined with information from other disciplines.

ANTH 331. Public Culture: Anthropology Through Film. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103; WRDL 230. Explores how anthropology can contribute to a critical analysis of films as cultural representations. Class discussion will relate particular films both to the cultural context they depict and to the cultural context in which they were produced. Will also examine films as images that produce cultural meanings with the potential to affect the viewer's understanding of the world and comprehension of self.

ANTH 335. Language and Society: Sociolinguistics in _____. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. May be repeated with different topics for a maximum of six credits. An introduction to topics in sociolinguistics, including language variation, language attitudes, language planning, language contact and multilingualism, language and gender, language and identity, and more. Crosslisted as: WRDL 335.

ANTH 345. The Anthropology of Tea. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103; and UNIV 200 or HONR 200. This course will use the core concepts of anthropology and through text analysis and recreation of tea ceremonies show how they can be applied to the practice of tea production and consumption around the world. Using tea from all of the tea-producing regions of the world, students will learn the history of tea and the meaning of various tea rituals, gaining a cross-cultural perspective on how food and drink are used to create human-to-human connections in their lives. They will also learn the economics behind the tea trade and how their consumption of world goods can impact the future of tea in the world.

ANTH 348. South American Ethnography. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. General ethnographic survey of both highland and lowland indigenous cultures of South America and cultural changes as a result of European contact. Crosslisted as: INTL 348.

ANTH 349. Rethinking a Continent: Latin America. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. This course surveys contemporary cultures of Latin America. It addresses historical sociocultural developments from an anthropological perspective and introduces concepts from social justice studies, development anthropology and applied anthropology. Crosslisted as: INTL 349.

ANTH 350. Rethinking a Continent: Europe. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103, INTL 101 or INTL 103; and UNIV 200 or HONR 200. An exploration of European political and sociocultural development from prehistory to modernity with an emphasis on integrative and disintegrative forces that have shaped cultures and identities in the European region as part of a larger geopolitical configuration. This course will focus on the diverse sociocultural compositions as well as the various cultural outputs of the region through an interdisciplinary approach. Crosslisted as: INTL 350.

ANTH 355. Death and Burial. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103 or ANTH 105. Explores beliefs about the dead across time and space, the transformations physical bodies undergo after death and how archaeologists investigate human remains to interpret the beliefs and social practices of past cultures.

ANTH 364. Mythology and Folklore. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of one or more forms of folklore, such as folktales, fairy tales, legends, myths, proverbs, riddles, ballads and/or games, with some attention to literary, social or historical significance and contexts. This course may also include approaches to collecting material or to examining later literary forms and texts inspired by folklore. Crosslisted as: ENGL 364.

ANTH 365. Archaeology and Religion: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of six credits. Explores the archaeological record as evidence for the religious life of past and present societies with emphasis on the study of religion anthropologically. Topics may include thematic and/or geographical and/or literary approaches. See the Schedule of Classes for specific topics to be offered each semester. Crosslisted as: RELS 365.

ANTH 370. Visualizing and Exhibiting Anthropology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103 or ANTH 105. Addresses the ability to visualize the knowledge gathered by anthropologists through forms of technology such as three-dimensional artifact scanning and 3D printing. Students will use the hundreds of objects scanned by archaeologists and ethnographers across the globe, including in VCU's Virtual Curation Laboratory, to design dynamic hands-on and virtual exhibits and activities that communicate multiple perspectives on the human condition and that are designed to stimulate and provoke multiple reactions and encourage discussion.

ANTH 375. Field Archaeology. 6 Hours.

Semester course; 3 lecture and 8 field and laboratory hours. 6 credits. Introduction to archaeological field and basic laboratory techniques. Archaeological data collection (excavation or survey) forms the core of the course.

ANTH 380. Medical Anthropology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 210 or 220. An introduction to the biological and cultural anthropological study of global health and well-being, including healing processes, the biosocial relations of healing management and relationships between biomedicine and pluralistic medical systems.

ANTH 381. Modern Identities: Nation Building. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Critically explores how nation building and national identities have developed over the past two centuries among peoples across the globe. Class discussions will examine theoretical perceptions of these processes and focus on how they shaped and shape realities in different times and places. Crosslisted as: INTL 381.

ANTH 383. Evolutionary Medicine and Anthropology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 210, BIOL 101 or BIOL 151. Explores how modern human health and disease have been shaped by evolutionary processes. Particular emphasis is placed on examining health-related traits that are adaptive in one context but maladaptive in others, and why attempts to eliminate some of these traits can have deleterious effects on other aspects of our health. Specific diseases to be addressed include hypertension, diabetes, clinical depression, reproductive disorders, gastrointestinal disorders and drug addiction, among many others.

ANTH 387. Environmental Archaeology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103 or ANTH 105. Provides an introduction to the kinds of environmental evidence archaeologists access and the kinds of questions they investigate using that evidence. Explores a variety of ways in which archaeologists examine the relationship between humans and the environment and the sorts of effects that different environmental conditions and changes have had on ancient societies.

ANTH 388. African Archaeology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103 or ANTH 105. Surveys the range of archaeological knowledge currently available about the African continent, highlighting the major interrelated social, economic/technological and cultural transformations in the African past and the most important archaeological sites and discoveries there. Addresses themes of Africa's enduring connections with the rest of the world, unique patterns of social and cultural development found on the continent, relations between African societies and their environments, and the contemporary significance of the continent's cultural heritage.

ANTH 389. World Archaeology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103 or ANTH 105. Examines the diversity and evolution of human cultures through archaeological practices and techniques.

ANTH 390. Introduction to Linguistics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. An introduction to methods of language analysis, emphasizing the study of sounds and sound patterns, and units of meaning and their arrangements. Crosslisted as: ENGL 390/LING 390.

ANTH 391. Topics in Anthropology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Maximum 6 credits per semester; maximum total of 18 credits in departmental topics courses that may be applied to the major. Prerequisite: ANTH/INTL 103. Seminar on current specialized areas of anthropological interest. See the Schedule of Classes for specific topics to be offered each semester.

ANTH 394. Historical Archaeology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103 or ANTH 105/INTL 104; and any history course. A review of historical archaeology, recognizing its contemporary emphasis on the spread of European cultures across the globe beginning in the 15th century. Methods and findings of historical archaeological research from the United States and around the world will be covered with special emphasis on the study of documents and artifacts related to the emergence and present state of the modern world. Crosslisted as: HIST 390.

ANTH 398. Field Investigations in Anthropology. 1-8 Hours.

Semester course; variable hours. 1-8 credits. May be repeated for a maximum of 8 credits. Permission of instructor required. A course involving travel and/or study in an off-campus context. Intended primarily for students participating in directed study abroad programs, the course meets the experiential learning requirement for the anthropology major.

ANTH 399. Junior Seminar. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisites: ANTH 210, 220 or 230; and junior standing. Focuses on self-assessment, compilation of a portfolio and curriculum vitae, career and graduate school preparation, and lifelong application of skills and knowledge acquired in the program. Students will critically assess their experience in the anthropology program.

ANTH 403. Primatology. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisite: ANTH 210 or ANTH 301/BIOL 341. Primatology investigates the taxonomic relationships among primates through comparative anatomy, comparative behavior and comparative biochemistry. Study of primate evolution, demography, subsistence, reproduction, social organization, communication systems and ecology. Crosslisted as: BIOL 403.

ANTH 415. Economic Anthropology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Provides an overview of the anthropological approach to the "economic" in social life. Analyzes the role played by systems of reciprocity and exchange in ethnographic contexts. Concepts employed by anthropologists in the study of traditional subsistence economies are used to examine modern industrialized societies. Crosslisted as: INTL 415.

ANTH 416. The Origin and Evolution of the Idea of Race. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103 or AFAM 103 or permission of instructor. This course is an exploration of the origins and social history of the "idea" of race from the Middle Ages to the end of the 20th century. Using both historical and anthropological scholarship, the course presents an analytical framework for race as a sociocultural phenomenon. Crosslisted as: AFAM 416.

ANTH 420. Women of Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103 or AFAM 103. This course looks at the traditional roles of women in African societies and examines how women have coped in different environments. It focuses on the institutionalized aspects of similarities and differences in women's lives in pastoral and horticultural societies and those with mixed economies, and will contrast these with women's roles in large state societies of Africa and in the modern urbanized context. Crosslisted as: AFAM 420/INTL 420.

ANTH 425. Religion, Magic and Witchcraft. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. A survey of the nature and variety of beliefs outside of the major streams of religious thought. Among topics considered are myth, totemism, taboo and sorcery. Emphasis on understanding supernatural beliefs and practices in relation to culture and society. Crosslisted as: RELS 425/INTL 425.

ANTH 450. Cross-cultural Communication. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the dynamics of cross-cultural communication that applies linguistic tools to understanding cultural issues and solving communication problems. Crosslisted as: ENGL 454/INTL 454.

ANTH 454. Theory in Cultural Anthropology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 220 or ANTH 230, and at least one 3-credit 300-level ANTH course. A study of the connections between theoretical work that addresses understandings of culture and methodological practice centered on creating ethnography.

ANTH 455. Anthropology of Development and Globalization. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103, INTL 101 or WRLD 210. Consists of a theoretical and practical understanding of development through an anthropological approach to social, cultural and economic change. Focuses on a critical examination of the agents of development: practitioners, consultants, non-governmental organizations and non-state agencies. Emphasis will be on the relation of development to the lived experiences of people around the world. Crosslisted as: INTL 455.

ANTH 457. Comparative Perspectives on Cultures and Societies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103; UNIV 200 or HONR 200. Examination of the theoretical, methodological and ethical problems that arise from anthropological comparisons of cultures. Crosslisted as: INTL 457.

ANTH 469. Human Dentition: ID and Anthropology. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Prerequisites: ANTH 103 and ANTH 210; or ANTH 301; or BIOL 318. Focuses on the evolutionary anthropology of human dentition. Topics include evolution, genetics and ontogeny of the dentition; functional aspects of tooth size and shape; dental asymmetry; dental morphology and population affinities; dental pathology and subsistence; and dental markers of physiological stress. Students will explore within- and between-group variation, as well as the relationship between dental size and shape and behavior, relatedness and nutrition.

ANTH 490. Anthropology Senior Capstone. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: completion of 15 credits in anthropology at the 300 and 400 level or the equivalent; senior standing. Open only to anthropology majors. Explores current research that transects more than one subfield of anthropology. Research foci will be at the discretion of the instructor, but students will explore how the anthropological subfields influence and speak to each other in new translational research, and will assess the emerging literature and scientific questions with a critical and scientific perspective.

ANTH 491. Advanced Topics in Anthropology. 1-3 Hours.

Semester course; variable hours. 1-3 credits. Maximum 6 credits per semester with different topics. Prerequisites: ANTH/INTL 103; ANTH 210, 220, or 230; and UNIV 200 or HONR 200. Seminar on current specialized areas of anthropological interest. See the Schedule of Classes for specific topics to be offered each semester. A maximum total of 18 credits in departmental topics courses (including ANTH 391 and 491) may be applied to the major.

ANTH 492. Independent Study. 1-6 Hours.

Semester course; variable hours. Variable credit. Maximum of 6 credits per semester; maximum total of 12 credits for all independent study and internship courses. Prerequisites: determination of the amount of credit and permission of the instructor and the group coordinator must be procured prior to enrollment in the course; a minimum GPA of 3.0 in the major. Generally open only to students of junior or senior standing who have acquired at least 12 credits in the anthropology program.

ANTH 493. Anthropology Internship. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits (40 clock hours per credit). May be repeated for a maximum of six credits for majors and three credits for minors. Enrollment requires permission of the internship coordinator. Student must be in good academic standing with a minimum major GPA of 2.25. Designed for the advanced student to gain workplace experience in a local, national or international business or agency offering opportunities in anthropological field methods or research.

ANTH 497. Honors in Anthropology. 3 Hours.

Continuous courses; 3 lecture hours. 3-3 credits. ANTH 497 is a prerequisite for ANTH 498. Design and completion of a long-term research project in the major. The thesis project is the culmination of an advanced course of study within the anthropology program. Under the supervision of a faculty mentor, students must demonstrate a thorough understanding and use of anthropological research techniques and analysis, a knowledge of relevant literature, and sophisticated writing and research abilities. Students must apply to program for participation in honors thesis work. See Bulletin for eligibility criteria and application procedure.

ANTH 498. Honors in Anthropology. 3 Hours.

Continuous courses; 3 lecture hours. 3-3 credits. ANTH 497 is a prerequisite for ANTH 498. Design and completion of a long-term research project in the major. The thesis project is the culmination of an advanced course of study within the anthropology program. Under the supervision of a faculty mentor, students must demonstrate a thorough understanding and use of anthropological research techniques and analysis, a knowledge of relevant literature, and sophisticated writing and research abilities. Students must apply to program for participation in honors thesis work. See Bulletin for eligibility criteria and application procedure.

Anthropology Lab (ANTZ)**ANTZ 301. Human Evolution Lab. 1 Hour.**

Semester course; 2 laboratory hours. 1 credit. Corequisite: BIOL 341/ANTH 301. Laboratory exercises correlated with BIOL 341/ANTH 301. Exercises emphasize comparative primate and fossil anatomy, morphology and behavior, as well as practice in recognizing and applying evolutionary principles in human evolution. Crosslisted as: BIOZ 341.

ANTZ 303. Archaeological Methods and Research Design Lab. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Corequisite: ANTH 303. Laboratory exercises correlated with ANTH 303. Exercises emphasize practical applications of describing, cataloging and analyzing artifacts and faunal and floral remains from archaeological excavations.

ANTZ 307. Human Osteology Lab. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Corequisite: ANTH 307. Laboratory exercises correlated with ANTH 307. Exercises will emphasize practical description and identification of human bones and bony morphology, as well as associated soft tissue structures.

ANTZ 403. Primatology Lab. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Corequisite: ANTH 403/BIOL 403. Laboratory exercises correlated with ANTH 403/BIOL 403. Exercises will emphasize comparative studies of morphology, behavior and social systems between and among primate groups, as well as the evolution of these characteristics in extant species and populations.

Arabic (ARBC)**ARBC 101. Beginning Arabic I. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Enrollment requires any student with previous exposure to Arabic to take the placement test to determine eligibility. For students with no prior knowledge of Arabic. Beginning grammar, reading, writing and oral skills.

ARBC 102. Beginning Arabic II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARBC 101 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Continuation of beginning grammar, reading, writing and oral skills.

ARBC 201. Intermediate Arabic I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARBC 102 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Arabic. Building toward intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

ARBC 202. Intermediate Arabic II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARBC 201 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Arabic. Increasing intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

ARBC 205. Intermediate Conversation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARBC 201. Designed to increase student proficiency in the spoken language through audio-oral exercises, dialogues and conversation.

ARBC 301. Communication and Composition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARBC 202, ARBC 205 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Arabic. Building toward intermediate-high proficiency in the three modes of communication: interpretive, interpersonal and presentational. Authentic materials enhance intercultural competence and communication skills.

ARBC 391. Topics in Arabic: _____. 1-3 Hours.

Semester course; variable hours. 1-3 credits. Prerequisite: ARBC 202 or equivalent. May be repeated with different topics for a maximum of 9 credits. Conducted in Arabic. An in-depth study of selected topics in Arabic. See the Schedule of Classes for specific topics to be offered each semester.

Biology (BIOL)**BIOL 101. Biological Concepts. 3 Hours.**

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A topical approach to basic biological principles. Topics include molecular aspects of cells, bioenergetics, photosynthesis, cellular respiration, cellular and organismal reproduction, genetics and evolution, and ecology. Not applicable for credit toward the major in biology.

BIOL 103. Global Environmental Biology. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits. This course engages students in understanding biological systems through aspects of global change in the Earth's environment. Global change is explored through the perspective of a biologist in association with social and economic concepts. Topics include climate change, population biology, ecosystems, urbanization, renewable and nonrenewable energy, air and water resources and sustainability goals. Assessments and applied activities reinforce major course concepts. Not applicable as a prerequisite for any biology course at the 200 level or higher nor for credit toward the B.S. in Biology.

BIOL 151. Introduction to Biological Sciences I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 139, MATH 141, MATH 151, MATH 200, MATH 201 or a satisfactory score on the math placement exam; and CHEM 100 with a minimum grade of B, CHEM 101 with a minimum grade of C or a satisfactory score on the chemistry placement exam. Introduction to core biological concepts including cell structure, cellular metabolism, cell division, DNA replication, gene expression and genetics. Designed for biology majors.

BIOL 152. Introduction to Biological Sciences II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151 and CHEM 101, both with a minimum grade of C. Focuses on evolutionary principles, the role of natural selection in the evolution of life forms, taxonomy and phylogenies, biological diversity in the context of form and function of organisms, and basic principles of ecology. Designed for biology majors.

BIOL 200. Quantitative Biology. 3 Hours.

Semester course; 3 lecture hours (delivered online or hybrid). 3 credits. Prerequisites: BIOL 151 and BIOZ 151 with minimum grades of C; and MATH 151, MATH 200, MATH 201, STAT 210 or satisfactory score on the VCU Mathematics Placement Test within a one-year period immediately preceding the beginning of the course. Enrollment is restricted to biology majors and biology minors. An introduction to the application of the scientific method, experimental design and quantitative aspects of biology.

BIOL 201. Human Biology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 101, 151, or 152, or BIOL/ENVS 103. Fundamentals of human biology, including the structure, function and disorders of human body systems, principles of human genetics and inheritance, human evolution, and the interaction of humans with the environment. Not applicable for credit toward the B.S. in Biology.

BIOL 205. Basic Human Anatomy. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours (plus online component). 4 credits. Prerequisites: BIOL 101 and BIOZ 101, BIOL 151 and BIOZ 151, or BIOL 152 and BIOZ 152, each with a minimum grade of C. Enrollment is restricted to students majoring in communication arts, health and physical education, health, physical education and exercise science; pre-health majors in medical laboratory sciences, clinical radiation sciences, dental hygiene and nursing; students enrolled in the health sciences certificate program; and students in the advising tracks for pre-occupational therapy, pre-physician assistant, pre-pharmacy and pre-physical therapy. Additionally, students in the pre-dentistry or pre-optometry advising tracks or those pursuing application to the accelerated nursing program must speak with a pre-professional health adviser prior to enrolling in the class. Human specimens, models and interactive software are used to study human body structures; emphasis is on the skeleto-muscular aspects. Not applicable for credit toward the B.S. in Biology.

BIOL 209. Medical Microbiology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 101 and BIOZ 101, BIOL 151 and BIOZ 151, or BIOL 152 and BIOZ 152, each with a minimum grade of C. General principles of microbiology and immunology to provide a thorough understanding of the host-microbe relationship in disease. Not applicable for credit toward the B.S. in Biology.

BIOL 217. Principles of Nutrition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 101, 151 or 152 with a minimum grade of C, or BIOL/ENVS 103 with a minimum grade of C. An introduction to basic principles of nutrition and their application in promoting growth and maintaining health throughout the life cycle. Not applicable for credit toward the B.S. in Biology.

BIOL 284. Laboratory Assistant Experience. 0 Hours.

Semester course; 0 hours. 0 credits. Enrollment is restricted to students with permission of the departmental chair and limited to students for whom a laboratory supervisor has agreed to mentor their laboratory assistantship. Helps facilitate student involvement in research laboratories within the Department of Biology. Students will assist with components of the laboratory's operation and gain experience working in a laboratory setting. Students will gain hands-on experience in performing tasks related to specific research areas based on the laboratory in which they are accepted to work. Graded as pass/fail.

BIOL 291. Topics in Biology. 1-4 Hours.

Semester course; variable hours. Variable credit. Prerequisites: BIOL 151, 152 and BIOZ 151, 152, with minimum grades of C. A study of a selected topic in biology. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

BIOL 300. Cellular and Molecular Biology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151 and 152; BIOZ 151 or LFSC/BNFO 251; BIOZ 152 or LFSC/BNFO 252; CHEM 101 and CHEZ 101, all with a minimum grade of C; BIOL 200, MATH 200, MATH 201, STAT 210, STAT 212 or STAT 314. Biology majors must have completed BIOL 200. Pre- or corequisites: CHEM 102 and CHEZ 102. A study of the molecular biology of the cell as it relates to gene expression, cell signaling, and cell growth and differentiation.

BIOL 303. Microbiology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 300 with a minimum grade of C. The morphological, biochemical, taxonomic, genetic and evolutionary characteristics of microorganisms with a primary focus on bacteria. Focuses on the structural, mechanical and biochemical adaptations employed by microorganisms in their interactions with host cells and substrates.

BIOL 304. Biology Skills. 3 Hours.

Semester course; 1 lecture hour (delivered online), 1 recitation hour and 3 laboratory hours. 3 credits. Prerequisites: BIOL 151 and BIOZ 151. Enrollment requires permission of the instructor. This course provides hands-on experience in laboratory-based research using current biological and/or biomedical research topics to aid in development of critical thinking and problem-solving.

BIOL 307. Aquatic Ecology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 317, CHEM 102 and CHEZ 102, with minimum grades of C. The physical, chemical and especially the biological aspects of freshwater ecosystems.

BIOL 308. Vertebrate Histology. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: BIOL 300 with a minimum grade of C. Microanatomy of vertebrate cells, tissues and organs and the relationship of structure to function. Laboratory work involves an in-depth study of vertebrate microanatomy at the light microscope level as well as an introduction to techniques used for the preparation of materials for histological study.

BIOL 309. Entomology. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: BIOL 151 and BIOZ 151; BIOL 152 and BIOZ 152, all with minimum grades of C. A field-based course that focuses on insect diversification, identification, natural history and basic biology.

BIOL 310. Genetics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151 and 152; BIOZ 151 or LFSC/BNFO 251; BIOZ 152 or LFSC/BNFO 252; BIOL 300; CHEM 101; and CHEZ 101, each with a minimum grade of C; and BIOL 200, MATH 200, MATH 201, STAT 210, STAT 212 or STAT 314. Biology majors must have completed BIOL 200. Pre- or corequisites: CHEM 102 and CHEZ 102. The basic principles of molecular and applied genetics of plants, animals and microorganisms.

BIOL 312. Invertebrate Zoology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151 and BIOZ 151; BIOL 152 and BIOZ 152, all with minimum grades of C. An integrative survey of the invertebrate animals with emphasis on systematics and natural history.

BIOL 313. Vertebrate Natural History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151, 152, with minimum grades of C. The natural history of vertebrates with emphasis on the species native to Virginia.

BIOL 314. Animal Reproduction. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL and BIOZ 151, BIOL and BIOZ 152, and BIOL 300, each with a minimum grade of C. Introduction to basic reproductive anatomy and physiology. Examination of the basic factors that affect reproductive performance and how these factors are used to regulate the reproductive processes of domestic animals and humans.

BIOL 317. Ecology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151 and 152; BIOZ 151 or LFSC/BNFO 251; BIOZ 152 or LFSC/BNFO 252; CHEM 101 and CHEZ 101, all with a minimum grade of C; BIOL 200, MATH 200, MATH 201, STAT 210, STAT 212 or STAT 314. Biology majors must have completed BIOL 200. An introduction to the basic principles of ecology, including interactions among organisms and influences of the physical environment.

BIOL 318. Evolution. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151 and 152; BIOZ 151 or LFSC/BNFO 251; BIOZ 152 or LFSC/BNFO 252; CHEM 101 and CHEZ 101, all with a minimum grade of C; BIOL 200, MATH 200, MATH 201, STAT 210, STAT 212 or STAT 314. Biology majors must have completed BIOL 200. An exploration of the theoretical and empirical foundations of evolutionary biology with a focus on the processes driving evolutionary change across all of life.

BIOL 320. Biology of the Seed Plant. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: BIOL 151 and BIOZ 151; and BIOL 152 and BIOZ 152, all with minimum grades of C. The physiology, structure and adaptation of seed plants.

BIOL 321. Plant Development. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 300 with a minimum grade of C. This course will discuss the mechanisms underlying plant development. Lectures and readings will explain the patterns in plant development from a morphological and molecular standpoint.

BIOL 322. Plants, People and Culture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, BIOZ 151, BIOL 152 and BIOZ 152, or equivalents, with minimum grades of C. Plant-human interactions are deeply intertwined and have significant impact on our societies, environment and future. Plants are harnessed to provide us with clothing, food, housing, medicine, recreation, jobs, clean air, clean water, etc. This course provides basic understanding of plant morphology, anatomy and growth by examining the biology, ecology, history and current events of economically useful plants. Students read primary literature, communicate scientific findings and synthesize information from multiple sources verbally and in written format.

BIOL 324. Medicinal Botany. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151 and BIOZ 151; BIOL 152 and BIOZ 152; and BIOL 300, all with a minimum grade of C. Topics include plant anatomy, morphology and reproduction; traditional plant medicine such as Ayurveda and traditional Chinese medicine; plant defense systems and secondary metabolites; and plant-derived drugs for various illnesses/ailments including cancer, arthritis, depression and diabetes.

BIOL 325. Fungal Biology. 3 Hours.

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: BIOL 300 with a minimum grade of C. The basic biology of fungi, including growth, structure, genetics, diversity, the commercial uses of fungi and their importance as model organisms. Also discusses the interactions between fungi and plants and fungi and humans.

BIOL 330. Community Science: _____. 3 Hours.

Semester course; 1 lecture hour (delivered online) and 4 laboratory hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisites: BIOL 152, BIOZ 152 and BIOL 200, each with a minimum grade of C. A comprehensive study of select topics that is integrated with community science. Students will contribute to local, national and/or global community science projects while gaining experience in data collection, data analysis and topic-specific protocols.

BIOL 332. Environmental Pollution. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: eight credits in biology. The study of pollution in the environment with emphasis on the procedures for detection and abatement. Crosslisted as: ENVS 330.

BIOL 333. Evolution of the Angiosperms. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151, 152, all with minimum grade of C. Application of evolutionary concepts to flowering plants. Topics include speciation concepts, evolution of vegetative and sexual characteristics and an overview of angiosperm diversity to the level of family.

BIOL 335. Global Change Biology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, BIOL 152, BIOZ 151 and BIOZ 152, all with minimum grade of C. Examines how humans influence biological systems and explores what can be done to adapt to or to mitigate future global change, emphasizing anthropogenic climate change.

BIOL 340. Development and Stem Cells. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 300 and CHEM 102, each with a minimum grade of C. Basic principles of developmental biology and stem cells of vertebrates, pinpointing the underlying cellular and molecular mechanisms that guide development and stem cell biology. Significant emphasis on medical aspects of development such as human birth defects, cloning, properties of stem cells and their medical uses, and careers in developmental and stem cell biology.

BIOL 341. Human Evolution. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisite: UNIV 200 or HONR 200 with a minimum grade of C. Introduces the range of human diversity as well as a broad understanding of evolution and evolutionary biology, particularly as it applies to hominid evolution. Specific topics include basic genetics, primatology, paleontology and the hominin fossil record. Crosslisted as: ANTH 301.

BIOL 351. Introduction to Bioinformatics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BNFO 201 and BNFO 300 or permission of instructor. The course will present a practical and theoretical introduction to the tools and techniques needed to obtain and interpret a variety of genome-related data types. The course will include several bioinformatic methods underlying nucleotide and protein sequence alignment, statistical methods for data visualization in R, the types of experimental results commonly encountered in bioinformatics data analysis and the public databases where these data can be accessed. Crosslisted as: BNFO 301.

BIOL 391. Topics in Biology. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. Prerequisites: BIOL 152 and BIOZ 152; and BIOL 300, BIOL 310, BIOL 317 or BIOL 318, each with a minimum grade of C. A study of a selected topic in biology. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

BIOL 392. Introduction to Research. 2 Hours.

Semester course; 1 lecture and 1 demonstration hour. 2 credits. Prerequisite: BIOL 300, BIOL 310, BIOL 317 or BIOL 318 with a minimum grade of C. An introduction to the scientific process, including the mechanics of problem definition, information gathering and experimental design. Experimentation is discussed in context with methods of data collection and analysis. Aims are to prepare the student for future research experiences and to have the student write detailed research proposals.

BIOL 395. Directed Study. 1-2 Hours.

Semester course; 1-2 independent study hours. 1-2 credits. Prerequisites: BIOZ 151 and BIOZ 152 with minimum grades of C, permission of the Department of Biology and research mentor. A maximum of two credits may be earned between BIOL 395 and BIOZ 395; maximum total of six credits for all research and internship courses (BIOL 395, BIOL 451, BIOL 453, BIOL 492, BIOL 493, BIOL 495 and/or BIOZ 395) may be applied to the the 40 credits of biology required for the major. Additional credits from these courses may be applied to upper-level and open elective credits toward the degree. Mentors are not limited to faculty members within the Department of Biology, but the context of the research study must be applicable to the biological sciences as determined by the department. Studies should include directed readings, directed experimentation or advanced guided inquiry — all under the direct supervision of a faculty member. A minimum of three hours of supervised activity per week per credit hour is required. This course may not apply as a laboratory experience. Graded as pass/fail.

BIOL 401. Applied and Environmental Microbiology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 152, BIOZ 152 and BIOL 300, each with a minimum grade of C. Introduction to the diversity of microorganisms in natural environments and the ways they can be manipulated and controlled for human advantage. Students gain foundational knowledge of microbial energetics, growth and community dynamics, which is then applied to understanding microbial roles in biogeochemical cycling, climate change, agriculture, public health, wastewater treatment and landfills. The course also covers applied topics such as biotechnology, pollution control and food production.

BIOL 402. Comparative Vertebrate Anatomy. 5 Hours.

Semester course; 3 lecture and 4 laboratory hours. 5 credits. Prerequisites: BIOL 300 and BIOL 318, each with a minimum grade of C. The evolution of vertebrate forms as demonstrated by anatomical studies of selected vertebrate types.

BIOL 403. Primatology. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisite: ANTH 210 or ANTH 301/BIOL 341. Primatology investigates the taxonomic relationships among primates through comparative anatomy, comparative behavior and comparative biochemistry. Study of primate evolution, demography, subsistence, reproduction, social organization, communication systems and ecology. Crosslisted as: ANTH 403.

BIOL 411. Physiology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 300 and CHEM 301, each with a minimum grade of C. Focuses on the characterization and understanding of the function and mechanisms of major physiological systems, primarily using human physiology as a model. Emphasis is placed on understanding how different physiological systems work together to maintain homeostasis and predicting the consequences of damaging or deleting system components that can occur in diseases and injuries.

BIOL 413. Parasitology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 300 with a minimum grade of C. The epidemiology and pathological effects of eukaryotic parasites, including parasite life cycles and host-parasite relationships.

BIOL 415. Mangrove Avian Field Ecology. 4 Hours.

Semester course; two weeks abroad in Panama (or other tropical location with mangrove forests) followed by class meetings two days per week throughout most of spring semester. 4 credits. Prerequisite: BIOL 317. An immersive study of tropical ecology with a focus on bird ecology and conservation of mangrove ecosystems through a unique blend of rigorous science and community engagement. Two weeks of study abroad, including engagement with local conservation organizations and participation in education outreach with local schools, followed by discussion, data analysis and presentation of progress and research in a public symposium on campus.

BIOL 416. Ornithology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 317 with a minimum grade of C. Provides an integrative study of birds, including avian evolution and diversity, general anatomy and physiology, behavior, and ecology.

BIOL 417. Mammalogy. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: BIOL 218 and 317 with minimum grades of C. Study of the characteristics, adaptive radiation and distribution of mammals, with emphasis on North American forms.

BIOL 420. Yeast and Fermentation. 3 Hours.

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: BIOL 300 with a minimum grade of C. Pre- or corequisites: BIOL 303 and BIOL 310. Addresses the basic biology of yeast used in brewing beer and briefly in wine production. Topics will include yeast properties such as growth, structure, genetics, biodiversity and natural habitats. The process of wine and beer production will be discussed. Laboratory sessions include basic microbiology techniques, yeast isolations and characterization using DNA and biochemical methods, as well as the study of factors that affect fermentation. At the end of the course the students will give a presentation on other fermentation products of their interest such as vinegar, bread, etc., providing an expanded version of this important process.

BIOL 422. Forest Ecology. 4 Hours.

Semester course; 3 lecture hours and 3 laboratory hours. 4 credits. Prerequisite: BIOL 317 with a minimum grade of C. Covers the fundamentals of forest ecology, with a particular emphasis on Virginia's diverse forest ecosystems. Students gain an understanding of the principal controls on forest structure, growth and distribution and relate these principles to sustainable forest management.

BIOL 423. Plant Physiology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151 and BIOZ 151; BIOL 152 and BIOZ 152; and BIOL 300 or equivalents, all with minimum grades of C. Physiology of higher plants at molecular, cellular and organism level. Topics include transport processes, metabolism, growth, stress responses and plant-soil interactions.

BIOL 425. Field Botany. 3 Hours.

Semester course; 1 lecture hours and 4 laboratory hours (40 percent online, 60 percent field/laboratory). 3 credits. Prerequisites: BIOL 152, BIOZ 152 and BIOL 200; and BIOL 300, BIOL 310, BIOL 317 or BIOL 318. Online discussions, reflections and assessments in conjunction with field experience. Explores the effects of environmental conditions on plant morphology and adaptations, with emphasis on plant anatomy, plant physiology and plant diversity.

BIOL 430. Invasion Biology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, BIOL 152, BIOZ 151, BIOZ 152 and BIOL 317, all with minimum grade of C. A comprehensive view of the ecology and impacts of invasive species. Integrates the effects of historical human demography, ecological disturbance, natural history, species interactions, barriers to invasion, invasive species management and impacts on natural communities and ecosystems.

BIOL 431. Introduction to Marine Biology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 317, CHEM 102 and CHEZ 102, with minimum grades of C. An introduction to physical, chemical and geological oceanography and a more detailed treatment of the organisms and ecological processes involved in the pelagic and benthic environments of the world's oceans and estuaries.

BIOL 435. Herpetology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 317 with a minimum grade of C. The evolution, ecology, structure, taxonomy and behavior of reptiles and amphibians.

BIOL 438. Forensic Molecular Biology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 310 with a minimum grade of C. Provides an understanding of molecular biology testing methodologies as applied to analysis of forensic samples. Current topics in forensic DNA analysis will include quality assurance, DNA databanking, contemporary research and population genetics. Crosslisted as: FRSC 438.

BIOL 440. Developmental Biology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 300 and 310, each with a minimum grade of C. Basic principles of developmental biology focused on vertebrate model organisms with an emphasis on the underlying cellular and molecular mechanisms that guide development.

BIOL 445. Neurobiology and Behavior. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: BIOL 317 with a minimum grade of C. The study of animal behavior stressing ecological, evolutionary and neurobiological approaches.

BIOL 448. Neuroscience. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 300 with a minimum grade of C. Pre- or corequisite: BIOL 310. An examination of the basic structure of the nervous system, nervous system operation on a cellular and molecular level and the formation of the nervous system during development.

BIOL 449. Stem Cells in Disease and Therapy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 152, BIOZ 152 and BIOL 300, each with a minimum grade of C. BIOL 310 and BIOL 340 recommended. Advanced stem cell biology with emphasis on the role of stem cells in human disease and regenerative medicine. Topics include the history of stem cell research; the generation of pluripotent stem cells; the role of adult stem cells in disease and genetic disorders; the use of genetic engineering in stem cell-based curative gene therapy; and discussions of the ethical issues related to stem cell use in regenerative medicine.

BIOL 450. Biology of Cancer I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 300 with a minimum grade of C or PHIS 309. An examination of the cellular, molecular and clinical aspects of cancer development, progression and treatment.

BIOL 451. Biology of Cancer II. 4 Hours.

Semester course; 1 lecture and 12 laboratory hours. 4 credits. Prerequisites: BIOL 450 and instructor's permission. A maximum total of six credits for all research and internship courses (BIOL 395, BIOL 451, BIOL 453, BIOL 492, BIOL 493, BIOL 495 and/or BIOZ 395) may be applied to the the 40 credits of biology required for the major. Additional credits from these courses may be applied to upper-level and open elective credits toward the degree. An examination of the cellular, molecular and clinical aspects of cancer development, progression and treatment.

BIOL 452. Biology of Drugs. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 300 with a minimum grade of C. Explores how drugs modulate biological signaling pathways to study, cure, enhance and intoxicate organisms. An introduction to basic pharmacology that largely focuses on human pathways and diseases. Topics include major drug classes (cardiovascular, gastrointestinal, etc.) and drugs of abuse (alcohol, marijuana, etc.).

BIOL 453. Cancer Biology Thesis. 4 Hours.

Semester course; 1 recitation and 12 laboratory hours. 4 credits. Prerequisite: BIOL 451. A maximum total of six credits for all research and internship courses (BIOL 395, BIOL 451, BIOL 453, BIOL 492, BIOL 493, BIOL 495 and/or BIOZ 395) may be applied to the the 40 credits of biology required for the major. Additional credits from these courses may be applied to upper-level and open elective credits toward the degree. Enrollment is restricted to students with permission of the instructor and research mentor. Students will benefit from invaluable learning opportunities in cancer research including hands-on learning, direct mentorship from a VCU faculty member, scientific writing skills, time and research project management, and exposure to and training in various laboratory techniques. In addition, students will gain experience in preparation of a cancer research proposal and thesis.

BIOL 454. Biology of Aging and Diseases. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 300 and BIOL 310 each with a minimum grade of C. A study of the molecular biology of aging as it relates to evolution of life span, model organisms, diseases and genetic regulation of aging.

BIOL 455. Immunology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 300 with a minimum grade of C or PHIS 309. A comprehensive introduction to the vertebrate immune system emphasizing the molecular and cellular basis of innate and adaptive immune mechanisms, interactions and regulation.

BIOL 456. Virology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 152, BIOZ 152 and BIOL 300, each with a minimum grade of C. BIOL 310 is recommended. Exploration of concepts related to the basic molecular and cellular biology of viruses with emphasis on the structure, genetic material and replication strategies of viruses, and the different mechanisms of infection and prevention measures. Importance of viruses as agents of evolution and their role in ecosystems and geological processes will also be discussed.

BIOL 459. Infectious Disease Ecology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, BIOL 152, BIOZ 151, BIOZ 152 and BIOL 317, all with minimum grade of C. A comprehensive and up-to-date overview of the causes and consequences of infectious disease at levels from individual organisms to global scale. Examines the history of infectious disease ecology in human and nonhuman populations. Students learn about the roles of transmission and coevolution in infectious disease ecology and how population models are used to inform management of epidemics and emerging infectious diseases.

BIOL 460. Human Evolutionary Genetics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 318 or BIOL 341 with a minimum grade of C. The origin and genetic history of modern humans, our historic colonization and migration, the utility of the Human Genome Project, our differences from other primates, adaptation to our environment and disease, and the ethical implications of genetic research in our society.

BIOL 475. Biology Capstone Seminar. _____. 1-3 Hours.

Semester course; 1-3 seminar hours. 1-3 credits. Prerequisites: BIOL 300, BIOL 310, BIOL 317 and BIOL 318, each with a minimum grade of C. Enrollment is restricted to biology majors with senior standing. Students read assigned topical papers before class, prepare critical analyses, discuss and debate selected positions. See Schedule of Classes for specific topics.

BIOL 477. Biology Capstone Experience. 0 Hours.

Semester course; variable hours. 0 credits. Prerequisites: BIOL 300, BIOL 310, BIOL 317 and BIOL 318, each with a minimum grade of C; and 90 hours of undergraduate course work. The following courses qualify as a capstone experience if taken concurrently with this course: BIOL 492, BIOL 493, BIOL 495, BIOL 497 or other courses, including topics courses, which include the core competencies required for a capstone experience and are approved by the chair of the Department of Biology. Graded as pass/fail.

BIOL 480. Animal-Plant Interactions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 317 or BIOL 318 with a minimum grade of C, or permission of the instructor. Ecological and evolutionary consequences of interactions among animals and plants.

BIOL 482. Preceptor Experience. 0 Hours.

Semester course; 0 hours. 0 credits. Enrollment is restricted to students who have completed the relevant course for which they will be a teaching assistant with a minimum grade of B and who have a minimum cumulative GPA of 3.0. Permission of instructor and departmental chair also required prior to registration. Teaching assistants will enhance their knowledge of course content and develop skills that are natural to an instructional role, an understanding of the learning process within a discipline and the ability to explain the importance and value of course content to a novice audience. Graded as pass/fail.

BIOL 484. Research Assistant Experience. 0 Hours.

Semester course; 0 hours. 0 credits. Enrollment is restricted to students with permission of the departmental chair and limited to students for whom a research supervisor has agreed to be a mentor. Helps facilitate student involvement in research laboratories within the Department of Biology. Students will gain hands-on experience including data collection and analysis, learning field and/or laboratory techniques, and/or mastering experimental procedures, all under the direct supervision of a faculty member. Graded as pass/fail.

BIOL 489. Communicating Research. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: Completion of the Biocore with minimum grades of C. Corequisite: BIOL 495, senior standing. An opportunity for students to develop skills necessary for effective communication of their research in writing. Includes a variety of seminar discussions and activities including preparation of figures for publication and the crafting of a research paper with correct usage of the primary literature. Students will use this as an opportunity to aid the writing of their thesis for BIOL 495.

BIOL 490. Presenting Research. 1 Hour.

Semester course; 1 credit. Prerequisite: Completion of the Biocore with minimum grades of C. Pre- or corequisites: BIOL 492 or 495, and senior standing. Opportunity for students to develop skills necessary for effective oral presentation of their research work. Includes a variety of seminar discussions and activities such as preparation of visual materials and statistical analysis of data. Students will make several oral presentations directly related to their specific BIOL 492 or 495 projects.

BIOL 491. Topics in Biology. 1-4 Hours.

Semester course; variable hours. Variable credit. Prerequisite: BIOL 300. A study of a selected topic in biology. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

BIOL 492. Independent Study. 1-4 Hours.

Semester course; 1-4 independent study hours. 1-4 credits. Prerequisites: BIOZ 151 and BIOZ 152, each with a minimum grade of C; and permission of the chair of the Department of Biology. May be repeated for credit. A maximum total of six credits for all research and internship courses (BIOL 395, BIOL 451, BIOL 453, BIOL 492, BIOL 493, BIOL 495 and/or BIOZ 395) may be applied to the 40 credits of biology required for the major. Additional credits from these courses may be applied to upper-level and open elective credits toward the degree. A minimum of two credits is required for the course to count as a laboratory experience. Projects should include data collection and analysis, learning field and/or laboratory techniques, and/or mastering experimental procedures, all under the direct supervision of a faculty member. A minimum of three hours of supervised activity per week per credit hour is required. A final report must be submitted at the completion of the project.

BIOL 493. Biology Internship. 4 Hours.

Semester course; 0-4 field experience hours. 0-4 credits (one credit per 50 hours of supervised work experience). May be repeated for credit. Prerequisites: BIOL 151, BIOZ 151, BIOL 152 and BIOZ 152 each with minimum grade of C; and permission of the chair of the Department of Biology and the institution where the internship will be performed. Students may take a maximum of four credits per semester; maximum total of six credits for all research and internship courses (BIOL 395, BIOL 451, BIOL 453, BIOL 492, BIOL 493, BIOL 495 and/or BIOZ 395) may be applied to the 40 credits of biology required for the major. Additional credits from these courses may be applied to upper-level and open elective credits toward the degree. BIOL 493 taken for 0 credit does not qualify for BIOL 477 capstone experience. Internship is designed to provide laboratory, field or work experience in an off-campus professional biology setting. In addition to an internship proposal and professional practices/reflection assignments, a final report/reflection must be submitted during the course of the internship.

BIOL 495. Research and Thesis. 1-4 Hours.

Semester course; 1-4 research hours. 1-4 credits. Prerequisites: BIOL 392, permission of the supervising faculty member and a research proposal acceptable to the departmental chair. Corequisite: BIOL 489 or BIOL 490. May be repeated for a maximum of eight credits. Students may take a maximum of four credits per semester; maximum total of six credits for all research and internship courses (BIOL 395, BIOL 451, BIOL 453, BIOL 492, BIOL 493, BIOL 495 and/or BIOZ 395) may be applied to the 40 credits of biology required for the major. Additional credits from these courses may be applied to upper-level and open elective credits toward the degree. A minimum of two credits is required for the course to count as a laboratory experience. A minimum of four credits is required for honors in biology. Activities include field and/or laboratory research under the direct supervision of a faculty mentor. A minimum of three hours of supervised activity per week per credit hour is required. Research projects must include experimental design and analysis of data. This course must be taken for two consecutive semesters starting in the fall. A written thesis of substantial quality is required upon completion of the research.

BIOL 496. Biology Preceptorship: _____. 2 Hours.

Semester course; 2 practicum hours. 2 credits. May be repeated with a different course for credit. Enrollment restricted to students who have completed the relevant course with a minimum grade of B and who have a minimum cumulative GPA of 3.0. Permission of instructor is required prior to registration. Preceptors assist instructors in lecture (BIOL) or laboratory (BIOZ) courses. Responsibilities vary and may include, but are not limited to, attending class, conducting review sessions and preparing course study/review materials. Graded as pass/fail. A maximum of four combined credits from BIOL 496 and BIOL 499 may be applied to degree requirements.

BIOL 497. Ecological Service Learning. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: BIOL 317 with a minimum grade of C. A service-learning course coupled to course content and material taught in BIOL 317. Students will seek out ecologically relevant opportunities with local, state and federal community partners who will provide experiences to enhance academic enrichment and personal growth and will help foster a sense of civic responsibility. Students must complete a minimum of 20 service-learning hours with community partner(s).

BIOL 498. Insects and Plants Service-learning. 2 Hours.

Semester course; 2 field experience hours. 2 credits. Prerequisites: BIOL 317 or BIOL 318 with a minimum grade of C, and permission of the instructor. A service-learning course related to insect-plant interactions. Field experience with community partners, including public parks, botanical gardens and organic farms. Designed to expand academic instruction, enhance personal growth and foster a sense of civic responsibility. Students must complete a minimum of 40 service-learning hours with a community partner.

BIOL 499. Biology Lead Preceptorship. 2 Hours.

Semester course; 2 practicum hours. 2 credits. Prerequisite: BIOL 496 in the same course with a grade of Pass. Enrollment is restricted to students who have completed the relevant course with a minimum grade of B and who have a minimum cumulative GPA of 3.0. Permission of the instructor is required prior to registration. Lead preceptors assist instructors in lecture (BIOL) or laboratory (BIOZ) courses. Responsibilities cumulate beyond those required in the prerequisite course. Responsibilities vary and may include, but are not limited to, organizing preceptor teams for large enrollment courses, preceptor mentorship, data entry of course materials, execution of group work, etc. Graded as pass/fail. A maximum of four combined credits from BIOL 496 and BIOL 499 may be applied to degree requirements.

Biology Lab (BIOZ)**BIOZ 101. Biological Concepts Laboratory. 1 Hour.**

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: BIOL 101, 151 or 152. Laboratory exercise correlated with BIOL 101. Not applicable for credit toward the B.S. in Biology.

BIOZ 151. Introduction to Biological Science Laboratory I. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. Prerequisite: MATH 139, MATH 141, MATH 151, MATH 200, MATH 201 or a satisfactory score on the math placement exam; and CHEM 100 with a minimum grade of B, CHEM 101 with a minimum grade of C or a satisfactory score on the chemistry placement exam. Pre- or corequisite: BIOL 151. Laboratory investigation of cellular metabolism, genetics and molecular biology, with an emphasis on formation and testing of hypotheses. Laboratory exercises will elaborate themes discussed in BIOL 151.

BIOZ 152. Introduction to Biological Science Laboratory II. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. Prerequisites: BIOL 151, BIOZ 151 and CHEM 101, each with a minimum grade of C. Pre- or corequisite: BIOL 152. Laboratory investigation of evolutionary concepts, evolution of organisms, biological diversity and ecology, with an emphasis on formation and testing of hypotheses. Laboratory exercises will elaborate themes discussed in BIOL 152.

BIOZ 201. Human Biology Laboratory. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: BIOL 201. Laboratory exercises correlated with BIOL 201 Human Biology. Exercises emphasize the structure, function and disorders of human body systems, principles of human genetics and inheritance, and human evolution and ecology. Not applicable for credit toward the B.S. in Biology.

BIOZ 209. Medical Microbiology Laboratory. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: BIOL 209. Techniques to culture, isolate and identify microbes with related topics such as water coliform tests, and antibiotics and disinfectant sensitivity testing. Not applicable for credit toward the B.S. in Biology.

BIOZ 303. Microbiology Laboratory. 2 Hours.

Semester course; 1 recitation and 3 laboratory hours. 2 credits. Pre- or corequisite: BIOL 303. Laboratory application of techniques and concepts in microbiology. Emphasis is placed on techniques to isolate, culture and identify bacteria; genetics and molecular biology of bacteria; safety and aseptic protocols; assays for antibiotic and disinfectant susceptibility.

BIOZ 307. Aquatic Ecology Laboratory. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. Prerequisites: BIOL 317, CHEM 102 and CHEZ 102, with minimum grades of C. Pre- or corequisite: BIOL 307. Laboratory and field studies of the biota of aquatic habitats and their relationship with the environment.

BIOZ 310. Laboratory in Genetics. 2 Hours.

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisites: UNIV 200 or HONR 200; and BIOL 152 and BIOZ 152, each with a minimum grade of C. Pre- or corequisite: BIOL 310. Demonstrates the laws and molecular basis of heredity through exercises and experiments that use a variety of organisms.

BIOZ 312. Invertebrate Zoology Laboratory. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. Prerequisites: BIOL and BIOZ 151 and 152, with minimum grades of C. Pre- or corequisite: BIOL 312. A field and laboratory survey of the invertebrate animals, with emphasis on identification and natural history.

BIOZ 313. Vertebrate Natural History Laboratory. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. Prerequisites: BIOL and BIOZ 151 and 152, with minimum grades of C. Pre- or corequisite: BIOL 313. Laboratory exercises focusing on the natural history of vertebrates, with emphasis on the species native to Virginia.

BIOZ 317. Ecology Laboratory. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Prerequisites: BIOL and BIOZ 151 and 152, and UNIV 200 or HONR 200; all with minimum grades of C. Pre- or corequisite: BIOL 317. A field-oriented course that provides experience in ecological research, including experimental design, instrumentation, data collection and data analysis.

BIOZ 321. Plant Development Laboratory. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Pre- or corequisite: BIOL 321. An experimental approach applied to a phylogenetic survey of developmental model systems. Observational and experimental protocols will be used to collect data and gather information. Problem-solving skills will be utilized to analyze and present experimental results.

BIOZ 324. Medicinal Botany Laboratory. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. Prerequisites BIOL 151 and BIOZ 151; BIOL 152 and BIOZ 152; and BIOL 300, all with a minimum grade of C. Pre- or corequisite: BIOL 324. Introduces basic plant biology concepts, plant diversity and systematics, and various medicinal plant species, compounds and properties.

BIOZ 341. Human Evolution Lab. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Corequisite: BIOL 341/ ANTH 301. Laboratory exercises correlated with BIOL 341/ANTH 301. Exercises emphasize comparative primate and fossil anatomy, morphology and behavior, as well as practice in recognizing and applying evolutionary principles in human evolution. Crosslisted as: ANTZ 301.

BIOZ 367. Explorations in Cellular Organization. 3 Hours.

Semester course; 2 recitation hours and 3 laboratory hours. 3 credits. Prerequisites: BIOL 200 and BIOL 300, each with minimum grades of C; completion of BIOL 310 is strongly recommended. Eukaryotic cells compartmentalize biological processes into discrete organelles, and this organization is critically important for cell function in health and disease. This course-based research experience provides a theoretical and practical overview of the design and execution of experimental workflows in biology, as well as generation and testing of hypotheses. During lab sessions, students will conduct a series of progressive experiments to explore an unanswered question related to eukaryotic cell organization, analyze and interpret data, and reflect on the meaning of their discoveries. Recitation will cover theoretical aspects of the research question and experimental design, as well as relevant tools, techniques and literature needed for lab sessions.

BIOZ 391. Topics in Biology Laboratory. 1-4 Hours.

Semester course; 1-4 laboratory hours. 1-2 credits. Prerequisite: BIOL 300, BIOL 310, BIOL 317 or BIOL 318, with a minimum grade of C. Laboratory investigations in a selected topic of biology. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

BIOZ 395. Directed Study. 1-2 Hours.

Semester course; 1-2 independent study hours. 1-2 credits. Prerequisites: BIOZ 151 and BIOZ 152 with minimum grades of C, permission of the Department of Biology and research mentor. A maximum of two credits may be earned between BIOL 395 and BIOZ 395; maximum total of six credits for all research and internship courses (BIOL 395, BIOL 451, BIOL 453, BIOL 492, BIOL 493, BIOL 495 and/or BIOZ 395) may be applied to the 40 credits of biology required for the major. Additional credits from these courses may be applied to upper-level and open elective credits toward the degree. A minimum of two credits is required for the course to count as a laboratory experience. Mentors are not limited to faculty members within the Department of Biology, but the context of the research study must be applicable to the biological sciences as determined by the department. Studies should include directed readings, directed experimentation or advanced guided inquiry — all under the direct supervision of a faculty member. A minimum of three hours of supervised activity per week per credit hour is required. Graded as pass/fail.

BIOZ 399. Experiential and Applied Topics: _____. 4 Hours.

Semester course; 0-4 lecture hours. 0-4 credits. Prerequisites: BIOZ 151 and BIOZ 152 with minimum grades of C. Enrollment requires permission of the Department of Biology. Completion of an experiential learning activity or project as approved by the Department of Biology. Experiences vary by section; may include study abroad, study away, course-based undergraduate research, funding-dependent opportunities or other transient course offerings. Provides the student with an opportunity to engage in meaningful hands-on research, scholarship or creative work directly relevant to realizing their personal and professional goals. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

BIOZ 401. Applied and Environmental Microbiology Laboratory. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Prerequisite: BIOL 303, BIOL 401 or permission of instructor. Offers students the opportunity to gain skills and experience necessary to perform a variety of microbiology analyses including both cultivation-based approaches and cultivation-independent methods. Students will apply these techniques and concepts to conduct experiments in soil and aquatic ecology, drinking water quality, wastewater treatment, food production and other environmental applications.

BIOZ 405. Gross Anatomy Laboratory. 2 Hours.

Semester course; 1 recitation and 3 lab hours. 2 credits. Prerequisite: BIOL 205 or BIOL 402 with a minimum grade of B. Enrollment requires permission of the instructor. Lab-based advanced human anatomy course utilizing regional-based cadaver dissection to focus on integrative functions of anatomical structures. Anatomical anomalies, clinical application and relevant advances are applied in the context of exploratory learning and emergent topics. Enrollment is intended for pre-health and biology majors.

BIOZ 416. Ornithology Laboratory. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Prerequisite: BIOL 317 with a minimum grade of C. Pre- or corequisite: BIOL 416. A field-oriented course that develops basic skills in bird identification by sight and sound for a variety of regional taxa with emphasis on avian anatomy and adaptations for flight. Students conduct an independent or small-group research project on a question of their choice relating to avian ecology or behavior, including experimental design, data collection and analysis, and a final project presentation.

BIOZ 418. Integrative Physiology Laboratory. 3 Hours.

Semester course; 2 recitation and 3 laboratory hours. 3 credits. Prerequisites: BIOL 151 and BIOZ 151; BIOL 152 and BIOZ 152; BIOL 300 and BIOL 317; or equivalents, all with minimum grades of C. A comparative laboratory investigation of physiological responses across plant and animal taxa, with application to changing environmental conditions and ecological interactions. Topics include metabolism, water balance, gas exchange, resource allocation and chemical signaling.

BIOZ 438. Forensic Molecular Biology Laboratory. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Pre- or corequisite: BIOL/FRSC 438. Provides comprehensive coverage of the various types of DNA testing currently used in forensic science laboratories. Students will have hands-on experience with the analytical equipment employed in forensic science laboratories and the techniques for human identification in forensic casework. Students also will explore and practice both scientific writing and writing of DNA case reports. Crosslisted as: FRSZ 438.

BIOZ 476. Molecular Capstone Laboratory. 2 Hours.

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisites: BIOL 300 and BIOL 310, each with a minimum grade of C; and 90 credit hours of undergraduate course work. Application of basic methods used in cellular and molecular biology to the investigation of topics of current biological interest. Emphasis on experimental design, data collection and analysis, communication skills, critical thinking, and ethical and social responsibility.

BIOZ 491. Topics in Biology Laboratory. 1-4 Hours.

Semester course; variable hours. Variable credit. Prerequisites: BIOL 300 with a minimum grade of C. Laboratory investigations in a selected topic of biology. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

BIOZ 493. Biology Internship Laboratory. 4 Hours.

Semester course; 0-4 field experience hours. 0-4 credits (one credit per 50 hours of supervised work experience). May be repeated for credit. Prerequisites: BIOL 151, BIOZ 151, BIOL 152 and BIOZ 152 each with minimum grade of C. Enrollment requires permission of the chair of the Department of Biology and the institution where the internship will be performed. Students may take a maximum of four credits per semester; maximum total of six credits for all research and internship courses (BIOL 395, BIOL 451, BIOL 453, BIOL 492, BIOL 493, BIOL 495, BIOZ 395 and/or BIOZ 493) may be applied to the 40 credits of biology required for the major. Additional credits from these courses may be applied to upper-level and open elective credits toward the degree. BIOZ 493 taken for 0 credit does not qualify for BIOL 477 capstone experience. Internship is designed to provide laboratory, field or work experience in a professional biology setting. To justify registration for this BIOZ laboratory experience credit, the internship must involve hands-on data collection and analysis as approved by the department. In addition to an internship proposal and professional practices/reflection assignments, a final report/reflection must be submitted during the course of the internship.

Chemistry (CHEM)**CHEM 100. Introductory Chemistry. 3 Hours.**

Semester course; 3 lecture and 1 problem session hour. 3 credits. Prerequisite: students must be eligible to take MATH 131 or higher. A course in the elementary principles of chemistry for individuals who do not meet the criteria for enrollment in CHEM 101; required for all students without a high school chemistry background who need to take CHEM 101-102. These credits may not be used to satisfy any chemistry course requirements in the College of Humanities and Sciences.

CHEM 101. General Chemistry I. 3 Hours.

Semester course; 3 lecture and 1 recitation hours. 3 credits. Prerequisites: MATH 139, MATH 141, MATH 151, MATH 200, MATH 201 or satisfactory score on the VCU mathematics placement test within the one-year period immediately preceding the beginning of the course; and CHEM 100 with a minimum grade of B or satisfactory score on the chemistry placement exam/assessment within the one-year period immediately preceding the beginning of the course. Fundamental principles and theories of chemistry.

CHEM 102. General Chemistry II. 3 Hours.

Semester course; 3 lecture and 1 recitation hours. 3 credits. Prerequisites: MATH 151, MATH 200, MATH 201 or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course; and CHEM 101 with a minimum grade of C. Fundamental principles and theories of chemistry, including qualitative analysis.

CHEM 110. Chemistry and Society. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The basic principles of chemistry are presented through the use of decision-making activities related to real-world societal issues. Not applicable for credit toward the B.S. in Chemistry.

CHEM 112. Chemistry in the News. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The basic principles of chemistry are used to interpret newspaper and magazine articles of current interest relating to chemistry in manufacturing, the global environment and medicine. Not applicable for credit toward the B.S. in Chemistry.

CHEM 301. Organic Chemistry. 3 Hours.

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisite: CHEM 102 with a minimum grade of C. Prerequisite for CHEM 302: CHEM 301 with a minimum grade of C. A comprehensive survey of aliphatic and aromatic compounds with emphasis on their structure, properties, reactions, reaction mechanisms and stereochemistry.

CHEM 302. Organic Chemistry. 3 Hours.

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisite: CHEM 102 with a minimum grade of C. Prerequisite for CHEM 302: CHEM 301 with a minimum grade of C. A comprehensive survey of aliphatic and aromatic compounds with emphasis on their structure, properties, reactions, reaction mechanisms and stereochemistry.

CHEM 303. Physical Chemistry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 309 or CLSE 201 with minimum grades of C, and PHYS 202 or PHYS 208, and MATH 201 or MATH 301 or MATH 307. Ideal and nonideal gases, thermodynamics, free energy and chemical equilibrium.

CHEM 304. Physical Chemistry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 303 with a minimum grade of C. Kinetics, solution thermodynamics, heterogeneous equilibria, electrochemistry and introductory biophysical chemistry.

CHEM 305. Physical Chemistry for the Life Sciences. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 301-302 and CHEM 309 with minimum grades of C; and MATH 200. Concepts and principles of physical chemistry as related to the life sciences, forensic science and the B.S. in science programs. Major topics include thermodynamics of proteins and nucleic acids, enzyme kinetics and spectroscopic techniques useful in biophysical research such as circular dichroism, nuclear magnetic resonance and magnetic resonance imaging.

CHEM 306. Industrial Applications of Inorganic Chemistry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 302 and CHEM 302. Chemical engineering students: EGRC 201 and EGRC 205. A study and analysis of the most important industrial applications of inorganic chemistry, with emphasis on structure/properties correlation, materials and energy balance, availability and logistics of starting materials, economic impact and environmental effects. Crosslisted as: CLSE 306.

CHEM 308. Intensified Problem-solving in Quantitative Analysis. 2 Hours.

Semester course; 4 workshop hours. 2 credits. Prerequisites: CHEM 102 with a minimum grade of C; and MATH 151 or MATH 200. Corequisite: CHEM 309. Designed to improve student comprehension and success in CHEM 309 and CHEM 309. Problem-solving sessions encompass the fundamental topics in chemical analysis that involve the theory and practice of gravimetric, volumetric and instrumental analysis techniques, including the treatment of multiple equilibria in aqueous solutions. Students form and work in small in-class study groups where they engage in cooperative learning activities as facilitated by the instructor. Each student participates in the discussion and presentation of problem solutions to the class. Students are given mock quizzes and exams and receive assistance on homework problems assigned in the quantitative chemistry lecture.

CHEM 309. Quantitative Analysis. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 102 with a minimum grade of C, and MATH 151. Theory and practice of gravimetric, volumetric and instrumental analysis techniques and treatment of multiple equilibria in aqueous solutions.

CHEM 310. Medicinal Chemistry and Drug Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CHEM 302. This course is designed to expose undergraduate chemistry, biology and pre-medicine majors to the history, theory and practice of medicinal chemistry. The course will emphasize a combination of fundamentals and applications of drug design. In particular, the molecular aspects of drug action will be discussed. Special emphasis will also be placed on the methods used by medicinal chemists to design new drugs. Crosslisted as: MEDC 310.

CHEM 313. Physical Chemistry I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 201; MATH 307; PHYS 202 or PHYS 208; CHEM 302; and CHEM 309, all with a minimum grade of C. Quantum chemistry, atomic and molecular structure, spectroscopy. Students may receive credit toward graduation for only one of CHEM 313 or CHEM 314.

CHEM 314. Physical Chemistry I with Math Modules. 4 Hours.

Semester course; 3 lecture and 1 recitation hours. 4 credits. Prerequisites: MATH 201; PHYS 202 or PHYS 208; CHEM 302; and CHEM 309, all with a minimum grade of C. Quantum chemistry, atomic and molecular structure, spectroscopy. Presents multivariate calculus concepts necessary for physical chemistry. Students may receive credit toward graduation for only one of CHEM 313 or CHEM 314.

CHEM 315. Physical Chemistry II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CHEM 313 or CHEM 314 with a minimum grade of C. Kinetic theory of gases, statistical and classical thermodynamics, kinetics.

CHEM 320. Inorganic Chemistry I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101-102 with minimum grades of C. A systematic, unified study of the structures, properties, reactions and practical applications of inorganic compounds.

CHEM 350. Guided Inquiry in Chemistry. 1.5 Hour.

Semester course; 1.5 lecture hours. 1.5 credits. Prerequisites: CHEM 101-102 with minimum grades of B. Student facilitators lead recitation sections using guided inquiry, group-based activities. Introduces students to the principles of guided inquiry, active learning and collaborative learning in chemistry through practical, hands-on class work, discussions, readings and a final project.

CHEM 351. Chemistry Preceptorship. 1.5 Hour.

Semester course; 1.5 lecture hours. 1.5 credits. Course may be repeated once for a total of 3 credits. Prerequisites: completion of relevant course with minimum grade of C, completion of CHEM 350 with a grade of B and permission of course instructor and departmental chair. Student facilitators lead recitation sections or laboratories in chemistry courses. Responsibilities vary and may include, but are not limited to, attending all classes, holding weekly review sessions or office hours and/or routine grading. A weekly reflection journal and final project are required.

CHEM 391. Topics in Chemistry. 1-4 Hours.

Semester course; variable hours. Variable credit. Maximum of 4 credits per semester; maximum total of 6 credits for all chemistry topics courses may be applied to the major. Prerequisites: CHEM 101-102 and CHEZ 101, 102. A study of a selected topic in chemistry. See the Schedule of Classes for specific topics to be offered each semester.

CHEM 392. Directed Study. 1-4 Hours.

Semester course; 1-4 independent study hours. 1-4 credits. Prerequisites: CHEM 102, CHEZ 101 and CHEZ 102. The independent investigation of chemical problems through readings and experimentation under the supervision of a research adviser. Written interim and final reports are required.

CHEM 398. Professional Practices and Perspectives Seminar. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisites: CHEM 102 and CHEZ 102, each with a minimum grade of C. Enrollment is restricted to chemistry majors with at least sophomore standing. Seminar course for students considering careers in chemistry-related fields, covering topics such as scientific professionalism and ethics and using chemical literature.

CHEM 401. Applications of Instrumental Techniques in Organic and Forensic Chemistry. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: CHEM 302 and CHEZ 302. Theory and laboratory practice of instrumental and chemical methods applied to the analysis of organic compounds with emphasis on applications in forensic chemistry.

CHEM 403. Biochemistry I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 302 with a minimum grade of C. A presentation of structural biochemistry, enzymology, biophysical techniques, bioenergetics and an introduction to intermediary metabolism.

CHEM 404. Biochemistry II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CHEM 403 with a minimum grade of C. A presentation of metabolism and its regulation as integrated catabolism and anabolism of molecules that are essential to life.

CHEM 406. Inorganic Chemistry II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 313 or CHEM 314; and CHEM 320. An advanced study of inorganic chemistry, including inorganic spectroscopy, organometallic compounds and catalysis, and bioinorganic systems.

CHEM 409. Instrumental Analysis. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 313, CHEM 314 or CHEM 315; and CHEM 309 and CHEZ 309. Theory and practice of modern spectrophotometric, electroanalytical and chromatographic and nuclear magnetic resonance methods.

CHEM 491. Topics in Chemistry. 1-4 Hours.

Semester course; variable hours. Variable credit. Maximum of 4 credits per semester; maximum total of 6 credits for all chemistry topics courses may be applied to the major. Prerequisites: CHEM 102 and CHEZ 101 and 102. A study of a selected topic in chemistry. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

CHEM 492. Independent Study. 1-4 Hours.

Semester course; variable hours. 1-4 credits. May be repeated for a maximum total of 8 credits; only 3 credits are applicable to the chemistry major. Prerequisites: CHEM 102 and CHEZ 101 and 102. The independent investigation of chemical problems through readings and experimentation under the supervision of a research adviser. Written interim and final reports required.

CHEM 493. Chemistry Internship. 1-3 Hours.

Semester course; variable hours. Variable credit. Maximum of 3 credits; 1 credit will be given for each 150 hours (approximately one month) of part-time or full-time chemical work experience. Prerequisites: CHEM 102 and CHEZ 101 and 102. Acquisition of chemistry laboratory experience through involvement in a professional chemistry setting. Written progress and final reports will be required.

CHEM 498. Honors Thesis. 1 Hour.

Semester course; 1 credit. Prerequisites: completion of 29 credits in chemistry, including CHEM 398 and at least six credits of CHEM 492. Students submit to the Department of Chemistry a thesis based on their independent study research. Students also present their results to the department as a research seminar.

CHEM 499. Chemistry Capstone Experience. 0 Hours.

Semester course; 0 hours. 0 credits. Prerequisites: CHEZ 302, CHEZ 309, CHEM 398, and CHEM 313 or CHEM 314, each with a minimum grade of C; and CHEM 320 and CHEZ 313 or CHEZ 315. Enrollment is restricted to chemistry majors with 90 credit hours of undergraduate course work. Culminating course that requires two credits of advanced laboratory and three credits of advanced lecture. The following courses qualify as a capstone experience if taken concurrently with CHEM 499: any two-credit 400-level laboratory course or two credits of either CHEM 392 or CHEM 492; and any three-credit 400-level or 500-level chemistry lecture course. Graded as pass/fail.

Chemistry Lab (CHEZ)**CHEZ 101. General Chemistry Laboratory I. 1 Hour.**

Semester course; 1 lecture and 2 laboratory hours. 1 credit. Pre- or corequisite: CHEM 101. Experimental work correlated with CHEM 101 with selected forensic science applications. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory upon withdrawal or for other reasons will incur a charge billed from the Student Accounting Department.

CHEZ 102. General Chemistry Laboratory II. 1 Hour.

Semester course; 1 lecture and 2 laboratory hours. 1 credit. Prerequisites: CHEM 101 and CHEZ 101 with minimum grades of C. Pre- or corequisite: CHEM 102. Experimental work includes qualitative analysis with selected forensic science applications. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory upon withdrawal or for other reasons will incur a charge billed from the Student Accounting Department.

CHEZ 110. Chemistry and Society Laboratory. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: CHEM 110. Experimental work correlated with CHEM 110. Not applicable for credit toward the B.S. in Chemistry. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory upon withdrawal or for other reasons will incur a charge billed from the Student Accounting Department.

CHEZ 301. Organic Chemistry Laboratory I. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 102 and CHEZ 102 with minimum grades of C. Pre- or corequisite: CHEM 301. Experimental work correlated with CHEM 301. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory upon withdrawal or for other reasons will incur a charge billed from the Student Accounting Department.

CHEZ 302. Organic Chemistry Laboratory II. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 301 and CHEZ 301 with minimum grades of C. Pre- or corequisite: CHEM 302. Experimental work correlated with CHEM 302. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory upon withdrawal or for other reasons will incur a charge billed from the Student Accounting Department.

CHEZ 303. Physical Chemistry Laboratory I. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 102 and CHEZ 102. Pre- or corequisites: CHEM 303, 309 and CHEZ 309. This course covers experiments in calorimetry, molecular and thermodynamic properties of gases and liquids, surfaces, electrochemistry, equilibria, polymers, phase diagrams, and biophysical chemistry. Extensive report writing, laboratory notebook writing and statistical analysis of data are emphasized. A final project may be required.

CHEZ 304. Physical Chemistry Laboratory II. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 303, 309 and CHEZ 303, 309. Pre- or corequisite: CHEM 304. This course covers experiments in absorption and emission spectroscopy, infrared and Raman spectroscopy, NMR spectroscopy, kinetics, photochemistry, biophysical chemistry and modeling. Report writing, laboratory notebook writing and statistical analysis of data are emphasized. A final project may be required.

CHEZ 309. Quantitative Analysis Laboratory. 2 Hours.

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisites: CHEM 102 and CHEZ 102 with minimum grades of C. Pre- or corequisite: CHEM 309. Laboratory associated with quantitative analysis. Includes practice in volumetric and instrumental laboratory techniques as applied to measurement sciences.

CHEZ 313. Physical Chemistry Laboratory I. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEZ 309; and UNIV 200 or HONR 200; each with a minimum grade of C. Corequisite: CHEM 313 or CHEM 314. Mathematical models of chemistry, including molecular structure, spectroscopy and kinetics. Report writing, laboratory notebook writing and statistical analysis of data are emphasized. A final project may be required. Students may receive credit toward graduation for only one of CHEZ 313 or CHEZ 315.

CHEZ 315. Physical Chemistry Laboratory II. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEZ 309 and UNIV 200, each with a minimum grade of C. Corequisite: CHEM 315. Mathematical models of chemistry, including thermodynamics, spectroscopy and kinetics. Report writing, laboratory notebook writing and statistical analysis of data are emphasized. A final project may be required. Students may receive credit toward graduation for only one of CHEZ 313 or CHEZ 315.

CHEZ 400. Exploring the Frontiers of Chemistry: Research Methods. 2 Hours.

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisites: CHEM 302 and CHEZ 302; CHEM 309 and CHEZ 309; CHEM 320; and CHEM 398, all with a minimum grade of C. Enrollment is restricted to students with 90 undergraduate credit hours. Introduction to the process of performing cutting-edge research in chemistry through the design, execution and presentation of a research project. A final presentation is required.

CHEZ 404. Biochemistry Laboratory. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 403; CHEZ 302; and CHEZ 313 or CHEZ 315; each with a minimum grade of C. Corequisite: CHEM 404. Fundamental biochemistry laboratory techniques. Report and laboratory notebook writing are emphasized. A final presentation is required.

CHEZ 406. Inorganic Chemistry Laboratory. 2 Hours.

Semester course; 1 lecture and 3 laboratory hours. 2 credits.
Prerequisites: CHEM 320 and CHEZ 102. Pre- or corequisite: CHEM 406.
Examination of inorganic nonmetal, transition metal and organometallic compounds using modern inorganic methods of synthesis and characterization. Each student is charged for breakage incurred.
Approved safety glasses are required. Failure to check out of laboratory upon withdrawal or for other reasons will incur a charge billed from the Student Accounting Department.

CHEZ 408. Advanced Organic Chemistry Laboratory. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 302 and CHEZ 302. Fundamental laboratory in complex organic molecule synthesis including multistep synthesis, compound characterization, purification, stereochemical control, process chemistry and optimization by design of experiments, combinatorial chemistry and polymer synthesis. Laboratory notebook documentation and manuscript writing are emphasized.

CHEZ 409. Instrumental Analysis Laboratory. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 313 or CHEM 314; and CHEZ 313 or CHEZ 315, each with a minimum grade of C. Corequisite: CHEM 409. Practice of electrochemical, spectroscopic and chromatographic methods of analysis.

CHEZ 413. Advanced Physical Chemistry Laboratory. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 313 or CHEM 314; and CHEZ 313, all with a minimum grade of C. Corequisite: CHEM 315. Atomic and molecular spectroscopy and structure. Report writing, laboratory notebook writing and statistical analysis of data are emphasized. A final project and presentation are required.

Chinese (CHIN)**CHIN 101. Beginning Chinese I. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Enrollment requires any student with previous exposure to Chinese to take the placement test to determine eligibility. For students with no prior knowledge of Chinese. Beginning grammar, reading, writing and oral skills.

CHIN 102. Beginning Chinese II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CHIN 101 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Continuation of beginning grammar, reading, writing and oral skills.

CHIN 110. Intensive Elementary Chinese. 8 Hours.

Semester course; 10 lecture and 10 laboratory hours. 8 credits. This intensive course combines CHIN 101 and 102 into a single-semester class. Students may receive credit toward graduation for either the CHIN 101-102 series or CHIN 110, but not both.

CHIN 201. Intermediate Chinese I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CHIN 102 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Chinese. Building toward intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

CHIN 202. Intermediate Chinese II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CHIN 201 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Mandarin Chinese. Increasing intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

CHIN 210. Intensive Intermediate Chinese. 6 Hours.

Semester course; 6 lecture hours. 6 credits. This intensive course combines CHIN 201 and 202 into a single-semester class. Students may receive credit toward graduation for either the CHIN 201-202 series or CHIN 210, but not both.

CHIN 300. Communication and Composition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CHIN 202 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Mandarin Chinese. Building toward intermediate-high proficiency in the three modes of communication: interpretive, interpersonal and presentational. Authentic materials enhance intercultural competence and communication skills. This course is not intended for native speakers.

CHIN 301. Self and Society: Effective Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CHIN 202, CHIN 300 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Mandarin Chinese. Students advance their knowledge of the Chinese language and Chinese-speaking cultures while developing their reading and writing skills. Students examine a variety of texts and media and gain strategies for interpretation and discussion, with a focus on effective writing. This course is not intended for native speakers.

CHIN 391. Topics in Chinese. 1-4 Hours.

Semester course; variable hours. 1-4 credits. May be repeated with different topics for a maximum of 16 credits. Prerequisite: CHIN 202 or 210. An in-depth study of selected topics in Chinese. See the Schedule of Classes for specific topics to be offered each semester.

Critical Social Inquiry and Justice Studies (CJSJ)**CSIJ 200. Introduction to Race and Racism in the United States. 3 Hours.**

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Interrogates four key areas of inquiry: origins, ideology, maintenance and resistance to race and racism in the U.S., and applies an intersectional lens to examine how race interlocks with other systems of power. Reflecting the diverse faculty and students who co-created it, this course will draw from a variety of scholarly disciplines spanning the humanities and the social, natural and applied sciences to explore these issues and to help students understand how racism operates in the U.S. Graded as pass/fail.

English (ENGL)**ENGL 201. Western World Literature I. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. An introduction to the literature of Western cultures from the ancient world through the Renaissance, emphasizing connections among representative works.

ENGL 202. Western World Literature II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the literature of Western cultures from the end of the Renaissance to the present, emphasizing connections among representative works.

ENGL 203. British Literature I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the literature of the British Isles from the Middle Ages through the 18th century, emphasizing connections among representative works.

ENGL 204. British Literature II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the literature of the British Isles from the late 18th century to the present, emphasizing connections among representative works.

ENGL 205. American Literature I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the literature of the United States from its origins through the 1860s, emphasizing connections among representative works.

ENGL 206. American Literature II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the literature of the United States from the 1860s to the present, emphasizing connections among the representative works.

ENGL 211. Contemporary World Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 112 or both ENGL 295 and HONR 200. A study of selected literature published in the past 25 years and chosen from a number of different nations and cultures. Crosslisted as: INTL 211.

ENGL 214. English Grammar and Usage. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: UNIV 111 and UNIV 112. An intensive study of English grammar, usage, punctuation, mechanics and spelling.

ENGL 215. Reading Literature. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. An inquiry into literary and cultural texts, emphasizing critical thinking and close reading. Individual sections may survey a portion of literary history or focus on a theme or unifying question.

ENGL 217. Reading New Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to literary texts published in the new century.

ENGL 236. Women in Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 112 or both ENGL 295 and HONR 200. An introduction to literature by and/or about women. Crosslisted as: GSWS 236.

ENGL 250. Reading Film. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Develops students' visual literacy by exploring and analyzing the various elements of film (cinematography, lighting, editing, art direction, acting and sound, among others). Examples will be drawn from both U.S. and world cinema and from all eras of filmmaking.

ENGL 291. Topics in Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Maximum 6 credits in all topics courses at the 200 level. Prerequisite: UNIV 112 or both ENGL 295 and HONR 200. An introduction to literature through the in-depth study of a selected topic or genre. See the Schedule of Classes for specific topics to be offered.

ENGL 295. Introduction to Creative Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the basic elements of writing poetry and fiction, using published examples of contemporary fiction and verse as guides in the study of literary form and the production of original creative writing. Students will be offered a practitioner's perspective on genre conventions and the process of revision.

ENGL 301. Introduction to the English Major. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Study of literature focused on skills helpful in the English major, introducing students to the ways in which language is used in literary texts and to the practice of writing responses to those texts. Texts will represent at least two genres (drama, poetry, fiction, creative nonfiction). This course should be taken at the beginning of the student's major, preferably before completing more than six hours of other upper-level English courses. Majors are required to take ENGL 301; they must achieve a minimum grade of C to complete the requirement.

ENGL 302. Legal Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Intensive practice in writing on subjects related to law or legal problems. Emphasis on organization, development, logical flow and clarity of style. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

ENGL 303. Writing for Stage and/or Screen. 3 Hours.

Semester course; 3 workshop hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A workshop in playwriting or screenwriting primarily for students who have not yet completed a full-length dramatic work. Students will present a portfolio of work at the end of each course.

ENGL 304. Persuasive Writing. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: UNIV 200 or HONR 200. An advanced study of persuasive prose techniques, with attention to the relationships among content, form and style. Students consider rhetorical techniques used across various genres, and produce and support compelling claims that persuade and inform. They will also acquire skills to interpret, assess and analyze strategies used in a variety of texts. Specific topics vary by section and instructor.

ENGL 305. Writing Poetry. 3 Hours.

Semester course; 3 workshop hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An introduction to the craft of writing poetry. Students will explore the elements of poetic technique and produce a volume of quality work.

ENGL 307. Writing Fiction. 3 Hours.

Semester course; 3 workshop hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A fiction workshop primarily for students who have not produced a portfolio of finished creative work. Students will present a collection of their work at the end of each course.

ENGL 309. Writing Creative Nonfiction. 3 Hours.

Semester course; 3 workshop hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A creative nonfiction workshop primarily for students who have not produced a portfolio of finished creative work. Students will present a collection of their work at the end of each course.

ENGL 310. Professional Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. An introduction to writing practices common to for-profit and/or not-for-profit organizations. Students hone foundational writing and design skills to communicate effectively with specific audiences across multiple media. Depending on the instructor, this course prepares students to assess and craft effective job application materials, workplace correspondence and other business documents, including digital texts and/or websites.

ENGL 311. Introduction to Literary Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Introduces students to the variety of critical methods that are sometimes employed — often subconsciously or habitually — in writing about literature. Requires students to think abstractly and theoretically about the nature of the literary text, but it also gives students valuable practice in mastering different critical methods through close engagements with short stories, poems and plays.

ENGL 313. Popular Culture Studies: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credit hours. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the popular culture of a specific time period, a particular form or an orchestrated phenomenon, with attention paid to the producers, audiences and meanings of the texts. Topics will vary by section.

ENGL 315. Fan Fiction Studies: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the phenomenon of fan fiction as understood as a disciplinary field. Focuses on creative works and other forms of engagement responding to originating texts in diverse media. Topics will vary by section.

ENGL 317. Body and Culture: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of cultural perspectives on the body and its health and associated issues (such as gender construction, mortality, disease, physical needs, myths, emotions or bodily anxieties), honing observational skills for the complex ways in which bodies hold meaning. Time periods, geographic scope and genres covered will vary by section. May include guest visits by health professionals to help students contextualize cultural themes alongside modern health care.

ENGL 320. Early Literary Traditions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of early and medieval literature such as epic, romance, saga or lyric poetry written in England or influencing English literature prior to 1500.

ENGL 321. English Drama From 900 to 1642. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the origin of the English drama and its development until the closing of the theaters in 1642, exclusive of Shakespeare.

ENGL 322. Medieval Literature: Old English to Middle English. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of texts in Old and Middle English, and the literary and cultural traditions that influence the rise of English literature over 500 years from the early to the High Middle Ages, or from Bede and Beowulf to Chaucer.

ENGL 324. Late Medieval Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An introduction to the literature of the 15th and 16th centuries. Works surveyed will likely include those of Langland, Julian of Norwich, Kempe, Malory, Henryson, Skelton, More, Tyndale, Foxe, Surrey, Spenser and Sidney.

ENGL 325. Early Modern Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An introduction to the literature of the 16th and 17th centuries, which may include Sidney, Spenser, Donne, Jonson, Lanyer, Wroth, Phillips, Cavendish, Bradstreet, Hutchinson, Milton and Bunyan.

ENGL 326. Shakespeare in Context. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Examines selected works of Shakespeare in historical, political, sociocultural, literary and/or other contexts.

ENGL 330. The London Stage: 1660-1800. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of English theatrical texts of various genres written and produced in London between 1660-1800.

ENGL 331. Restoration and 18th-century British Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A survey of representative poetry, drama and prose from the Restoration and 18th century, usually including Behn, Dryden, Pope, Swift, Johnson and Gay.

ENGL 332. 18th-century British Novels and Narratives. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the British narratives in the long 18th century, usually including Defoe, Richardson, Fielding, Burney, Sterne, Austen, Radcliffe and Walpole.

ENGL 335. British Literature of the Romantic Era. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Exploration of the literature and the cultural phenomenon of Romanticism in Britain during the years 1783-1832, with reading from poets such as Blake, Wordsworth, Byron and Shelley, and from a variety of other writers.

ENGL 336. 19th-century British Novels and Narratives. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of British narratives of the 19th century, usually including Austen, Dickens, Thackeray, the Brontes, George Eliot and Hardy.

ENGL 337. Victorian Poetry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A survey of the poetry of Victorian Britain, usually including Tennyson, the Brownings, Arnold and the pre-Raphaelites.

ENGL 340. Early 20th-century British Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Representative British and Irish poetry, fiction and drama of the early 20th century, including such writers as Yeats, Joyce, Shaw, Lawrence, Conrad, Auden, Forster and Woolf.

ENGL 341. British Literature and Culture After 1945. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A British studies course that surveys writing in Britain and Ireland since the mid-20th century, with emphasis on social, economic and ideological contexts. Includes such authors as William Golding, Doris Lessing, Seamus Heaney, Harold Pinter, Philip Larkin, Iris Murdoch, Kazuo Ishiguro, Salman Rushdie and Carol Ann Duffy.

ENGL 342. The Modern Novel. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An examination of the novel, chiefly British and European, in the 20th century.

ENGL 343. Modern Poetry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of British and American poetry in the first half of the 20th century.

ENGL 344. Modern Drama. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the development of Continental, English and American drama since Ibsen.

ENGL 345. Contemporary Poetry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of British and American poetry from approximately 1945 to the present for the purpose of determining the aesthetic and thematic concerns of contemporary poets.

ENGL 347. Contemporary Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of internationally prominent texts in various genres produced during the past 30 years. Familiarizes students with distinctive properties of literary expression that have emerged in this period, such as the political, historical, economic and social influences that have shaped literary production.

ENGL 350. Digital Rhetoric. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. The study and practice of rhetoric as it applies to digital media.

ENGL 352. Feminist Literary Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. The study of contemporary feminist thought and feminist approaches to analyzing literature and culture. This course examines the history and development of feminist theory as a methodology in the humanities, explores several of the major theoretical trends of the past 30 years and examines applications of feminist theory to specific works of literature. Crosslisted as: GSWS 352.

ENGL 353. Women's Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for credit once (for a maximum of six credits) when a different group of writers is studied. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of selected literature written by woman-identified writers. Crosslisted as: GSWS 353.

ENGL 354. Queer Literature: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of queer literature. Considers issues of history, theory, aesthetics, politics, authorship and/or interpretive communities and examines the intersection of social identities with particular attention to race/ethnicity, sex, sexual orientation, gender expression, class and/or nationality. Topics will vary by section. Crosslisted as: GSWS 354.

ENGL 355. Black Women Writers. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Explores the variety of ways African-diasporan women and woman-identified writers gained self-expression in the midst of gender and race oppression from slavery to the present. Also explores the rise of Black feminist discourse as a project of reclaiming and giving voice to writers who had previously been silenced or suppressed. Crosslisted as: GSWS 359.

ENGL 356. Prison Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of prison literature within or across particular time periods and/or geographic places. Explores writings by incarcerated people in consideration of their political, social and economic context.

ENGL 358. Native American and Indigenous Literatures. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of Native and/or indigenous writing and representation from the pre-colonial era to the present. Instructors may choose thematic, geographic, generic or period focus for the course.

ENGL 359. Studies in African American Literature: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An in-depth study of a literary genre; an aesthetic, cultural or political theme in African American literature; or a major writer or writers in African American literature. See the Schedule of Classes for specific topics to be offered each semester. Topics will vary by section. Crosslisted as: AMST 359.

ENGL 361. The Bible as Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Literary aspects of the Bible will be considered. Also, attention will be given to the history of the English Bible. Crosslisted as: RELS 361.

ENGL 363. African Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of regional and/or cultural traditions of African literature with special attention paid to socio-political perspectives. Crosslisted as: AFAM 363/INTL 366.

ENGL 364. Mythology and Folklore. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of one or more forms of folklore, such as folktales, fairy tales, legends, myths, proverbs, riddles, ballads and/or games, with some attention to literary, social or historical significance and contexts. This course may also include approaches to collecting material or to examining later literary forms and texts inspired by folklore. Crosslisted as: ANTH 364.

ENGL 365. Caribbean Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A survey of West Indian writings. Attention will be given to African, European and Amerindian influences, as well as to the emergence of a West Indian literary tradition. Crosslisted as: AFAM 365/INTL 367.

ENGL 366. Writing and Social Change: _____. 3 Hours.

Semester course; 3 lecture/workshop hours. 3 credits. May be repeated once for credit with a different topic. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A focused study of the literatures of underserved communities such as those of prisoners, recovering addicts, inner-city teens or immigrants. Students will collaborate with one such community on an original writing project.

ENGL 367. Writing Process and Practice. 3 Hours.

Semester course; 3 lecture/workshop hours. 3 credits. Prerequisites: UNIV 200 or HONR 200. Joins writing theory to writing practice. Students will explore their own writing practice and expand their knowledge of rhetorical processes and the teaching/learning of writing. Covers readings and investigations into theories about writing and the writing process, as well as the principles of working one-on-one with student writers. In the latter part of the semester students will devote two hours per week to peer consulting in the Writing Center.

ENGL 368. Nature Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the literary genre of nature writing in English. Crosslisted as: ENVS 368.

ENGL 369. Illness Narratives. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An overview of the history, interpretations and practices of reading and writing illness narratives – through case studies and theoretical perspectives, in fictionalized and nonfiction accounts, from the viewpoint of various actors (doctors, patients, patient families and their caregivers). Students will further examine the role of narrative knowledge in health care. Crosslisted as: SCTS 301.

ENGL 370. Medicine in Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of how the representational practices found in literary works may inform or enhance an understanding of a variety of medical issues.

ENGL 371. American Literary Beginnings. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the most important writings from the founding of the first colonies to the establishment of the federal government with attention to such authors as Bradford, Byrd, Bradstreet, Equiano, Cabeza de Vaca and Franklin.

ENGL 372. U.S. Literature: 1820-1865. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the writings of American authors in the middle decades of the 19th century, with attention to such authors as Poe, Emerson, Thoreau, Stowe, Hawthorne, Melville, Douglass and Whitman.

ENGL 373. U.S. Literature: 1865-1913. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of writings from the end of the Civil War to World War I, with attention to such authors as Dickinson, Clemens, Howell, James, Wharton, Crane, Norris, Dreiser, Chopin and Chesnutt.

ENGL 374. U.S. Literature: Modernism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the most important writings between World War I and World War II, with attention to such authors as Anderson, Frost, Eliot, Stein, Glasgow, Fitzgerald, Wright, Cather, Hemingway, O'Neill, Hurston, Toomer and Faulkner.

ENGL 375. U.S. Literature After 1945. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of American writings since the end of World War II, with attention to such authors as Albee, Baldwin, Carver, Coover, Ellison, Erdrich, Ginsberg, Lowell, Morrison, Plath, Pynchon, Salinger and Walker.

ENGL 377. 19th-century U.S. Novels and Narratives. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of selected novels with some attention to other forms of narrative that reflect the experiences of diverse groups in the United States.

ENGL 378. 20th-century U.S. Novels and Narratives. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of selected novels with some attention to other forms of narrative that reflect the experiences of diverse groups of the United States.

ENGL 379. African-American Literature: Beginnings Through the Harlem Renaissance. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An examination of the culture and literature of African Americans from their roots in Africa and the African Diaspora to the Harlem Renaissance. Authors may include Wheatley, Douglass, DuBois, Hurston, Hughes and Cullen. Crosslisted as: AFAM 379.

ENGL 380. Southern Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the literature of the South with attention to writers such as Byrd, Poe, Chopin, Faulkner, Welty, Wolfe, O'Connor, Walker and Percy.

ENGL 381. Multiethnic Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the literature and culture of multiethnic writers in the United States. May include Native American, Latino/a, African-American, Asian-American and/or Jewish-American authors.

ENGL 382. African-American Literature: Realism to the Present. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An examination of the culture and literature of African-Americans from the Harlem Renaissance to the present day. Authors may include Wright, Ellison, Hayden, Brooks, Walker and Morrison. Crosslisted as: AFAM 382.

ENGL 383. Short Fiction: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of short fiction. Topics will vary by section.

ENGL 385. Fiction into Film. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the translation of literature into film. Topical approaches vary from semester to semester. Consideration is given to the literature in its original form and to the methods of translating it into film.

ENGL 386. Children's Literature I. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course is designed to give students an appreciation of the value of children's literature, present a look at current trends and provide a wide range of reading from different literary genres and diverse authors. The course will also explore the creative use of literature and its contribution to the development of oral and written expression in children from birth to grade 6. Throughout the course students will develop skills as educators who are critically reflective practitioners. Crosslisted as: TEDU 386.

ENGL 388. Professional, Scientific and Technical Writing. 3 Hours.

Semester course; 3 lecture/workshop hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Focuses on technical writing and design practices of clear, effective communication in for-profit and/or not-for-profit organizations. Working collaboratively to research and assess field-specific problems, students will produce proposals and reports common to business, science, technology and consumer industries and/or governmental, civic and arts-related organizations.

ENGL 389. The Teaching of Writing Skills. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will focus on the art of teaching writing through a writer's workshop approach. The course will critically examine theory, techniques and strategies in the context of how students learn to think and write in k-12 classrooms. The class will also address issues of assessing and responding to student writing, and it includes extensive journal and essay writing with an examination of the student's own personal writing processes. Students will be encouraged to be critically reflective practitioners throughout the course. Crosslisted as: TEDU 389.

ENGL 390. Introduction to Linguistics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. An introduction to methods of language analysis, emphasizing the study of sounds and sound patterns, and units of meaning and their arrangements. Crosslisted as: LING 390/ANTH 390.

ENGL 391. Topics in Literature. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Maximum of 12 credits in all topics courses at the upper level. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An in-depth study of a literary genre, an aesthetic or cultural theme in literature, or of a major writer in English or American literature. See the Schedule of Classes for specific topics to be offered each semester.

ENGL 392. Language, Culture and Cognition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 220 or 230. Introduces theoretical and methodological foundations for the study of language from sociocultural perspectives. The perspectives include linguistic, philosophical, psychological, sociological and anthropological contributions to the understanding of verbal and nonverbal communication as a social activity embedded in cultural contexts. No prior training in linguistics is presupposed. Crosslisted as: ANTH 328/FRLG 328/LING 392.

ENGL 393. Rhetoric in Public Life. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Examines how rhetoric, the art of discovering the available means of persuasion, is indispensable for constructing public life. Teaches students how to become stewards of public life by (a) analyzing rhetorical strategies, logical fallacies, and the tropes, schemes and figures of speech found in journalism about contemporary social issues and (b) using rhetoric to develop common sense about divisive social issues.

ENGL 394. Topics in Professional Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 304, ENGL 310 or ENGL 388. May be repeated for a total of six credits with different topics. (Students may complete a maximum of 12 credits in all topics courses at the upper level.) An in-depth study of the writing practices of a particular for-profit or not-for-profit institution. See the Schedule of Classes for specific topics to be offered each semester. This is not a creative writing course.

ENGL 401. Shakespeare. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once for credit. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Advanced study of Shakespeare's works. May focus on a specific genre (tragedies, comedies, romances, histories, lyrics, narrative poems) or period of Shakespeare's career.

ENGL 402. Chaucer. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of "The Canterbury Tales," with some attention to the early works.

ENGL 403. Milton. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of shorter poems, selected prose, "Paradise Lost" and "Samson Agonistes."

ENGL 407. Medieval Epic and Romance. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the vernacular epic and romance in England and on the continent prior to 1500.

ENGL 410. Medieval Studies: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Studies in the English language and literature of the Middle Ages in its cultural context.

ENGL 411. Early Modern Studies: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Studies in the language, literature and culture of early modern Britain, ca. 1500 to 1700.

ENGL 412. 18th-century Studies: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Studies in the literature, language and culture of the 18th century in Britain and/or the United States.

ENGL 413. 19th-century Studies: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Studies in the literature, language and culture of the 19th century in Britain and/or the United States.

ENGL 414. 20th-century Studies: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Studies in the literature, language and culture of the 20th century in Britain, the United States and/or elsewhere in the Anglophone world.

ENGL 415. Topics in Book History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. May be repeated with different topics for a maximum of six credits. Studies in the social, cultural and material histories of the book. Depending on the instructor, this course may offer a wide historical survey of book forms, whether manuscript, print or digital; or it may address a particular kind of book within a specific historical period and/or geographic location. Topics will vary by section.

ENGL 416. Topics in Authorship. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Depending on the instructor, this course may study the concept of authorship within a specific time period or culture; or it may trace the genesis, development and/or function of authorship more broadly. Topics will vary by section.

ENGL 417. Themes in African American Literature: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An advanced study of a literary genre; an aesthetic, cultural or political theme in African American literature; or a major writer or writers in African American literature. Taught in a seminar format. See the Schedule of Classes for specific topics to be offered each semester. Topics will vary by section.

ENGL 433. Advanced Dramatic Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once for credit. Prerequisite: ENGL 303. A practical approach to the creation of original scripts for theatre or film. Crosslisted as: THEA 426.

ENGL 435. Advanced Poetry Writing. 3 Hours.

Semester course; 3 workshop hours. 3 credits. May be repeated once for credit. Prerequisite: ENGL 305. Study of the craft of writing, with instruction and guidance toward constructive self-criticism. Workshop members will be expected to produce a substantial volume of quality work and to become proficient in critical analysis in order to evaluate and articulate the strength of their own poetry. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

ENGL 437. Advanced Fiction Writing. 3 Hours.

Semester course; 3 workshop hours. 3 credits. May be repeated once for credit. Prerequisite: ENGL 307. Study the craft of fiction writing, with instruction and guidance toward constructive self-criticism. Workshop members will be expected to produce a substantial volume of short stories or portion of a novel and to become proficient in the critical analysis of fiction in order to evaluate and articulate the strength of their own work. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

ENGL 439. Advanced Creative Nonfiction Writing. 3 Hours.

Semester course; 3 workshop hours. 3 credits. May be repeated once for credit. Prerequisite: ENGL 309. Advanced study of the craft of creative nonfiction writing, with instruction and guidance toward constructive self-criticism. Workshop members will be expected to produce a substantial volume of writing or a portion of a book-length work of nonfiction, and to become proficient in the critical analysis of literary nonfiction in order to evaluate and articulate the strength of their own work.

ENGL 441. Literary Technique: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 305, ENGL 307 or ENGL 309. Enrollment requires permission of the instructor. A scholarly and creative hybrid course that focuses on particular authors, literary forms or elements of technique. Combines specialized analysis of literary practices with creative writing in response to selected authors, forms or elements of technique. Topics will vary by section.

ENGL 445. Form and Theory of Poetry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the poetics, including prosody, with attention to the nature and functioning of language in poetry (especially metaphor), the development of poetic genres and the process by which poems are created and come to have meaning.

ENGL 447. Form and Theory of Fiction. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of narration in verbal and other media, with attention to the nature, organization and functioning of language in narrative, the development of narrative genres, and the process by which narratives are created and come to have meaning.

ENGL 449. Form and Theory of Creative Nonfiction. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An examination of one or more types of creative nonfiction. These may include magazine articles, research-based reportage, New Journalism, memoir, biography, autobiography, the meditative essay, the personal essay and others. May also include creative writing in the genre.

ENGL 450. Modern Grammar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Study of modern English grammar and usage with some attention to linguistic theory. May not be used to satisfy the literature requirement of the College of Humanities and Sciences. Crosslisted as: LING 450.

ENGL 451. History of the English Language. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. The historical development of the English language; etymology, morphology, orthography and semantics. May not be used to satisfy the literature requirement of the College of Humanities and Sciences. Crosslisted as: LING 451.

ENGL 452. Language and Gender. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. A study of relationships between gender and language focusing on such issues as differences between the ways women and men use language, relationships between language and power and ways in which language reflects and reinforces cultural attitudes toward gender. May not be used to satisfy the literature requirement of the College of Humanities and Sciences. Crosslisted as: LING 452/ GSW 452.

ENGL 453. Modern Rhetoric. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. A study of a broad range of modern rhetorical theories, emphasizing their possible relationships with linguistics, literary criticism, civic engagement and the process of writing. Crosslisted as: LING 453.

ENGL 454. Cross-cultural Communication. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the dynamics of cross-cultural communication that applies linguistic tools to understanding cultural issues and solving communication problems. Crosslisted as: INTL 454/ANTH 450.

ENGL 459. Political Rhetoric in the U.S.. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. A study of the public rhetoric that shapes beliefs and influences behavior in the U.S. in relation to pressing social issues, emphasizing the links between rhetorical theory, criticism, civic engagement and the process of writing.

ENGL 480. Authors: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An advanced study of a specific author's texts and contexts. Taught in a seminar format with an emphasis on research.

ENGL 481. Genres: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An advanced study of a single genre, either over time or at a particular historical moment. Taught in a seminar format with an emphasis on research.

ENGL 482. Literary Topics: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An in-depth study of an aesthetic or cultural theme in literature. Taught in a seminar format with an emphasis on research.

ENGL 483. Literary Texts and Contexts: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An advanced study of a select group of literary texts with emphasis on the culture and historical moment in which they were produced. Taught in a seminar format with an emphasis on research.

ENGL 484. Literary Movements: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An advanced study of a group of writers whose work shares a common subject matter, writing style or philosophy. These may be defined by members of the movement (e.g., the Beats) or by critics in retrospect (e.g., the Metaphysical Poets). Taught in a seminar format with an emphasis on research.

ENGL 485. Literary Theory and Criticism: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An advanced study of a single theoretical and critical methodology, or a small cluster of them, as well as of their application to a variety of literary texts. Taught in a seminar format.

ENGL 487. Scholarly Editing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the theory, methodology and practice of scholarly editing. Students are trained to produce and evaluate both documentary editions, in which an editor works with a single document, and critical editions, in which the editor works with multiple texts of the same work. In addition, students are trained in the practice of editing secondary material.

ENGL 489. Literary Editing and Publishing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the art and business of commercial editing and publishing. Provides a review of current literary publishers (book, magazine and e-pubs) and exposes students to the editorial process via editing assignments, field research of literary publishers, and contemporary publishing operations and issues.

ENGL 491. Topics in Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Maximum of 12 credits in all topics courses at the upper level. Prerequisites: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Intensive study and practice of writing in a specific genre or application. See the Schedule of Classes for specific topics to be offered each semester.

ENGL 492. Independent Study. 1-3 Hours.

Semester course; 1-3 independent study hours. 1-3 credits. Maximum of three credits per semester. May be repeated for a maximum of nine hours. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. This course is designed for students who wish to do extensive reading and writing in a subject not duplicated by any English course in this bulletin.

ENGL 493. English Internship. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits. May be repeated for a maximum total of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Enrollment is restricted to students with demonstrated writing ability; completion of ENGL 302, 304 or 310 is recommended. Permission and determination of credit must be established prior to registration. Students will apply research, writing and/or editing skills in an approved job in areas such as business, government, law or financial services.

ENGL 494. Blackbird Editorial Internship. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits. May be repeated for a maximum total of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An internship in which students gain hands-on experience in literary editing and publishing through work on the internationally recognized journal, Blackbird. Students will apply writing or editing skills for the online literary magazine, Blackbird. This opportunity is open to students with demonstrated writing ability; completion of ENGL 304, 310, 388, 395, 489 or 491 is recommended. An application is required, and determination of credit and permission from the department must be established prior to registration for the course. No more than six credits in ENGL 494, ENGL 495 and/or ENGL 496 may be counted toward the degree.

ENGL 495. Social Media Internship. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits. May be repeated for a maximum total of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An internship in which students gain hands-on experience in writing for social media. Students will apply writing skills for organizations inside or outside the university. This opportunity is open to students with demonstrated writing ability; completion of ENGL 304, 310, 388 or 491 is recommended. Determination of credit and permission from the department must be established prior to registration for the course. No more than six credits in ENGL 494, ENGL 495 and/or ENGL 496 may be counted toward the degree.

ENGL 496. Distinguished Major Independent Study. 3 Hours.

Semester course; 1 lecture and 2 independent study hours. 3 credits. Enrollment requires permission of the program director. Reserved for students who have been admitted to the Distinguished English Major program and may be repeated for a maximum of six credits. No more than six credits in ENGL 494, ENGL 495 and/or ENGL 496 may be counted toward the degree.

ENGL 497. British Virginia Internship. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits. May be repeated for a maximum total of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An application is required, and determination of credit and permission from the department must be established prior to registration for the course. An internship in which students gain hands-on experience in the production of digital editions of 17th-century colonial documents. These editions are to be published by British Virginia, VCU's digital publisher of colonial documents. Students will develop and apply design skills. They will also have the opportunity to build transcription and description skills, working with early modern documents in facsimile and in person. With permission, the course may satisfy one pre-1700 requirement, provided that a student enrolls for three credits. No more than six credits in ENGL 493, ENGL 494, ENGL 495 and/or ENGL 497 may be counted toward the degree.

ENGL 499. Senior Seminar in English. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 301 with a minimum grade of C. Restricted to seniors in English with at least 85 credit hours taken toward the degree. A study of a specific topic, author, movement or genre in a seminar format. Students will produce an extended, documented essay as a seminar paper. See the Schedule of Classes for specific topics to be offered each semester.

European Cultures (EUCU)**EUCU 307. Aspects of German Culture. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. A broad interdisciplinary approach to an understanding of German culture, language and literature. Lectures in English by guest speakers and/or use of films as required. This course will not satisfy foreign language requirements. No knowledge of German is required. All work is done in English.

EUCU 311. Classical Mythology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The basic myths of the Greek and Roman heritage. Their impact in culture then and now; from the origins of Greek myth to the superstitions of the late Roman and early Christian world.

Foreign Languages (FRLG)**FRLG 100. Basic Language and Cultural Awareness Abroad: _____. 1 Hour.**

Semester course. 1 lecture hour. 1 credit. Introduces basic language skills and cultural customs and expectations to students of all disciplines planning foreign travel to a specific location. Students will learn useful vocabulary and phrases to apply in many different travel situations. Predominant focus will be placed on the culture of the specific region and include foundational communication skills. This course cannot be used to fulfill foreign language requirements for major, minor, collateral or General Education purposes. See Schedule of Classes for specific languages being taught each semester. Graded as pass/fail.

FRLG 101. Foreign Languages: _____. 4 Hours.

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of FRLG 101 to enroll in FRLG 102. Elementary grammar, reading and oral skills. Course may be repeated with different languages.

FRLG 102. Foreign Languages: _____. 4 Hours.

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of FRLG 101 to enroll in FRLG 102. Elementary grammar, reading and oral skills. Course may be repeated with different languages.

FRLG 201. Foreign Languages: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FRLG 102. Continuation of the essentials of grammar with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills. Course may be repeated with different languages.

FRLG 202. Foreign Languages: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FRLG 201. Designed to increase the student's proficiency through the study of selected cultural and literary texts. Course may be repeated with different languages.

FRLG 204. Language and Groups in the United States. 3,4 Hours.

Semester course; 3-4 lecture hours. 3-4 credits. Taught in English. This course introduces students to the sociocultural experience and formation of identity of non-English-speaking peoples in the United States. Students explore the dynamic between English and a specific heritage language and its interaction with artistic, cultural and social issues through fiction and nonfiction texts, films and multimedia pertaining to specific language groups, such as: Latinos, Italian-Americans, German-Americans or Native Americans. See the Schedule of Classes for specific topics to be offered each semester. Crosslisted as: INTL 204.

FRLG 328. Language, Culture and Cognition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 220 or 230. Introduces theoretical and methodological foundations for the study of language from sociocultural perspectives. The perspectives include linguistic, philosophical, psychological, sociological and anthropological contributions to the understanding of verbal and nonverbal communication as a social activity embedded in cultural contexts. No prior training in linguistics is presupposed. Crosslisted as: ANTH 328/ENGL 392/LING 392.

FRLG 345. Great Cities of the World. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An interdisciplinary course with a focus on the origin, expansion and significance of one or more cities, the specifics of its/their culture and the role of language. Particular emphasis will be placed on relating the physical, social and economic aspects of the city's growth and development to the cultural expression of urbanism. Crosslisted as: INTL 345/URSP 350.

FRLG 351. Exploring Languages Through Culture: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will give students the opportunity to learn about a topic through the exploration of cultural texts such as literature and film in French, German or Spanish in translation. The topics and focus will vary depending on the course instructor. This course will include a foreign language component, which means that students with sufficient language ability (202 or equivalent) will have the opportunity to take the course for foreign language credit through the completion of designated assignments in the target language. See the Schedule of Classes for specific topics to be offered each semester. Crosslisted as: WRLD 351.

FRLG 493. World Languages Internship. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits (40 clock hours per credit). Prerequisite: prior completion of 9 credits in the respective foreign language at the 300 level or demonstration of 300-level language proficiency through a placement test. May be repeated for a maximum of six credits, however only three credits can count toward the major concentration. Enrollment requires permission of the internships coordinator. Designed for the advanced student to gain workplace experience in the target foreign language in internationally oriented public and private organizations and agencies. All course work must be completed in the target language.

Foreign Literature in English Translation (FLET)**FLET 321. Early German Literature. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Changing perspectives in German literature from its pagan beginnings, through the Medieval Golden Age, Baroque extremism, the Enlightenment and Storm and Stress up to Classicism and Goethe's Faust. Treatment of The Nibelungenlied, the courtly epic, Simplicissimus, and selections by Lessing, Schiller and Goethe. This course will not satisfy foreign language requirements. No knowledge of German is required. All work is done in English.

FLET 322. Modern German Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Growing psychological awareness and alienation of the individual in German literature of the 19th and 20th centuries. Representative works chosen from among writers of the past century and such modern writers as Thomas Mann, Kafka, Hesse, Brecht, Kafka, Hesse, Brecht, Boll and Grass. This course will not satisfy foreign language requirements. No knowledge of German is required. All work is done in English.

FLET 391. Topics in Foreign Literature in English Translation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of 12 credits. An in-depth study of selected topics in foreign literature. This course will not satisfy foreign language requirements. No knowledge of a foreign language is required. All work is done in English.

FLET 492. Independent Study. 1-3 Hours.

Semester course; 1, 2 or 3 credits. Maximum of 3 credits per semester, maximum total of 6 credits for all FLET independent study courses. Open generally to students of only junior or senior standing who have acquired at least 12 hours in any literature course. Determination of course content and permission of the instructor and department chair must be obtained prior to registration of the course. A course designed to give students an opportunity to become involved in independent study in a literary or linguistic area or subject in which they have an interest and for which they have the necessary background.

Forensic Science (FRSC)**FRSC 202. Crime and Science. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Introduces the scientific theory, concepts and practices used in any physical science by relating them to the analysis of physical evidence performed in forensic laboratories and the fundamentals of crime scene investigation, and their relationship to the criminal justice system and criminal investigations. Not applicable for credit toward the B.S. in Forensic Science.

FRSC 231. Programming for Digital Forensics. 2 Hours.

Semester course; 1 lecture and 2 laboratory hours. 2 credits. Pre- or corequisite: CMSC 255. A study of programming applied to digital forensics. The course begins with the command-line interface and concludes with programming for data transcoding and task automation. Students will gain practical experience interpreting various data structures and learn skills to develop forensic tools of their own.

FRSC 291. Topics in Forensic Science. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a maximum of six credits. A study of selected topics in forensic science. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

FRSC 300. Survey of Forensic Science. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, BIOZ 151, CHEM 102, CHEZ 102 and UNIV 112, each with a minimum grade of C. Pre- or corequisites: CHEM 301 and CHEZ 301, and UNIV 200 or HONR 200. Enrollment is restricted to forensic science majors or by permission of instructor. Introduces the theory, concepts and practices used in the analysis of physical evidence performed in crime laboratories, and the fundamentals of crime scene investigation. Also introduces ethical and quality assurance issues of crucial importance in modern crime laboratories.

FRSC 309. Scientific Crime Scene Investigation. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: FRSC 300 with a minimum grade of C. Enrollment is restricted to forensic science majors or by permission of the instructor. Provides scientific theory of crime scene investigation and crime scene reconstruction and basic knowledge of proper crime scene protocol and evidence processing techniques. Includes the processes for documentation, collecting and preserving physical evidence.

FRSC 310. Forensic Anthropology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 210 or FRSC 300 with a minimum grade of C. A comprehensive overview of forensic anthropology including its development and the theory and methodology on which it is based. Crosslisted as: ANTH 310.

FRSC 325. Forensic Medicine. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FRSC 300 with a minimum grade of C. Enrollment is restricted to forensic science majors or by permission of instructor. An investigation of topics in death scene investigations as well as autopsy findings associated with natural and unnatural deaths.

FRSC 330. Introduction to Digital and Multimedia Forensic Science. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. A broad overview of digital forensics. Covers the foundational topics of terminology, methodologies, devices, operating systems and file systems, tools and software, standards, ethics, and challenges. Provides an introduction to the various areas of focus within the digital and multimedia sciences, including computer, mobile, video, audio and network forensics, as well as the various modalities in which it is practiced (i.e., public vs. private sector).

FRSC 351. Forensic Science Service-learning. 2 Hours.

Semester course; 2 lecture hours. 2 credits. May be repeated for a maximum of four credits. Prerequisites: FRSC 300 and at least one additional FRSC/Z course, each with a minimum grade of C. Enrollment is restricted to forensic science majors or by permission of instructor. Provides an opportunity to learn about the community's schools and how to teach forensic science concepts to school-aged students. Each week, VCU students will provide hands-on lab activities in community-based programs to reinforce lessons learned through their school curricula. Reflective writing, partner assignments and a final presentation are required, in addition to 20 community partner hours. VCU students will improve their ability to explain forensic concepts to those with differing scientific backgrounds, have increased confidence when addressing audiences and deepen their understanding of civic responsibility.

FRSC 365. Forensic Microscopy. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: FRSC 300 with a minimum grade of C. An in-depth course in the theory and practical application of microscopy to the examination, identification and individualization of physical evidence submitted to forensic laboratories.

FRSC 375. Forensic Evidence, Law and Criminal Procedure. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, BIOZ 151, CHEM 102, CHEZ 102 and UNIV 112, each with a minimum grade of C. Pre- or corequisites: FRSC 300, CHEM 301 and CHEZ 301; and UNIV 200 or HONR 200. Enrollment is restricted to forensic science majors or by permission of the instructor. The law of criminal procedure and rules of evidence as applied to forensic science. Topics will include scientific versus legal burdens of proof, legal terminology and trial procedure.

FRSC 385. Forensic Serology. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: CHEM 301 and FRSC 300, each with a minimum grade of C. Examines the application of basic chemical, biological, immunological and microscopic laboratory techniques to the examination and identification of body-fluid stains, including both presumptive and/or confirmatory identification of blood, semen, saliva, urine and feces. Applies methods that are used in forensic laboratories to identify the species of origin and includes a review of advanced methods for automated serological analysis. Laboratory exercises will supplement lectures to give students practical knowledge of the laboratory procedures.

FRSC 391. Topics in Forensic Science. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. A maximum total of six credits for all forensic science topics courses may be applied to the major. Prerequisite: FRSC 300 with a minimum grade of C. A study in selected topics in forensic science. See the Schedule of Classes for specific topics to be offered each semester and additional prerequisites.

FRSC 400. Forensic Chemistry. 4 Hours.

Semester course; 2 lecture and 4 laboratory hours. 4 credits. Prerequisites: CHEM 409 and CHEZ 409, each with a minimum grade of C. Examines core principles and instrumentation used in forensic chemistry applications to include microchemical tests, gas chromatography, liquid chromatography, spectroscopy and mass spectrometry, with emphasis on forensic casework. These topics may include accelerants, explosives, paints, polymers and drug analysis. Students will gain experience in experimental design, operation and troubleshooting of instrumentation, as well as the analysis and interpretation of chromatographic and spectroscopic data sets.

FRSC 410. Forensic Pattern Evidence. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: FRSC 309 with a minimum grade of C. Enrollment is restricted to forensic science majors or by permission of the instructor. Covers topics in pattern evidence analysis including analysis of latent prints and impression evidence of footwear and tire treadmarks as applied to forensic casework. Covers both the theoretical and practical aspects using lectures and laboratory exercises focusing on the visualization, examination and interpretation of pattern evidence.

FRSC 412. Forensic Analysis of Firearms and Toolmarks. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: FRSC 300 with a minimum grade of C. Enrollment is restricted to forensic science majors or by permission of the instructor. An investigation of topics in firearms and toolmark examination for forensic applications. Covers both theoretical and practical aspects using lectures and laboratory exercises.

FRSC 438. Forensic Molecular Biology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 310 with a minimum grade of C. Provides an understanding of molecular biology testing methodologies as applied to analysis of forensic samples. Current topics in forensic DNA analysis will include quality assurance, DNA databanking, contemporary research and population genetics. Crosslisted as: BIOL 438.

FRSC 445. Forensic Toxicology and Drugs. 4 Hours.

Semester course; 2 lecture and 4 laboratory hours. 4 credits. Prerequisites: CHEM 301, CHEM 302, CHEZ 301 and CHEZ 302, each with a minimum grade of C. Provides a comprehensive overview of the basic principles of drug analysis and forensic toxicology. Students will perform hands-on lab exercises in these areas. Students will learn to identify the controlled substances and toxic agents most commonly abused and/or encountered in criminal investigations, including issues of interpretation and impairment.

FRSC 490. Professional Practices in Forensic Science. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: FRSC 300; and one additional FRSC or FRSZ course, each with a minimum grade of C. Enrollment is restricted to seniors in forensic science with at least 85 credit hours toward the degree. An examination and evaluation of historical and current issues in the scientific analysis of physical evidence in criminal investigations. Individual and group activities relating to professional practices (ethics, quality control and testimony) of forensic scientists.

FRSC 492. Forensic Science Independent Study. 3 Hours.

Semester course; 1-3 independent study hours. 0-3 credits. Prerequisites: CHEZ 301 and FRSC 300, each with a minimum grade of C. May be repeated for a maximum of six credits. Enrollment is restricted to forensic science majors with at least sophomore standing and a minimum GPA of 2.5. Independent studies must be research-based. A determination of the amount of credit (including expected time commitments) and the written permission from both the instructor and the independent study coordinator/program director must be procured prior to registration for the course.

FRSC 493. Forensic Science Internship. 3 Hours.

Semester course; 1-3 field experience hours. 0-3 credits. Prerequisite: FRSC 300 with a minimum grade of C. Enrollment is restricted to forensic science majors with a minimum GPA of 2.75. Through an internship at an approved organization, the student will obtain a broader, more practical knowledge of forensic science and its applications. A determination of the amount of credit (including expected time commitments) and the written permission from both the internship supervisor and the internship coordinator/program director must be procured prior to registration for the course. Written progress and a final report are required. Graded as pass/fail.

Forensic Science Lab (FRSZ)**FRSZ 391. Topics in Forensic Science Laboratory. 1-3 Hours.**

Semester course; 3-9 laboratory hours. 1-3 credits. A maximum total of six credits for all forensic science topics courses may be applied to the major. Prerequisite: FRSC 300 with a minimum grade of C. Laboratory investigations in a selected topic in forensic science. See the Schedule of Classes for specific topics to be offered each semester and additional prerequisites.

FRSZ 438. Forensic Molecular Biology Laboratory. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. Pre- or corequisite: BIOL/FRSC 438. Provides comprehensive coverage of the various types of DNA testing currently used in forensic science laboratories. Students will have hands-on experience with the analytical equipment employed in forensic science laboratories and the techniques for human identification in forensic casework. Students also will explore and practice both scientific writing and writing of DNA case reports. Crosslisted as: BIOZ 438.

French (FREN)**FREN 101. Beginning French I. 3 Hours.**

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment requires any student with previous exposure to French to take the placement test to determine eligibility. For students with no prior knowledge of French. Beginning grammar, reading, writing and oral skills.

FREN 102. Beginning French II. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FREN 101 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Continuation of beginning grammar, reading, writing and oral skills.

FREN 110. Intensive French I. 8 Hours.

Semester course; 10 lecture and laboratory hours. 8 credits. This intensive course combines FREN 101 and 102 into a single semester.

FREN 201. Intermediate French I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 102 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in French. Building toward intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

FREN 202. Intermediate French II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 201 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in French. Increasing intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

FREN 205. Intermediate Conversation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 201. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation.

FREN 210. Intensive French II. 6 Hours.

Semester course; 6 lecture and laboratory hours per week. 6 credits. Prerequisites: FREN 101 and 102, or FREN 110. This intensive course combines FREN 201 and 202/205 into a single semester.

FREN 300. Communication and Composition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 202, FREN 205 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in French. Building toward intermediate-high proficiency in the three modes of communication: interpretive, interpersonal and presentational. Authentic materials enhance intercultural competence and communication skills.

FREN 301. Self and Society: Effective Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 202, FREN 205 or FREN 300. Conducted in French. Students advance their knowledge of the French language and French-speaking cultures while developing their reading and writing skills. Students examine a variety of texts and media and gain strategies for interpretation and discussion, with a focus on effective writing.

FREN 305. Oral Communication. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 202, FREN 205, FREN 300 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in French. Practice in the spoken language with emphasis on discussions relating to topics of current interest.

FREN 307. French Conversation and Film. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 202, 205 or 300. The course is designed to develop the student's conversational skills, oral comprehension ability and knowledge of contemporary culture through discussion of selected French films. Emphasis is also placed on vocabulary development and writing practice.

FREN 320. French Civilization and Culture I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 202, 205 or 300. Conducted in French. A survey of French civilization and culture from its origins to the French Revolution. Introduction to and analysis of the most important aspects of Gallo-Roman society and of the Merovingian, Carolingian and Capetian dynasties which influenced the institutions of the Ancien Regime and still serve as cultural archetypes and icons in contemporary French culture.

FREN 321. French Civilization and Culture II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 202, 205 or 300. Conducted in French. A survey of French civilization and culture from the Napoleonic era to the present. This course retraces important cultural and social traditions found during the first Empire, the Restoration, the Second Republic, the Second Empire, the Commune, the Third and Fourth Republics which influenced and continue to shape contemporary French civilization and culture of the Fifth Republic.

FREN 330. Survey of Literature. 3 Hours.

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisite: FREN 202, 205 or 300. Conducted in French. First semester: through the 18th century. Second semester: 19th and 20th centuries.

FREN 331. Survey of Literature. 3 Hours.

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisite: FREN 202, 205 or 300. Conducted in French. First semester: through the 18th century. Second semester: 19th and 20th centuries.

FREN 420. French Regional Culture. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 320 or 321. Conducted in French. Focuses on the culture and civilization specific to each of France's 22 regions. History, culture, architecture as well as sociopolitical, linguistic identities, artisanal trades and folklore are presented for each region. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 421. French Contemporary Culture. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 320 or 321. Conducted in French. Focuses on the contemporary culture found in French society. The individuals and events shaping current French social, political, artistic and cultural life are examined. Each theme is illustrated by current audiovisual materials. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 422. French Cinema. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 320 or 321. Conducted in French. Tracing French cinema from les Frères Lumière and Georges Méliès through the New Wave to new contemporary directors, this course focuses on the thematic selections and stylistic techniques particular to French cinematographic culture. The class is offered concurrently with the annual VCU French Film Festival, thereby permitting students to directly communicate with French actors and directors participating in the festival. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 425. French Media. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 320 or 321 or 330 or 331. Conducted in French. Analysis of the French media: written press, radio and television. Advanced comprehension skills required and stressed through regular exercises pertaining to different journalistic discourses and styles. Proficiency in journalistic writing is developed in class through the creation of an electronic French newspaper on the Internet. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 428. Earth Ahead: Contributions by French Authors, Artists and Activists. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: FREN 301; FREN 305 or FREN 307; and FREN 320, FREN 321, FREN 330 or FREN 331. Conducted in French. Explores the theme of the earth, nature, and the environment in the philosophy, literature and art of contemporary Francophone cultures, and the extent to which these intellectual and cultural contributions have entered academic and popular discussions in 21st-century France and elsewhere in the world. Analyzes how these diverse manifestations of environmental discourse inform, shape and articulate Francophone cultural praxes of activism concerned with defending our natural world.

FREN 435. Contemporary French Literature. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 330 or 331. Conducted in French. An overview of French literature from 1900 to the present. Discusses texts that have particular resonance in relation to contemporary issues, including literary works that have contributed most saliently to French culture over this time period.

FREN 440. Commercial French. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 320 or 321 or 330 or 331. This course introduces students to the cultural, economic and linguistic dimensions of the Francophone commercial sector. It builds the student's reading, writing, listening and speaking proficiencies through active engagement with business-related materials and activities. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 450. Francophone Literatures and Cultures. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisite: FREN 301; FREN 305 or 307; FREN 320 or 321 or 330 or 331. Conducted in French. Introduces students to the literatures and cultures of the Francophone world. Provides an overview of the Francophone world and an in-depth study of literary works written in French from Africa, the Caribbean, North America, Asia and Europe. Also explores the impact of Colonial history on Francophone literatures and cultures. See the Schedule of Classes for the specific topic to be offered each semester. Crosslisted as: INTL 450.

FREN 491. Topics in French. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated with different topics for a maximum of 9 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 320 or 321 or 330 or 331. An in-depth study of selected topics in French. See the Schedule of Classes for specific topics to be offered each semester.

FREN 492. Independent Study. 1-3 Hours.

Semester course; variable hours. Variable credit. Maximum of 3 credits per semester; maximum total of 6 credits for all independent study courses in French. Prerequisite: FREN 301; FREN 320 or 321; Senior standing with a minimum of 85 credits earned toward the degree. Determination of course content and permission of the instructor must be obtained prior to registration of the course. A course designed to give students an opportunity to become involved in independent study in a literary or linguistic area or subject in which they have an interest.

Gender, Sexuality and Women's Studies (GSWS)

GSWS 201. Introduction to Gender, Sexuality and Women's Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An interdisciplinary and intersectional introduction to the perspectives and core concerns pertaining to gender, sexuality and women's studies.

GSWS 202. Introduction to Trans Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces students to the field of transgender studies. Introduces students to trans identities, communities and politics and explores the historical and contemporary production of gender norms and the institutions and mechanisms that police those norms.

GSWS 205. Introduction to LGBT+ and Queer Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Stresses intersectional approaches to LGBT+ and queer studies. Introduces students to a broad field of study across disciplines, cultures and historical periods.

GSWS 236. Women in Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 112 or both ENGL 295 and HONR 200. An introduction to literature by and/or about women. Crosslisted as: ENGL 236.

GSWS 291. Topics in Women's Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a total of 6 credits. An in-depth examination of specialized areas of interest in women's studies. See the Schedule of Classes for specific topics to be offered each semester.

GSWS 301. Feminist Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Pre- or corequisite: UNIV 200 or HONR 200. This course will introduce students to areas of generative struggle and critique within feminist theory. Will examine these conflicts not as moments of danger, but as constituting a key genealogy of feminism. Will be structured around important debates that constitute this genealogy of feminist theory, including: early woman of color critiques of the notion of "universal sisterhood," debates over the "proper object" of feminist inquiry, post-structuralist approaches to theorizing the subject, queer theory's shift toward a "subject-less critique" and transnational feminist praxis.

GSWS 302. Trans Theory and Activism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: GSWS 202. Examines the production and policing of gender norms, both historically and in the contemporary moment. Offers students the opportunity to delve more deeply into the field of trans studies, reading key new works in the field and developing their own substantive research projects.

GSWS 303. Sociology of Masculinities. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the sociological theories and empirical studies of men and masculinities. Topics include the relational thinking of gender inequality, hegemonic masculinity, subordinated masculinities, inclusive masculinity, hybrid masculinity, toxic masculinity, female masculinity and male femininity, and intersectional masculinities. Addresses the effects and mechanisms of masculinities in social settings, such as the workplace, family, marriage, intimacy, pop culture, politics, migration, globalization and social movements, through empirical studies. Crosslisted as: SOCY 335.

GSWS 304. Sociology of Families. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. The family in its social and cultural context. Analysis of child rearing, marriage, kinship, family crises and family change in various societies around the world. Crosslisted as: ANTH 304/SOCY 304.

GSWS 305. Oppression, Resilience and the Black Family. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the historical and contemporary experiences of Black families, with a central focus on the resilience and contributions of Black families in the U.S. Engages in intersectional analysis of systems of oppression and the full range of Black family structures. Centers Black liberation and Black joy. Crosslisted as: AFAM 305/SOCY 305.

GSWS 309. Gender and Global Health. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines how health policies produce and regulate gendered bodies and sexualities. Topics may include how colonial medicine and health policies of detection, diagnosis, surveillance, quarantine and confinement were implemented as methods of social control. Analyzes continuities between colonial medicine and more contemporary interventions that in the name of individual and communal health attempt to shape proper sexualities and gendering. Crosslisted as: AFAM 309/ANTH 309/INTL 309.

GSWS 316. Women and the Law. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will introduce students to the history, politics and status of women under the American legal system. Topics to be covered may include equal protection, sexual violence, the particular rights of women of color and lesbians, reproductive rights of women of color and lesbians, reproductive rights, women criminals and women in the legal profession. Crosslisted as: POLI 316.

GSWS 318. Politics of Race, Class and Gender. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the racial, class and gender influences on the history and development of political values, conflicts, processes, structures and public policy in the United States. Crosslisted as: AFAM 318/POLI 318.

GSWS 319. Women and American Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course analyzes the participation of women in American politics. Attention is given to both women's historical and contemporary roles in politics, their participation as voters and citizens, and their behavior as candidates and office holders. Additional topics may include workplace, family and education issues and reproductive rights. Crosslisted as: POLI 319.

GSWS 333. Gender in Society. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores different theoretical approaches to gender and its intersections with other sources of inequality, including sexuality, race, class and age. Possible topics include masculinities, gender and the body, and how gender operates in various institutional settings, such as the economy and the family. Crosslisted as: SOCY 333.

GSWS 334. Sociology of Women. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or consent of instructor. This course will examine the position and status of women across societies and the social forces that maintain existing patterns and arrangements. The integration of family and work in women's lives will be emphasized. Crosslisted as: SOCY 334.

GSWS 335. Psychology of Women. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Overview of issues in psychology relevant to women. Topics include: research methods of women's issues; sex-role socialization; women and hormones; psychological androgyny; personality theory and counseling strategies for women; women and language; women and violence; and rape and abuse. Crosslisted as: PSYC 335.

GSWS 336. Violence Against Women. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or GSWS 201. An examination of violence against women from a global and local perspective with a primary focus on violence perpetrated against women in the U.S. Requires a minimum of 20 hours of community service. Crosslisted as: SOCY 336.

GSWS 339. Gender and Sexuality in Europe to 1700. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Analyzes historical changes in gender and sexuality from c. 500 BCE through industrialization. Explores the notions of femininity and masculinity as they were expressed in the economics, family structures and intellectual and religious discourse within and amid Greek, Hellenistic, Roman, Germanic and Norse, and medieval Latin Christian cultures, and traces the changes brought to the medieval cultural synthesis by European colonial expansion, the reformations and the Industrial Revolution. Crosslisted as: HIST 330.

GSWS 340. Gender and Sexuality in Europe Since 1700. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of gender and sexuality in Europe since industrialization. The course offers a particular focus on the lives of European women, as well as sexual and gender minorities who by the end of the 20th century would identify as LGBTQ +. Topics will include the development of European feminisms, treatment of gender and sexuality under fascism, and the sexual revolution. Crosslisted as: HIST 331.

GSWS 341. Gender and Sexuality in America I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Analyzes historical changes in gender and sexuality from the first colonial settlements through the Civil War. Explores the changing relation of femininity and masculinity to families, economics, politics, religions, race and culture for the wide variety of peoples who inhabited, immigrated to or were forced to migrate to America and the subsequent United States. Crosslisted as: HIST 365.

GSWS 342. Gender and Sexuality in America II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Analyzes historical changes in gender and sexuality from Reconstruction to the present. Examines the relationship between gender, race, ethnicity and class within American society and the struggles for suffrage, social reform, employment opportunities and sexual freedom in the modern United States. Crosslisted as: HIST 366.

GSWS 352. Feminist Literary Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. The study of contemporary feminist thought and feminist approaches to analyzing literature and culture. This course examines the history and development of feminist theory as a methodology in the humanities, explores several of the major theoretical trends of the past 30 years and examines applications of feminist theory to specific works of literature. Crosslisted as: ENGL 352.

GSWS 353. Women's Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for credit once (for a maximum of six credits) when a different group of writers is studied. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of selected literature written by woman-identified writers. Crosslisted as: ENGL 353.

GSWS 354. Queer Literature: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of queer literature. Considers issues of history, theory, aesthetics, politics, authorship and/or interpretive communities and examines the intersection of social identities with particular attention to race/ethnicity, sex, sexual orientation, gender expression, class and/or nationality. Topics will vary by section. Crosslisted as: ENGL 354.

GSWS 355. Queer Cinema. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Theoretical focus on cinematic works about and/or by those identifying as lesbian, gay, bisexual, transgender or queer. Examines concepts of gender, sexuality and women's studies through analysis of selected works in the medium of film as well as engages with theoretical texts in the field.

GSWS 356. Open Minds. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Experiential seminar held at a local correctional institution that connects students to inmates as learning partners. Examines the history and development of American prisons in context, supplementing theoretical studies with the lived experiences of inmates.

GSWS 358. Sex and Power. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Pre-or corequisite: GSWS 201. Challenges the taken-for-granted beliefs about the naturalness of sexuality and, instead, considers the relationship between and among individual sexualities, sexual (sub)cultures, institutions and politics. Links the contemporary context for sexual lives, experiences and feelings with the history of sexuality in the United States, focusing on how sex and power interact. Covers a wide range of topics, including but not limited to sexual identities (e.g. LGBQA+ and plurisexualities); racism, White Supremacy and desirability; abortion, birth control, reproduction and sterilization; relationships, intimacies and kinship (including non-monogamies); commercial sex, pornography, prostitution and sex work; sexual health and "disease"; and sexual exploitation and violence.

GSWS 359. Black Women Writers. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Explores the variety of ways African-diasporan women and woman-identified writers gained self-expression in the midst of gender and race oppression from slavery to the present. Also explores the rise of Black feminist discourse as a project of reclaiming and giving voice to writers who had previously been silenced or suppressed. Crosslisted as: ENGL 355.

GSWS 360. Mujerista Ethics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Pre- or co-requisite: GSWS 201. Introduces students to the study of ethics from a "mujerista" feminist perspective. Focuses on decolonial philosophies from Latin American and Latinx perspective as centered on community and from the organizational perspectives of women in the Latin American and Latinx community. Emphasizes the inherent connections between liberation theory and political action that have inspired decolonial thought.

GSWS 366. Women and Global Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of women and global politics, providing both a feminist re-examination of traditional international-relations theories and a comparative analysis of the political, legal and economic status of the world's women. The impact of women on global political institutions such as the United Nations will be addressed as well as other feminist and grass roots means of taking political action. Crosslisted as: POLI 366/INTL 368.

GSWS 371. Women in Islam. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200, RELS 108, GSWS 201 or ENGL 215. Critical study of the roles and rights of women in Islam. Crosslisted as: RELS 371.

GSWS 380. Lesbian and Bisexual Women. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course examines the lives of contemporary lesbian and bisexual women from psychological, sociological, developmental, political and cultural perspectives. The intersection of race, class, ethnicity, religion, age, disability and locale with lesbian/bisexual identity will be explored.

GSWS 382. Gender, Crime and Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the role of gender as it relates to crime and justice. Special attention will focus on the gendered experiences of practitioners, offenders and victims within the criminal justice system in terms of processing, adjudication and institutional responses. Crosslisted as: CRJS 382.

GSWS 383. Beyoncé: Music, Race and Fame. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the popular music industry, the celebrity industry, Black Twitter, divas and the racial politics of beauty to offer a critical context for Beyoncé, divadom and Black female performance.

GSWS 384. Queer Nightlife. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the boundaries between nightlife, queer worldmaking and subcultural media. Explores queer nightlife as a space where transgressive performances of the self are made possible via music, media, fashion and performance. Through close readings and sustained cultural analysis, students acquire a critical understanding of the potentialities of queer "after hours" in the making of subcultural identity and emerging aesthetic practices.

GSWS 390. Forced and Coerced Labor in Africa and the Americas. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines a broad range of forced and coerced labor in Africa and selected parts of the Americas, including the United States, Canada and the Caribbean, from around the 17th century to the 20th century. The role that gender and race played in slavery and coerced labor will be given particular attention. Crosslisted as: AFAM 390/HIST 380.

GSWS 391. Topics in Gender, Sexuality and Women's Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of 12 credits. An in-depth examination of specialized areas of interest in gender, sexuality and women's studies. See the Schedule of Classes for specific topics to be offered each semester.

GSWS 392. Gender and Health Across the Life Span. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Uses a gendered perspective to critically examine the inequity in access to health care and differential treatment by health care researchers and service providers. Places the issues of gender in their historical and geographical context by reading critical texts and authors in the field of gender, sexuality and women's studies, alongside historical accounts and current social science texts at the intersection of gender and health.

GSWS 393. Feminist Research and Methods of Inquiry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines attempts to challenge traditional Western ways of knowing and to propose alternative feminist methods for research. Students will engage in critical, autobiographical and/or creative projects that address some of the central questions posed by the class about what constitutes research, evidence and authoritative knowledge.

GSWS 401. Topical Senior Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: 21 credits in gender, sexuality and women's studies or permission of the instructor. Students are required to produce a senior research project on a topic related to the theme of the seminar.

GSWS 409. LGBTQ Health and Wellness. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: GSWS 201; and UNIV 200 or HONR 200. Examines LGBTQ health and wellness, broadly defined. Examines core health issues, such as physical and mental health disparities, health care access, wellness practices and policy/care systems dimensions. Focuses on multiplicative marginalization and how race, ethnicity, class, gender, rurality, poverty, immigration and adolescence, among other factors, impact core health issues.

GSWS 414. Psychology of Women's Health. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Overviews the psychological research on women's health. Topics include health behavior change, personality and individual differences, cognitive factors, disease-specific behaviors and interventions. Crosslisted as: PSYC 414.

GSWS 415. Black Performance Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: DANC 103, DANC 104 and UNIV 200. This course will focus on performance as apt method for analysis of notions/experiences of Blackness. Students will read scholarly texts which contend with the ubiquity of Black death and gratuitous violence alongside sonic, visual and written texts by significant cultural contributors — including works by Rihanna, Dapper Dan, Cardi B, Beyonce and Janet Mock — in order to examine and contend with expressions of complex personhood by people who exist under the constant threat of annihilation. The course focuses on embodied knowledge — that is, the harnessing of insight derived from lived experiences of hegemonic racial, gender, sexual and class subjection — and how such wisdom is transformed into strategies, tactics and tools that enable black people to acquire the human and material resources needed for survival. Crosslisted as: DANC 415.

GSWS 450. Black Feminist Thought. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Theoretical focus on black feminist thought, spanning the first wave of feminism in the U.S. from the late-19th and early 20th century onward. Though primarily U.S.-focused, this course examines black feminist thought globally, as well as that of lesbians, transgendered or queer individuals, foregrounding topics such as race, gender, class, sexuality, activism, liberation, labor and social movements. Also examines the history and development of black feminist thought, considers it as a methodology in the humanities and social sciences, explores several of its major theoretical trends of the past 100 years and examines its applications to cultural phenomena and current events.

GSWS 451. Narratives of Asian American Sexualities. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines representations of gendered Asian American sexualities in literature (novels, short stories, an autobiographical novel, poetry and a play), as well as visual texts (graphic novels, films and video). Pays particular attention to how the texts participate in and challenge the constitution of Asian American subjectivities in the contexts of (neo)colonialism, neoliberal restructuring and the emergence of pan-Asian and feminist movements in the United States.

GSWS 452. Language and Gender. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. A study of relationships between gender and language focusing on such issues as differences between the ways women and men use language, relationships between language and power and ways in which language reflects and reinforces cultural attitudes toward gender. May not be used to satisfy the literature requirement of the College of Humanities and Sciences. Crosslisted as: ENGL 452/LING 452.

GSWS 453. Western Religions, Women and Social Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: UNIV 200 or HONR 200; and RELS 108, GSWS 201 or WRLD 210. Explores the experience and portrayal of women in the three Abrahamic traditions: Judaism, Islam and Christianity. Study focuses on how these religions and their texts bear upon the social, economic, political and spiritual lives of women. Special attention is given to the impact of globalization and religious fundamentalism on women. Crosslisted as: INTL 453/RELS 453.

GSWS 457. Women, Art and Society. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A re-examination of a variety of issues concerning women, art and society: the position assigned women within the history of art as it relates to historical place and the aesthetic values of the canon, the gendering of style, patronage, audience, and gaze. Through a survey of images of and by women, as well as through an analysis of art historical and critical texts, this course addresses the question: "How are the processes of sexual differentiation played out across the representations of art and art history?" Crosslisted as: ARTH 357.

GSWS 460. Gender, Sexuality and HIV In African Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Pre- or corequisite: GSWS 201, UNIV 200 or HONR 200. Analyzes representations of HIV/AIDS in literature in English from Eastern and Southern Africa. Pays particular attention to how authors depict the anxieties and conflicts provoked by HIV/AIDS around gender, sexualities, racism, modernity, global inequities and urbanization. Features fiction, autobiographies, poetry and short stories that challenge stigmatization, commemorate the lives lost and demand that readers both bear witness and respond to the narratives.

GSWS 461. HIV, Memory and Queer Archives. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Pre- or corequisite: GSWS 201, UNIV 200 or HONR 200. Explores some of the complexities of HIV/AIDS archives and the counter-histories that they attempt to preserve, produce and disseminate. Further analyzes works that represent themselves as metaphor and medium of the archive and that address some of the central contradictions of HIV/AIDS archives and their processes.

GSWS 470. Latinx Feminisms. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Pre- or corequisite: GSWS 201 or UNIV 200. Focuses on how the intersections of history and identity are reflected through writing, film and visual art, as expressions of Latinx feminist thinking. Will use the method of "testimonio," or testimony, as a political tool that has gathered the lived experience of politically persecuted vulnerable communities in Latin America, and continues as a method of validating lived experience, or biography as text.

GSWS 491. Topics in Women's Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a total of 12 credits. An in-depth examination of specialized areas of interest in women's studies. See the Schedule of Classes for specific topics to be offered each semester.

GSWS 492. Independent Study. 1-6 Hours.

Semester course; 1-6 lecture hours. 1-6 credits. May be repeated for a maximum of six credits per semester; maximum total of six credits in all independent study courses. Enrollment is restricted to students of junior and senior standing who have acquired a minimum of 12 credits in gender, sexuality and women's studies courses. Determination of the amount of credit and permission of the instructor and coordinator must be obtained prior to registration for the course.

GSWS 493. Internship. 1-3 Hours.

Semester course; variable hours. 1, 2 or 3 credits. May be repeated for a maximum total of 6 credits. Prerequisites: internship credit is limited to students with a minimum grade point average of 3.0 and junior or senior status. Directed internship, local or abroad, or other approved study-abroad experience with the objective to provide real-life experience. Determination of the amount of credit (based on hours or effort required) and permission of departmental internship coordinator must be obtained prior to registration for the course. Graded pass/fail.

German (GRMN)**GRMN 101. Beginning German I. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Enrollment requires any student with previous exposure to German to take the placement test to determine eligibility. For students with no prior knowledge of German. Beginning grammar, reading, writing and oral skills.

GRMN 102. Beginning German II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 101 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Continuation of beginning grammar, reading, writing and oral skills.

GRMN 201. Intermediate German I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 102 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in German. Building toward intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

GRMN 202. Intermediate German II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 201 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in German. Increasing intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

GRMN 205. Intermediate Conversation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 201. Conducted in German. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation.

GRMN 300. Communication and Composition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 202, GRMN 205 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in German. Building toward intermediate-high proficiency in the three modes of communication: interpretive, interpersonal and presentational. Authentic materials enhance intercultural competence and communication skills.

GRMN 301. Self and Society: Effective Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 202, GRMN 205, GRMN 300 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in German. Students advance their knowledge of the German language and German-speaking cultures while developing their reading and writing skills. Students examine a variety of texts and media and gain strategies for interpretation and discussion, with a focus on effective writing.

GRMN 305. Oral Communication. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 202, GRMN 205, GRMN 300 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in German. Practice in the spoken language with emphasis on discussions relating to topics of current interest.

GRMN 307. German Conversation and Film. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 202, GRMN 205 or GRMN 300; GRMN 300 recommended. Conducted in German. The course is designed to develop the student's communication skills, oral comprehension ability and knowledge of contemporary culture through discussion of selected German films. Emphasis is also placed on vocabulary development and writing practice.

GRMN 311. German Through the Media. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 202, GRMN 205 or GRMN 300; GRMN 300 or GRMN 301 recommended. Designed to develop language proficiency by using material available through the various media: newspapers, magazines, films, Internet, podcasts and radio broadcasts.

GRMN 314. Commercial German. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 301. Designed to develop the student's ability to use German as a means of oral and written communication in the business world. Emphasis on the acquisition of technical tools necessary for business exchanges in specialized fields.

GRMN 320. From the Vandals to Kant: Civilization and Literature I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 202, GRMN 205 or GRMN 300; GRMN 300 or GRMN 301 recommended. Conducted in German. A survey of German-speaking culture and literature from its origins to the Enlightenment. Also emphasizes enhancing German-language skills in vocabulary, reading, speaking and writing.

GRMN 321. From Faust to Nazism: Civilization and Literature II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: GRMN 202, GRMN 205 or GRMN 300; GRMN 300 or GRMN 301 recommended. Conducted in German. A treatment of German culture and literature from the Age of Goethe to the rise of Nazism. Also emphasizes enhancing German language skills in vocabulary, reading, speaking and writing.

GRMN 322. From Kafka's World to the EU: Civilization and Literature III. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: GRMN 202, GRMN 205 or GRMN 300; GRMN 300 or GRMN 301 recommended. Conducted in German. A survey of German culture and literature from the 1920s to today. Also emphasizes enhancing German language skills in vocabulary, reading, speaking and writing.

GRMN 420. The Turn of the Century. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: GRMN 300; GRMN 305 or 307 or 311; GRMN 301 or 320 or 321 or 322. Conducted in German. A course dealing with the major intellectual, philosophical, artistic and cultural trends from the turn of the century through the Weimar period as reflected in the writings of authors such as Kafka, Mann and Hesse. Includes impressionism, expressionism and neue Sachlichkeit.

GRMN 421. The Postwar German Scene. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: GRMN 300; GRMN 305 or 307 or 311; GRMN 301 or 320 or 321 or 322. Conducted in German. A course dealing with the political, social and intellectual developments of the German-speaking countries from the end of World War II to the present as reflected in the literary works of their major authors.

GRMN 422. German Film. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a total of 6 credits. Prerequisites: GRMN 300; GRMN 305 or 307 or 311; GRMN 301 or 320 or 321 or 322. Study of selected topics in German film from the beginnings to today, particularly as seen in their social, historical and cultural contexts. See the Schedule of Classes for the specific topic to be offered each semester.

GRMN 423. Folk/Popular Culture. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a total of 6 credits. Prerequisites: GRMN 300; GRMN 305 or 307 or 311; GRMN 301 or 320 or 321 or 322. Study of selected topics related to folk traditions and/or popular culture in German-speaking countries. See the Schedule of Classes for the specific topic to be offered each semester.

GRMN 424. Culture and Society. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a total of 6 credits. Prerequisites: GRMN 300; GRMN 305 or 307 or 311; GRMN 301 or 320 or 321 or 322. Study of issues in the culture and society of German-speaking countries today. See the Schedule of Classes for the specific topic to be offered each semester.

GRMN 425. Language in Context: ____. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: GRMN 300; GRMN 301, 305, 307 or 311; and GRMN 320, 321 or 322. Conducted in German. Study of German language and linguistics. See the Schedule of Classes for the specific topic to be offered each semester.

GRMN 491. Topics in German. 1-3 Hours.

Variable hours. 1-3 credits. May be repeated with different topics for a maximum of 9 credits. Prerequisites: GRMN 300; GRMN 305 or 307 or 311; GRMN 301 or 320 or 321 or 322. An in-depth study of selected topics in German. See the Schedule of Classes for specific topics to be offered each semester.

GRMN 492. Independent Study. 1-3 Hours.

Semester course; variable hours. Variable credit. Maximum of 3 credits per semester; maximum total of 6 credits for all independent study courses in German. Prerequisites: GRMN 301; GRMN 320 or 321 or 322; GRMN 420 or 421 or 422 or 423 or 424 or 491; and senior standing with a minimum of 85 credits earned toward the degree. A course designed to give students an opportunity to become involved in independent study in a literary or linguistic area or subject in which they have an interest.

Health, Physical Education and Exercise Science (HPEX)**HPEX 107. Badminton.** 1 Hour.

1 credit.

HPEX 121. Self Defense: Karate or Judo. 1 Hour.

1 credit.

HPEX 201. Individual Sports and Lifelong Leisure Activities. 3 Hours.

Semester course; 3 lecture/laboratory hours. 3 credits. Health, physical education and exercise science majors only. Prepares students to develop educational skills and methodology for instruction of individual sports in the classroom, gymnasium and outdoor field settings; students acquire skills needed to teach individual sports in middle and high school environments.

HPEX 202. Team Sports and Activities. 3 Hours.

Semester course; 3 lecture/laboratory hours. 3 credits. Open only to general health and physical education majors in the health, physical education and exercise science program. Students develop educational skills and methodology for instruction of team sports and group activities in classroom, gymnasium and outdoor field settings. Students acquire skills needed to teach team sports and activities in middle and high school environments.

HPEX 203. Wilderness Education I. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Designed to examine the principal philosophical foundations of adventure theory and wilderness leadership. Concepts of judgment, decision-making, leadership and environmentally correct practices are introduced.

HPEX 211. Tumbling and Elementary Rhythmics. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prepares students to work with elementary children 4 to 12 years of age in rhythmic activities; includes elementary tumbling, activities and games designed to help a child's rhythmic ability.

HPEX 216. Lifeguard Training. 1,2 Hour.

1-2 credits.

HPEX 217. Water Safety Instruction. 1,2 Hour.

1-2 credits.

HPEX 218. Scuba. 1 Hour.

1 credit.

HPEX 220. Introduction to Athletic Training. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 205 and BIOZ 205L. Corequisite: HPEZ 220L. An introduction to the field of athletic training. Includes the prevention and basic care of athletic injuries in the physically active.

HPEX 230. History and Philosophy of Health and Physical Education. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An overview of the professional aspects of health and physical education. Historical and philosophical concepts, evaluation and research methods, current issues and trends, and career opportunities are discussed. Field experiences allow exposure to various professionals and facilities related to the health and physical education domains.

HPEX 231. Principles of Accident Prevention. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is designed to provide information on the magnitude of the accident problem in the nation. Special attention is given to concepts and theories of accident prevention, particularly as they relate to use of highways.

HPEX 232. Introduction to Driver Education. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A current automobile operator's permit is required. An introduction to the vehicle operator's task within the highway transportation system: driver task analysis.

HPEX 250. Medical Terminology. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Self-directed learning experience for students entering a medical or allied health profession. Presents medical terms by their root word, suffix and prefix. Develops skills to build and decode medical terms by their word parts. Develops ability to recognize and use common medical abbreviations.

HPEX 271. Safety, First Aid and CPR. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course includes American Red Cross and/or American Heart Association certification in Multimedia Standard First Aid and Basic Life Support (cardiopulmonary resuscitation). In addition, basic principles of accident causation and prevention are presented.

HPEX 291. Special Topic in Health, Physical Education and Exercise Science. 1-3 Hours.

Semester course; 1-3 credits. May be repeated for a maximum of 3 credits. Restricted to health, physical education and exercise science majors only. Offers students the opportunity to participate in an approved professional experience related to the students' knowledge base of general education and professional introduction courses; may include participatory and experimental formats dictated by the faculty supervisor; credits determined by the number of contact hours of the experience.

HPEX 292. Independent Study in Health, Physical Education and Exercise Science. 1-3 Hours.

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of 3 credits. Enables a student to create an individualized research project or professional experience based on specific professional needs and goals; must have adviser's approval; experiences based on the student's knowledge base of general education and professional core introduction courses; credits determined by the number of contact hours and extensiveness of the project.

HPEX 293. Field Practicum I. 3-6 Hours.

Semester course; variable practicum hours. 3-6 credits. Health, physical education and exercise science majors only. Provides observational and small group experiences for the pre-professional student; includes planned observations, tutorials and small group involvement under the supervision of the faculty and field supervisor; summary papers, observational logs, resumes and updated five-year plans are completed in this writing intensive course; minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 294. Field Practicum II. 3-6 Hours.

Semester course; variable practicum hours. 3-6 credits. Health, physical education and exercise science majors only. Provides observational and small group experiences for the pre-professional student; includes planned observations, tutorials and small group involvement under the supervision of the faculty and field supervisor; minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 295. Clinical Practicum I. 3-6 Hours.

Semester course; variable practicum hours. 3-6 credits. Health, physical education and exercise science majors only. Provides observational and small group experiences for the pre-professional student; includes planned observations, tutorials and small group involvement under the supervision of the faculty and clinical supervisor; summary papers, observational logs, resumes and updated five-year plans are completed in this writing intensive course; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 296. Clinical Practicum II. 3-6 Hours.

Semester course; variable practicum hours. 3-6 credits. Health, physical education and exercise science majors only. Provides observational and small group experiences for the pre-professional student; includes planned observations, tutorials and small group involvement under the supervision of the faculty and clinical supervisor; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 300. Health Care Delivery in the U.S.. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces students to the American health care system and provides an opportunity to analyze the diverse components comprising the system. Major components of the system are examined, including inpatient and outpatient services, financing, insurance and technology. Provides the student a perspective of the variety of career choices in health care.

HPEX 310. Fitness and Health. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Presents the knowledge and pedagogical principles of strength, flexibility, aerobic and anaerobic training programs, as well as the role that exercise and lifestyle play on overall health. Emphasis is on understanding, experiencing and applying conditioning principles for individuals and how they impact health.

HPEX 325. Pathology and Pharmacology in Athletic Training. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 220, HPEZ 220L, PHIS 206 and PHIZ/BIOZ 206L. Acquaints the student with the pathology of athletic injuries and the proper use of pharmacology in the treatment of athletic injuries. Includes the pathomechanics of sports injuries and the use of medication in the treatment of sports injuries.

HPEX 330. Elementary Health and Physical Education. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 230, and either HPEX 201 or HPEX 202. Open only to general health and physical education majors in the health, physical education and exercise science program. Emphasis is given to the role of movement and theory in the education program and its implications for curriculum development and learning. Major consideration is given to the development of movement competency through thematic instruction.

HPEX 331. Methods in Driver Education. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: HPEX 232. This course is designed to provide driver education instructional principles and methodology.

HPEX 332. Motor Learning and Performance. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is designed to introduce the student to the major concepts of motor control and motor learning and the influencing conditions. It will provide a framework for understanding the structure and function of the nervous system in relation to perception and motor control. Other topics include the general nature of skill acquisition and how learners interact with the environment while performing motor tasks. The theoretical framework underlying learning and memory are related to the acquisition of motor skills.

HPEX 333. Psychosocial Aspects of Sport and Physical Activity. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The focus of this course is the scientific study of the behavior of individuals and groups within sport and physical activity in terms of the psychological effects and factors of sport participation, and in terms of the social relationships and social settings within which sport participation occurs.

HPEX 334. Measurement and Analysis in Teaching and Exercise Science. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Corequisite: HPEZ 334. Topics include selecting, administering, scoring and evaluating tests in the areas of general motor performance, health screening, fitness, sport skills and knowledge. Includes scientific test construction and basic statistical analysis.

HPEX 335. Elementary Physical Education for Physical Education Majors. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Designed to enhance knowledge of elementary physical education through an analysis of the aims, goals, objectives, programs and teaching methods. Construction of year-round curriculum and daily lesson plans. Emphasis also placed upon the acquisition of administrative and organizational knowledge dealing with facilities, equipment, teaching aids, testing, measurement and safety.

HPEX 337. Technology in Teaching Health and Physical Education. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Emphasis is placed on the application of the latest software and hardware technology used in the field of health and physical education. Students use public school settings and authentic data whenever possible.

HPEX 345. Nutrition for Health and Disease. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment restricted to HPEX majors. Overview of basic nutritional knowledge for both healthy individuals and those with increased risk of cardiovascular disease. The course relies on evidence-based research when discussing food and nutrition. Topics include science and politics of dietary guidelines; the science and controversies of carbohydrates, proteins, fats, vitamins and minerals; supplements; obesity and weight loss; digestion and absorption; allergies and intolerances; functional foods, phytochemicals and organic food.

HPEX 346. Employee Health Fitness Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course presents the knowledge, skills and abilities needed to design and implement health promotion, wellness and fitness programs that improve the physical health of employees of various working environments, as well as assess the cost-effectiveness of these programs.

HPEX 347. Foundation Principles for Health, Fitness and Sport Professions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course provides foundational principles for health, fitness and sport professions. Subdisciplines such as exercise physiology, sport and exercise psychology, biomechanics, motor behavior and sociocultural aspects of fitness and sport will be included. Students will also discuss career and leadership pathways within fitness/sport management.

HPEX 350. Nutrition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Provides learning opportunities that enable the student to acquire a practical and useful knowledge based on the sound principles of applied human nutrition. Emphasis will be on nutritional needs through the cycles of life providing information that will enhance the student's own lifestyle and provide experience in interpreting nutritional information for the public.

HPEX 351. Issues in Sexuality. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An overview of content, principles and strategies relating to issues in human sexuality both in the community and school settings. Basic concepts of human sexuality as they develop in today's world are presented. Issues include sexual maturity, reproductive systems, conception, birth, abortion and varieties of sexual behavior and sexual dysfunctions and disorders.

HPEX 352. Substance Abuse. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of drugs that are used and abused in contemporary society. Multidisciplinary lectures and discussions include the historical and sociological perspectives of drugs in the school and community; the psychological and physiological effects of drug use; and the role of local and regional resources. Designed for students, teachers, counselors, administrators and other interested persons. Rehabilitation methods and prevention programs also will be discussed.

HPEX 353. Disease Trends, Prevention and Control. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Pre- or corequisite: HPEX 250. Provides students an opportunity to examine the major categories of diseases, infectious and noninfectious, including significant examples in each category. Students will also research major diseases affecting the U.S. population as well as global populations. Current modalities for the prevention, treatment and control of these diseases will be studied.

HPEX 354. Coping and Adaptation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Focuses on common stress factors in life such as death, personal loss, life changes, divorce and emotional problems, such as anger, loneliness and frustration. Strategies for dealing with such stressors are discussed and applied to both personal and professional settings.

HPEX 355. School and Community Health Resources. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Acquaints the student with current available school and community resources and educational materials for health information. Available services in a community health program will be surveyed.

HPEX 356. Community Health Education and Promotion: Theory and Practice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 300 and 353. Pre- or corequisite: HPEX 355. Introduces theories, roles and skills that are the foundation for the professional practice of community health education. Emphasizes the growing significance of health education in preventing and/or treating health problems, health promotion and improving quality of life. Presents the historical evolution and development of the profession and the various settings in which health educators practice. Assists in the preparation of students for certification as health education specialists.

HPEX 357. Personal Health and Behavior Change. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Designed to provide students with a basic understanding of various contemporary personal and community health issues. Special emphasis placed on increasing awareness of multiple factors that affect individual health-behavior change and, subsequently, influence current and future health status.

HPEX 358. Introduction to Epidemiology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: STAT 210. Enrollment restricted to HPEX majors. Introduction of students to the field of public health epidemiology, emphasizing methods for assessing factors associated with the distribution and etiology of health and disease. Skills include methods for identifying and evaluating sources of health information, calculation of key epidemiologic measures, epidemiological investigation techniques, and evaluation of the strengths and weaknesses of different study designs.

HPEX 370. Coaching Seminar. 1 Hour.

Semester course; 1 lecture hour. 1 credit. A lecture/discussion course that identifies the practical administrative and organizational responsibilities coaches encounter. Realistic problem-solving is stressed.

HPEX 371. Psychology of Physical Activity. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines psychological issues related to physical activity, exercise and sport participation. Topics include individual and group motivation theory and techniques, leadership effectiveness, mental health, mental skills training, injury rehabilitation, eating disorders, exercise adherence, addiction, overtraining and use of ergogenic aids. Emphasizes examination of current research and application of psychological principles in a physical activity setting.

HPEX 372. Survey of Kinesiology and Physiology of Exercise. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the basic concepts of human biomechanics and exercise physiology. Includes basic and applied kinesiology and metabolic, endocrinological, cardiovascular and respiratory responses and adaptations to exercise. Emphasizes the integration of kinesiological and physiological principles.

HPEX 373. Structural Kinesiology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 205. Corequisite: HPEZ 373. Presents the anatomical aspects of human motion with particular attention given to application of anatomical structure and terminology in analysis of physical activities; emphasizes structure and function of the human musculoskeletal system and qualitative analysis of motor skills.

HPEX 374. Musculoskeletal Structure and Movement. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisite: BIOL 205. Pre- or corequisite: PHYS 201. Enrollment restricted to HPEX majors. Provides an understanding of the mechanical aspects of human motion with particular attention given to application of anatomical structure, terminology and biomechanics in the analysis of physical activity. Laboratory learning allows students to acquire practical knowledge and skills in palpation, biomechanical analysis and instrumentation.

HPEX 375. Physiology of Exercise. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHIS 206. Corequisite: HPEX 375. Physiological changes in the human organism resulting from exercise, investigation of recent research in diet, drugs, fatigue, cardiovascular/respiratory fitness, conditioning programs for various age groups and the effects of exercise upon various components of physical fitness and health. Application of specific problems to physical education programs. Laboratory experience in the use of research instruments.

HPEX 380. Resistance Training for Health and Performance. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 310 and HPEX 375. Enrollment restricted to HPEX majors. Provides students with the knowledge, skills and abilities to design and implement resistance training programs for a variety of populations. Covers the scientific and practical basis for resistance training to reduce injuries, improve health and optimize performance. Students actively participate in and demonstrate knowledge of a range of resistance exercise techniques, as well as preparticipation screening. Helps prepare those students wishing to attempt the National Strength and Conditioning Association's Certified Strength and Conditioning exam.

HPEX 381. Introduction to Sport and Fitness Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course presents the knowledge, skills and abilities of planning and implementing fitness programs in commercial and corporate settings. Topics will include, but are not limited to, fitness management leadership, operations/facility management, staff management, consumer recruitment/retention and strategic planning, as well as legal considerations.

HPEX 391. Special Topic in Health, Physical Education and Exercise Science. 1-3 Hours.

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of three credits. Offers students the opportunity to participate in an approved professional experience related to the students' knowledge base of general education, professional introduction and some core professional courses; may include participatory experiences in which the student plays an active role in the experience; credits determined by the number of contact hours of the experience.

HPEX 392. Independent Study in Health, Physical Education and Exercise Science. 1-3 Hours.

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of 3 credits. Enables a student to create an individualized research project or professional experience based on specific professional needs and goals; must have adviser's approval; experiences based on the student's knowledge base of general education and professional introduction and some professional core courses; credits determined by the number of contact hours and extensiveness of the project.

HPEX 393. Field Experience I. 3-6 Hours.

Semester course; variable hours. 3-6 credits. Prerequisites: permission of instructor; acceptance into teacher preparation program; and CPR certification. Health, physical education and exercise science majors only. Precedes the in-depth student teaching experience or the in-depth exercise science field experience; includes planned observations, tutorials, small group involvement under the supervision of the faculty and field supervisor; practices routine, basic and advanced procedures; minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 394. Field Experience II. 3-6 Hours.

Semester course; variable hours. 3-6 credits. Health, physical education and exercise science majors only. Designed to provide supervised practical experience in the teaching process or delivery of health education/health promotion programs; opportunities to further abilities in physical education and exercise science through practical application of skills in school or agency settings; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 395. Clinical Experience I. 3 Hours.

Semester course; 3 clinical hours. 3 credits. Prerequisites for students in the exercise science concentration: HPEX 375, junior standing and permission of instructor. Prerequisites for students in the health sciences concentration: HPEX 250, HPEX 300, HPEX 353 and BIOL 205, junior standing, and permission of instructor. Enrollment restricted to HPEX majors. Students are also expected to maintain current CPR/AED/FA certification throughout the semester. Students should consult with an adviser or course instructor to obtain concentration-specific course prerequisites and course requirements. Addresses competencies in exercise science, health promotion and/or health science. Provides experiences at an approved affiliate site under the supervision of faculty and approved site supervisors. Students gain practical experience in routine and basic procedures associated with exercise science, health promotion and/or health science. A minimum of 40 contact hours per credit hour required.

HPEX 396. Clinical Experience II. 3-6 Hours.

Semester course; variable clinical hours. 3-6 credits. Health, physical education and exercise science majors only. Addresses required competencies in the athletic training, kinesiotherapy or community wellness education programs; provides experiences in an approved affiliate site under the supervision of faculty and approved clinical instructors; gains practical experience in routine, basic and advanced procedures associated with athletic training, kinesiotherapy or community wellness; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements and clinical competencies addressed.

HPEX 420. Athletic Training Administration. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 395 and HPEX 396. Acquaints the student with the proper organization and management techniques used in health care administration of athletic training programs. Includes organization, management and administration of health care of the physically active in the athletic setting.

HPEX 430. The Organization, Administration and Supervision of the Intramural Sports Program. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Experiences in the organization and administration of an intramural sports program. Lecture will be devoted to the theory, philosophy, history and plans for the conduct of an intramural sports program. Laboratory experience will be obtained by working in intramural programs.

HPEX 431. Adapted Physical Activity. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prepares future teachers and professionals to meet the needs of persons with disabilities in organized health, physical education and rehabilitation programs in the school, community or hospital setting. Provides an overview of those disabilities found most frequently in public school and rehabilitation settings.

HPEX 432. Methods and Curriculum in Physical Education. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prepares students to become independent problem-solvers and decision-makers by applying previously acquired knowledge to curriculum design and instruction in multiple settings; students acquire pedagogical skills and gain insight into the development of a physical education curriculum for elementary, middle and high school levels.

HPEX 433. Methods and Curriculum in Health Education. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prepares students to become independent problem-solvers and decision-makers by applying previously acquired knowledge to curriculum design and instruction in a classroom setting; students acquire pedagogical skills and gain insight into the development of a health education curriculum for elementary, middle and high school levels.

HPEX 435. Health Disparities in the U.S.. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 353 and HPEX 358. Enrollment restricted to HPEX majors. Provides an exploration into the magnitude of health disparities in the U.S. and the association with socioeconomic status, race, ethnicity, country of origin, cultural history and access to health services. Students are encouraged to broaden their perspectives and understand how various sociocultural factors impact health and health care delivery as it relates to the patient/consumer as well as the health care practitioner. Targets the values, beliefs, attitudes and customs of multiple segments of the population in relationship to age, gender, disability status, sexual orientation, area of residence, etc. Emphasizes and provides learning experiences to assist in the development of cultural competence.

HPEX 440. Chronic Disease and Exercise Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: HPEX 375 and HPEX 375L. Presents in-depth information of various concepts specifically related to exercise management of persons with chronic disease and/or disability. Provides scientific knowledge of various chronic diseases and disabilities that are commonplace and can be managed with physical activity. General topics include cardiovascular and pulmonary diseases, metabolic diseases, immunological and hematological diseases, orthopaedic diseases and disabilities, neuromuscular disorders, and cognitive, emotional and sensory disorders. Focuses on the understanding of specific physical and physiological characteristics associated with the various diseases and disabilities.

HPEX 441. Assessment and Exercise Intervention in Health and Disease. 3 Hours.

Semester course; 2 lecture and 1 laboratory hours. 3 credits. Prerequisite: HPEX and HPEX 375. Provides in-depth information of various concepts specifically related to exercise assessment and prescription for healthy persons and those with chronic disease and/or disability. Examines the various concepts specifically related to measurement of cardiorespiratory fitness, pulmonary function, body composition, flexibility and muscular strength and endurance. Focuses on the development of exercise and physical activity prescriptions for healthy and diseased populations.

HPEX 445. Principles of Health Care Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: HPEX 240 or 300. Exposes the student to basic aspects of administration and management in various health care settings. The traditional areas of administration and management, such as planning, organizing, staffing, directing and controlling will be addressed. Contemporary issues such as cultural competence, quality of care, ethics, and fraud and abuse will be examined. The course will provide a theoretical base that will enhance and facilitate the student's application of sound management principles in various practice settings.

HPEX 450. Program Planning and Evaluation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: HPEX 356. Corequisite: HPEX 450. Presents the foundations of planning, implementation and evaluation of community health education programs. Exposes students to programming and evaluation in a variety of community health settings, including schools, work sites, hospitals, state and local health departments and nonprofit agencies.

HPEX 451. Professional Conference in Community Health Education. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Offers the student an opportunity to participate in a professional conference focusing on community health education. This experience includes observing, summarizing and critically evaluating presentations, as well as preparing and delivering presentations and networking.

HPEX 470. Exercise Programming and Leadership. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 310, HPEX 380 and HPEX 441. Provides knowledge and skills necessary for assessing, interpreting and designing health and activity programs for apparently healthy populations. Students develop leadership skills through presentation of ACSM exercise testing procedures and implementation of exercise prescriptions.

HPEX 475. Cardiovascular Pathophysiology and Pharmacology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 375 and HPEX 440 or equivalents. Enrollment restricted to HPEX majors. Presents theoretical principles of electrocardiography and the effects of pharmacological intervention in the treatment of cardiovascular disease. Specific emphasis placed on myocardial ischemia, myocardial infarction and their treatment through exercise rehabilitation protocols. The impact of pharmacological agents on the ECG and on exercise is explored.

HPEX 480. Professional Certification Seminar. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisites: HPEX 380, HPEX 441 and HPEX 470. Enrollment restricted to seniors in HPEX major. Provides structured experiences in the classroom, laboratory and exercise arenas to improve knowledge, skills and abilities in health-related physical fitness assessment and exercise programming. Supplements existing course work by correcting any deficiencies in learning competencies toward being a successful exercise professional. A review of certification materials is also an important component of the course.

HPEX 491. Special Topic in Health, Physical Education and Exercise Science. 1-3 Hours.

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of 3 credits. Offers students the opportunity to participate in an approved professional experience related to the students' knowledge base of general education, professional introduction and extensive core professional courses; may include research-based projects or more academically rigorous experiences; credits determined by the number of contact hours of the experience.

HPEX 492. Independent Study in Health, Physical Education and Exercise Science. 1-3 Hours.

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of 3 credits. Enables a student to create an individualized research project or professional experience based on specific professional needs and goals; must have adviser's approval; experiences based on the student's knowledge base of general education, professional introduction and extensive core courses; credits determined by the number of contact hours and extensiveness of the project.

HPEX 493. Field Experience III. 3-12 Hours.

Semester course; variable hours. 3-12 credits. Prerequisites: pass Praxis II; HPEX 393 with a minimum grade of C. Health, physical education and exercise science majors only. An in-depth field experience in a public school, health education/health promotion agency or other approved setting; designed to provide the pre-professional student with greater practical application of skills culminating in full responsibility for planning, implementing and evaluating the classroom, agency or facility activities; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain a course syllabus regarding prerequisites and specific course requirements.

HPEX 494. Field Experience IV. 3-6 Hours.

Semester course; variable hours. 3-6 credits. Prerequisites: pass Praxis II; HPEX 393 with a minimum grade of C. Health, physical education and exercise science majors only. An in-depth field experience in a public school, health education/health promotion agency or other approved setting; designed to provide the pre-professional student with greater practical application of skills culminating in full responsibility for planning, implementing and evaluating the classroom, agency or facility activities; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain a course syllabus regarding prerequisites and specific course requirements.

HPEX 495. Clinical Experience II. 6 Hours.

Semester course; 6 clinical hours. 6 credits. Prerequisites: HPEX 358, HPEX 395 and HPEX 435, each with minimum grade of C; or HPEX 395 and HPEX 441, each with minimum grade of C. Enrollment is restricted to students with senior standing in the health, physical education and exercise science major with permission of the instructor. Students are also expected to maintain current CPR/AED/FA certification throughout the semester. Students should consult with the course instructor to obtain course requirements. Fulfills capstone requirement. Addresses competencies in exercise science, health promotion and/or health science. Provides experiences at an approved affiliate site under the supervision of faculty and approved site supervisors. Students gain practical experience in routine, intermediate and advanced procedures associated with exercise science, health promotion and/or health science. A minimum of 40 contact hours per credit hour required.

HPEX 496. Clinical Experience III. 3-6 Hours.

Semester course; 6 clinical hours. 6 credits. Prerequisites: HPEX 395, senior standing, permission of instructor and minimum grade of C in all HPEX prerequisite courses. Enrollment restricted to HPEX majors. Students are also expected to maintain current CPR/AED/FA certification throughout the semester. Students should consult with an adviser or course instructor to obtain concentration-specific course prerequisites and course requirements. Addresses competencies in exercise science, health promotion and/or health science. Provides experiences at an approved affiliate site under the supervision of faculty and approved site supervisors. Students gain practical experience in routine, basic and advanced procedures associated with exercise science, health promotion and/or health science. A minimum of 40 contact hours per credit hour required.

Health, Physical Education and Exercise Science Lab (HPEZ)**HPEZ 220. Introduction to Athletic Training Laboratory. 1 Hour.**

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 220. Laboratory fee required. A laboratory to introduce the basic skills used by an athletic trainer in the prevention and care of athletic injuries in the physically active.

HPEZ 320. Upper Extremity Assessment of Athletic Injuries Laboratory. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 320. Laboratory fee required. This laboratory course includes practice in the skills of assessment and management of upper extremity athletic injuries in the physically active. Includes head, neck, thoracic, abdominal, shoulder, elbow, forearm, wrist, hand and finger injuries.

HPEZ 321. Lower Extremity Assessment of Athletic Injuries Laboratory. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 321. Laboratory fee required. This laboratory course is designed to acquaint the student with the proper assessment and treatment procedures for lower extremity athletic injuries in the physically active. The lab will include prevention, care and treatment of lower back, hip, thigh, knee, lower leg, ankle and foot athletic injuries.

HPEZ 322. Therapeutic Exercise in Athletic Training Laboratory. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 322. This laboratory course is designed to acquaint the student with the proper use of therapeutic exercise in the treatment and rehabilitation of athletic injuries in the physically active. The lab course will include the skills of the therapeutic exercise used in the treatment of groin, thigh, hip, knee, lower leg, ankle, foot, shoulder, elbow, wrist, hand, finger and back athletic injuries.

HPEZ 324. Therapeutic Modalities in Athletic Training Laboratory. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 324. Laboratory fee required. This laboratory course will allow the student to develop the practical skills required to properly apply therapeutic modalities used to treat athletic injuries in the physically active.

HPEZ 334. Measurement and Analysis in Teaching and Exercise Science Laboratory. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 334. Laboratory experience applying knowledge and skills presented in HPEX 334.

HPEZ 373. Structural Kinesiology Laboratory. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisite: BIOL 205. Corequisite: HPEX 373. Laboratory experience applying knowledge and theory from HPEX 373.

HPEZ 375. Physiology of Exercise Laboratory. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisite: PHIS 206. Corequisite: HPEX 375. Provides practical application of the physiological principles presented in HPEX 375; assists students in the development of practical application competencies associated with assessment of acute and chronic effects of exercise on the human body.

HPEZ 450. Service-learning in Community Health Education Planning and Evaluation. 1 Hour.

Semester course; 1 service-learning/laboratory hour. 1 credit. Corequisite: HPEX 450. Provides experience working with community partners to gain firsthand exposure to specific target populations, observing the needs of those populations and current efforts, if any, to address those needs. Community partners include nonprofit agencies, schools, worksites, hospitals and state and local health departments.

History (HIST)**HIST 101. Survey of European History. 3 Hours.**

Semester courses; 3 lecture hours. 3, 3 credits. A survey of European civilization from the ancient world to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Europe's place in the world. First semester: to 16th century. Second semester: 16th century to the present.

HIST 102. Survey of European History. 3 Hours.

Semester courses; 3 lecture hours. 3, 3 credits. A survey of European civilization from the ancient world to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Europe's place in the world. First semester: to 16th century. Second semester: 16th century to the present.

HIST 103. Survey of American History I. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A survey of American civilization from prehistory to Reconstruction, emphasizing the events, ideas and institutions that have shaped, influenced and defined America's place in the world.

HIST 104. Survey of American History II. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A survey of American civilization from Reconstruction to present, emphasizing the events, ideas and institutions that have shaped, influenced and defined America's place in the world.

HIST 105. Survey of African History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of African civilizations from prehistory to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Africa's place in the world. First semester: to 1800. Second semester: 1800 to the present. Crosslisted as: AFAM 105.

HIST 106. Survey of African History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of African civilizations from prehistory to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Africa's place in the world. First semester: to 1800. Second semester: 1800 to the present. Crosslisted as: AFAM 106.

HIST 107. Survey of East Asian Civilizations. 3 Hours.

Semester courses; 3 lecture hours. 3, 3 credits. A survey of East Asian civilizations (China and Japan) from prehistory to the present, emphasizing the events, ideas and institutions that shaped, influenced and defined East Asia's place in the world. First semester: to the 14th century. Second semester: from the 14th century to the present.

HIST 108. Survey of East Asian Civilizations. 3 Hours.

Semester courses; 3 lecture hours. 3, 3 credits. A survey of East Asian civilizations (China and Japan) from prehistory to the present, emphasizing the events, ideas and institutions that shaped, influenced and defined East Asia's place in the world. First semester: to the 14th century. Second semester: from the 14th century to the present.

HIST 109. Survey of Latin American History. 3 Hours.

Semester courses; 3 lecture hours. 3, 3 credits. A survey of Latin American civilization from its early civilizations to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Latin America's place in the world. First semester: to 1824. Second semester: 1824 to the present.

HIST 110. Survey of Latin American History. 3 Hours.

Semester courses; 3 lecture hours. 3, 3 credits. A survey of Latin American civilization from its early civilizations to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Latin America's place in the world. First semester: to 1824. Second semester: 1824 to the present.

HIST 111. Survey of the Middle East I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the history of the Middle East from the 600s to the 1600s (from the Late Antiquity and the emergence of Islam to the early modern period) examining cultural, socio-economic and political developments that have dynamically shaped the regions of the Middle East and their place in the world.

HIST 112. Survey of the Middle East II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the history of the Middle East from 16th century to the present emphasizing the events, historical agents, ideas and institutions that have dynamically shaped the Middle East and its place in the world.

HIST 191. Topics in History. 1-3 Hours.

Semester course; variable hours. 1-3 credits per semester. Maximum total of 6 credits. The study of a selected topic or topics in history. See the Schedule of Classes for specific topics to be offered each semester.

HIST 201. The Art of Historical Detection: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces non-history majors to the methods of the discipline by undertaking a series of case studies in historical inquiry. Each case study will consist of a close examination of a single historical question, covering the general background to that question and exploring relevant primary and secondary sources. Students will then use this evidence to propose well-reasoned solutions to the question at hand.

HIST 202. History Without Borders: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces non-history majors to the analytical modes of transnational history, which explores networks of connection that link individuals and communities across established political or cultural boundaries. Students will consider the historical influence of networks such as systems of economic exchange, the movements of people or the spread of technologies and ideas. See the Schedule of Classes for topics offered each semester.

HIST 205. Survey of Virginia History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the history of Virginia from the colonial era to the present. Provides foundational knowledge of Virginia government, geography and economics. Discusses not only local history, but also the commonwealth's relationship with the United States and the world.

HIST 300. Introduction to Historical Study. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to history majors. This introduction to the historical discipline is required of all history majors, who must earn a minimum grade of C to complete the major requirements. The course emphasizes historical research, writing and study skills in order to increase student appreciation of, and performance in, advanced courses within the history major.

HIST 301. The Ancient Near East. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the ancient Near Eastern civilizations from the preliterate period to the end of Kassite rule in Babylonia (c. 1160 B.C.). Crosslisted as: RELS 315.

HIST 302. Ancient Egypt. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A general survey of the history and culture of ancient Egypt from the Predynastic Period through the age of the New Kingdom. In addition to the historical reconstruction, emphasis is placed on the art, literature and religion of each of the major periods.

HIST 303. Greek Civilization. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the unique cultural heritage of Greece and the historical patterns that rose from it, from the Heroic Age to the urban worlds after Alexander, 1400 B.C.-146 B.C.

HIST 304. Roman Civilization. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of Roman history as it derived from Roman cultural institutions, from the Etruscan period through the conflict of the pagan and Christian worlds and advent of the barbarians, 753 B.C.-A.D. 454.

HIST 305. Introduction to the Hebrew Bible. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the Hebrew Bible from its beginning through the post-Exile period. Emphasis given to the literary and historical development of the text. Crosslisted as: RELS 301.

HIST 306. Introduction to the New Testament. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the New Testament with particular emphasis given to the historical development of the Canon. Crosslisted as: RELS 302.

HIST 307. Greek and Roman Religion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the range of practices, beliefs, philosophies, rituals and narratives that made up the religious life of ancient inhabitants of the greater Mediterranean world, from the Homeric and archaic periods, through the rise of Christianity in the Roman Empire. Crosslisted as: RELS 309.

HIST 309. Professional Development for History Majors I. 1 Hour.

Semester course; 1 lecture hour (delivered online). 1 credit. Pre- or corequisite: HIST 300. Explores the goals of the history major and the skills the major instills in combination with an exploration of the professional goals and values of each student. Students will identify possible career paths and craft plans for the use of their time both inside and outside of the classroom that will address any gaps in their preparation for those career paths. Graded as pass/fail.

HIST 310. The Early Middle Ages. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A topical, thematic, integrative and problems approach to the emergence of a distinctive European community during the period frequently alluded to as the "Dark Ages." Crosslisted as: RELS 329.

HIST 311. High and Later Middle Ages. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A detailed historical overview of developments in Western Europe from the end of the first millennium through the end of the 15th century. Crosslisted as: RELS 308.

HIST 312. Europe in the Early Modern Period, 1350-1650. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Describes the political, intellectual, religious and social developments in Europe from the Black Death through the wars of religion, including the Renaissance, the Reformation and the Voyages of Exploration.

HIST 313. Europe in Absolutism and Enlightenment, 1648-1815. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the political, social and economic orders of Old Regime Europe in the context of their increasing contradictions; introduces the cultural and intellectual forces that helped challenge that regime; culminates in the French Revolution and Napoleon.

HIST 314. The Zenith of European Power, 1815-1914. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the period in which the nations of Europe reached their height of world power between the reconstruction of Europe after the Napoleonic Wars and the eve of World War I. Topics include the rise of nationalism, liberalism and socialism; the spread of capitalism and industrial society; the beginnings of mass politics; the new imperialism; the diplomatic revolution in the European state system before World War I.

HIST 315. The Age of Total War in Europe, 1914-1945. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the transformation of European society precipitated by World War I and World War II. Emphasis is placed on the origin, nature and repercussions of total war; the crisis of democracy and the rise of modern dictatorships; changes in political, economic and social institutions; and the decline of European power.

HIST 316. Postwar Europe, 1945 to the Present. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of Europe's social, economic and political recovery after World War II and of the transformation of Europe from the center toward the periphery of world power.

HIST 317. France to 1815. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A history of France from Gallo-Roman times through the French Revolution and the Napoleonic era.

HIST 318. France Since 1815. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A history of France from 1815 to the present.

HIST 319. Germany to 1871. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Covers major developments in Germany from the 30 Years War and rise of Prussia through the unification of the German nation-state in 1871.

HIST 320. Modern Germany. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Covers major developments in Germany from 1871 through World War I, Weimar, Third Reich, World War II and reunification in 1990.

HIST 321. The Holocaust. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A multidisciplinary examination of the events leading to and culminating in the Nazi extermination of six million Jews; the historical settings of European Jewry and of German fascism; the role of traditional anti-Semitism; the psychology of aggressor and victim; the Holocaust in art and literature and the moral implications for today.

HIST 322. Nazi Germany. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The origin and nature of Hitler's Third Reich. A study of the failure of the Weimar Republic; genesis of the Nazi racial ideology and party structure; the Nazi political, social and cultural order after the seizure of power; Nazi foreign policy leading to war and genocide; and an analysis of the personality of Hitler.

HIST 323. Introduction to Public History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: HIST 300 or permission of the instructor. An overview of the methodology, theory and practical uses of history that is produced for, by and/or with the public, outside of the classroom context. Explores the relationships between historians, historical sites and organizations, communities, and cultural memory. Possible topics of inquiry include historical monuments, historic preservation, museum studies and oral history.

HIST 324. Early Modern Britain. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the development of British politics, society and culture from the Tudor Revolution in government and through the Reformation, English civil wars and Restoration.

HIST 325. Modern Britain. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the development of British politics and society from the Restoration to the mid-20th century, including such topics as the Whig oligarchy, the Industrial Revolution, Victorianism, the impact of the world wars and the problems of Empire.

HIST 326. The British Empire. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the origin, development and decline of British overseas expansion from the late 16th century through the mid-20th century, including colonial settlements in Ireland, North America, the Caribbean, Australia and South Africa; dependencies and protectorates in Africa and the Middle East; and the empire of India. Focuses on the political and legal structures that enabled the administration and subordination of such a large and fragmented area and assesses the extent to which empire shaped and complicated gender, class and racial relations both at home and throughout the British imperial world.

HIST 327. Russia to 1855. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Russian history to 1855, emphasizing the development of political and social institutions and Russia's unique position between Europe and Asia.

HIST 328. Russia Since 1855. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Russian history from 1855 to the present, emphasizing the development of political and social institutions and Russia's unique position between Europe and Asia.

HIST 330. Gender and Sexuality in Europe to 1700. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Analyzes historical changes in gender and sexuality from c. 500 BCE through industrialization. Explores the notions of femininity and masculinity as they were expressed in the economics, family structures and intellectual and religious discourse within and amid Greek, Hellenistic, Roman, Germanic and Norse, and medieval Latin Christian cultures, and traces the changes brought to the medieval cultural synthesis by European colonial expansion, the reformations and the Industrial Revolution. Crosslisted as: GSWS 339.

HIST 331. Gender and Sexuality in Europe Since 1700. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of gender and sexuality in Europe since industrialization. The course offers a particular focus on the lives of European women, as well as sexual and gender minorities who by the end of the 20th century would identify as LGBTQ +. Topics will include the development of European feminisms, treatment of gender and sexuality under fascism, and the sexual revolution. Crosslisted as: GSWS 340.

HIST 333. History of the Jewish People I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the Jewish people from the biblical period to the early modern period, including the Israelite conquest of Canaan, Judea in Hellenistic and Roman times, the Diaspora in Islam and in Europe, social and cultural trends, and Jewish settlement in the Ottoman Empire. Crosslisted as: RELS 318.

HIST 334. History of the Jewish People II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the Jewish people from the early modern to the present, including the impact of the Emancipation, the rise of the American Jewish community, the impact of modernism and growth of Reform, the beginnings and growth of Zionism, restoration in Palestine, the Holocaust, the creation of Israel, and the relations of Israel and world Jewry. Crosslisted as: RELS 319.

HIST 335. History of Christianity I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A historical and theological examination of Christianity from its origin to the early modern period, or the age of the Reformations. Emphasis is placed upon an understanding of leading events, ideas, movements and persons in their historical settings. Crosslisted as: RELS 327.

HIST 336. History of Christianity II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A historical and theological examination of Christianity from ca. 1500 to the present. Emphasis is placed upon an understanding of leading events, ideas, movements and persons in their historical settings. Crosslisted as: RELS 328.

HIST 338. World War I in the Middle East. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores WWI and its aftermath from the perspective of the Ottoman Empire and its diverse populations. The topics to be considered are the socioeconomic and cultural effects of total mobilization on the populations of the Middle East; famines, genocides and population exchanges; international politics; the mandate system and anti-colonialist movements; and the creation of nation-states in the post-WWI Middle East.

HIST 340. The Middle East, 600-1600. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores two transformative historical events that took place in the Middle East between the sixth and 16th centuries: 1) the emergence of Islam and the development of the Islamic Empire and its social, cultural and political legacy in the Middle East (seventh to 10th centuries) and 2) the influx of outsiders to the region, such as the Turkish-speaking tribes, the crusaders and the Mongols, and the role these newcomers played in shaping the Middle East starting in the 10th century.

HIST 341. Modern Middle East. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Analysis of the history, problems and prospects of the nations and peoples of the Middle East with emphasis on developments since the Balfour Declaration of 1917.

HIST 342. The Ottoman Empire I (1300-1750). 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the history of the Ottoman Empire from the 14th century until roughly the mid-18th century. Examines the Ottoman Empire as a Euro-Mediterranean polity, exploring its social, cultural, economic and political history from a global perspective.

HIST 343. The Ottoman Empire II (1750-1923). 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the transformations of the late-Ottoman state and society by organizing the material around several historical processes and frameworks, such as the phenomenon of the gunpowder empires, integration of the empire to the global market, the decline paradigm, impact of colonialism and imperialism, Tanzimat reforms, the shift from subjecthood to citizenship, modernity, transformation of religious identities, state and nation formation, nationalism, secularism, gender and war mobilization.

HIST 344. American Military History to 1900. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Investigates the emergence and evolution of the American military from 1600 to 1900, with a focus on nation building and nationalism, the relationship between the civil and military spheres, professionalization, the experiences of the armed forces, strategic and tactical evolution, and the relationships among war, technology and nature.

HIST 345. American Colonies, 1450-1776. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of the development of the 13 original colonies; the establishment and growth of society, politics and the economy; and modification in the relationship between the provinces and Great Britain.

HIST 346. The American Revolutionary Era, 1763-1800. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of the late-18th-century revolutions which molded the American political system – the revolution of colonial Englishmen against Great Britain and the revolution of the nationalists against the government established by the American Revolution, which produced and firmly established the United States Constitution.

HIST 347. Antebellum America, 1800-1860. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Federalist era to 1860. A study of the events, forces and personalities that shaped Antebellum America and led to Southern secession and Civil War.

HIST 348. The American Civil War and Reconstruction. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the major events, forces, personalities and significance of the Civil War and Reconstruction eras.

HIST 349. The Emergence of Modern America, 1877-1914. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the distinct characteristics of American modernity as they emerge between the end of Reconstruction and WWI. Explores the opportunities and challenges of the shift from a rural agricultural economy to an urban industrial one brought on by Westward expansion, technological innovation and immigration. Themes include changes in American work and family life; encounters of class, ethnicity, race and gender; growth in consumer culture; and developments in government and grassroots activism culminating in the Progressive reform movement.

HIST 350. The United States, 1900-1945. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the political, social, economic and cultural history of the United States from 1900 to 1945, with emphasis on how the American people have responded to reform, war, prosperity, depression, international status and changing relationships within government and society.

HIST 351. Postwar America, 1945-Present. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the political, social, economic and cultural history of the United States in the 20th century, with emphasis on how the American people have responded to reform, war, prosperity, depression, international status and changing relationships within government and society.

HIST 352. The U.S. South to 1865. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A regional history of the Old South from the colonial period to 1861, placing particular emphasis upon the distinctive culture and problems of the South and its significance in the history of the United States.

HIST 353. The U.S. South Since 1865. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A regional history of the New South from 1865 to the present, placing particular emphasis upon the distinctive culture and problems of the South and its significance in the history of the United States.

HIST 354. Native Americans in the South. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the history of Native Americans in the American South and how colonial encounters with Europeans impacted life in indigenous towns, villages and farmsteads.

HIST 355. Native Americans in Modern America. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines some of the key historical and cultural issues in American Indian history during the 20th century.

HIST 356. Virginia to 1865. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Focuses on the central themes, events and personalities of the state's history from the pre-colonial period to 1865.

HIST 357. Virginia Since 1865. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Focuses on the central themes, events and personalities of the state's history from 1865 to the present.

HIST 358. History of the American Frontier. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the western movement in the United States from the time the first outposts were established to the end of the frontier in the 19th century. Particular attention to the influence of the frontier upon the American mind and ideals.

HIST 359. The History of Latin American Cities. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of Latin American cities from Buenos Aires to the U.S.-Mexico border that explores how cities have represented social, political, cultural and environmental change. The course also considers interactions between city, countryside and hinterlands in order to gather a more complete picture of the dynamics of Latin American history.

HIST 360. The Civil Rights Movement. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines race relations and changes to race relations, focusing on African Americans in the United States' South but including related struggles for civil rights and equality from the late-1800s to the present.

HIST 361. Americans from Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the history and culture of blacks in the United States, designed to analyze some of the most important aspects of black life and the attitudes of the dominant society within which blacks lived. The second semester emphasizes the changing status, expectations and ideologies of black Americans in the 20th century. First semester: to 1877. Second semester: since 1877. Crosslisted as: AFAM 361.

HIST 362. Americans from Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the history and culture of blacks in the United States, designed to analyze some of the most important aspects of black life and the attitudes of the dominant society within which blacks lived. The second semester emphasizes the changing status, expectations and ideologies of black Americans in the 20th century. First semester: to 1877. Second semester: since 1877. Crosslisted as: AFAM 362.

HIST 363. American Religious History I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of religious movements, events and ideas in North America from indigenous and colonial traditions to the U.S. Civil War, with attention to the diversity of religious expression and the relationship between church and state. Crosslisted as: RELS 366.

HIST 364. American Religious History II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of religious movements, events and ideas in the United States from the Civil War to the present, with attention to the diversity of religious expression and the relationship between church and state. Crosslisted as: RELS 367.

HIST 365. Gender and Sexuality in America I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Analyzes historical changes in gender and sexuality from the first colonial settlements through the Civil War. Explores the changing relation of femininity and masculinity to families, economics, politics, religions, race and culture for the wide variety of peoples who inhabited, immigrated to or were forced to migrate to America and the subsequent United States. Crosslisted as: GSWS 341.

HIST 366. Gender and Sexuality in America II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Analyzes historical changes in gender and sexuality from Reconstruction to the present. Examines the relationship between gender, race, ethnicity and class within American society and the struggles for suffrage, social reform, employment opportunities and sexual freedom in the modern United States. Crosslisted as: GSWS 342.

HIST 367. East Africa, 1895-Present. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Covers the history of East Africa from the declaration of European protectorates over the region in the closing decades of the 19th century to the present. Addresses the forces that influenced the European occupation of East Africa; the subjugation of the region; the evolution and development of both colonial rule and African responses; East Africa and the European wars (World War I and World War II); the emergence of African nationalism; and the road to independence. Discusses the recent issues shaping East African states, including democracy versus authoritarianism, economic integration and the international community, and ethnicity and violence. Principally concerned with Kenya, Uganda and Tanzania, but touches on the broader region as well.

HIST 368. Colonialism in Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines colonial land and labor policies using case studies from Kenya, the Belgian Congo and South Africa, and the struggles against the apartheid system in South Africa. Topics include colonial land policies, the diverse methods adopted by colonial authorities to incorporate Africans into the wage economy, local response and the broad impact of these policies on Africans and the movement toward independence in South Africa.

HIST 371. Making Modern Mexico. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of Mexican history, including topics such as the pre-Columbian civilizations, the Spanish conquest and the colonial order, as well as independence, the struggle for reform, revolution and the development of the modern state.

HIST 372. Becoming Brazil. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of Brazilian history including topics such as the pre-Columbian civilizations, Portuguese colonialism, the independent empire and the republic, and populism and the modern state.

HIST 373. Andean History to 1800. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A critical view of the historical process of the Andean region from the pre-Columbian period to independence from Spain. Focuses mainly on the core of the region, which currently comprises the territories of Bolivia, Ecuador and Peru. Special attention to the indigenous population of the Andes – also known as "Indians," "Andeans" or "Amerindians" – and their interactions with other ethnic groups (Europeans, Criollos and Mestizos, as well as Africans and their descendants) in the political, economic, social and cultural realms.

HIST 374. Andean History Since 1800. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A critical view of the historical process of the Andean region from independence from Spain to the present. Focuses mainly on the core of the region, which currently comprises the territories of Bolivia, Ecuador and Peru. Special attention to the indigenous population of the Andes – also known as "Indians," "Andeans" or "Amerindians" – and their interactions with other ethnic groups (Europeans, Criollos and Mestizos, as well as Africans and their descendants) in the political, economic, social and cultural realms.

HIST 375. Immigration to the United States. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Surveys patterns of migration to the United States from colonial times to the present. Considers migration to the United States as part of the evolving global labor market and colonial expansion; the relationship of immigration to nation-building, westward expansion, foreign policy and national identity; the legal regulation of immigration; the political debates surrounding immigration; and the experience of immigrants.

HIST 376. Caribbean History to 1838. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An exploration of changes in the structure of Caribbean society from the late 15th century to 1838, with emphasis on the development of plantation slavery, social stratification, race, slave resistance, the Haitian Revolution, African cultural patterns and abolition. Crosslisted as: AFAM 392.

HIST 377. Caribbean History Since 1838. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Covers major developments in the history of the Caribbean in the period after the British abolition of slavery in 1834, with a major focus on the social and economic aspects of change.

HIST 378. Atlantic Slavery. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines social and economic aspects of slavery in the Atlantic world, principally Africa, the Caribbean, the United States and Canada.

HIST 380. Forced and Coerced Labor in Africa and the Americas. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines a broad range of forced and coerced labor in Africa and selected parts of the Americas, including the United States, Canada and the Caribbean, from around the 17th century to the 20th century. The role that gender and race played in slavery and coerced labor will be given particular attention. Crosslisted as: AFAM 390/GSW 390.

HIST 381. History of West Africa to 1800. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the transformation of West African societies from early times to 1800, with emphasis on the rise of states and empires, the introduction, spread and impact of Islam, the Atlantic slave trade and its effects, and colonialism. Crosslisted as: AFAM 387.

HIST 382. Latinos in the United States. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examination of the history of Latinos in American history. The course covers issues of migration, refugees, labor, family networks, religion, war, economics, state-building, politics, racialization, international disputes and globalization.

HIST 383. Southern Africa Since 1600. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the history and culture of the peoples of southern Africa. Deals with the areas that presently are the Republic of South Africa, Lesotho, Swaziland, Botswana, Namibia and Zimbabwe. Emphasizes the interaction among the various communities and ethnolinguistic groups in southern Africa. Crosslisted as: AFAM 389.

HIST 384. Africa: Social, Cultural and Economic History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of economic, social and cultural developments in Africa from the beginning of the 19th century to the present, with emphasis on agricultural and industrial development, trade, Africa's involvement in the world economy, changes in labor systems, racial dominance, African initiatives and resistance, religion and social evolution, and Africa in world affairs. Crosslisted as: AFAM 388.

HIST 385. Modern Japan. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will offer a detailed examination of Japan's modern history, from the rise of Tokugawa rule to the end of World War II. A general overview of Japan's traditional society will give way to a historical analysis of the major social, cultural, political and intellectual changes that occurred in Japan throughout this time period.

HIST 386. Early Modern China. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the history of China from 900 to 1800 CE. A general overview of China's political economy is followed by a historical analysis of the major social, cultural, political, intellectual and economic changes that occurred in China between 900 and 1800 CE. In addition, students will be introduced to such concepts and issues as empire building, conquest dynasties, steppe and sedentary societies, sociocultural history and Western and Chinese historiography.

HIST 387. Modern China. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines China's modern history beginning at the height of the Qing Dynasty (1644-1912) in 1800. A general overview of China's traditional political economy is followed by a historical analysis of the major social, cultural, political, intellectual and economic changes that occurred in China from 1800 to the present. This course is divided into three sections: the first examines the factors leading to the collapse of China's last dynasty in 1912; the second focuses on the revolutionary changes taking place in China during the first half of the 20th century (from 1912 to 1949); and the final section looks at Communist China since 1949.

HIST 389. History in Film: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 6 credits with different topics. An examination of the uses and misuses of historical events and personalities in film. Lectures and readings are used to critically analyze films dealing with biographies, events and propaganda.

HIST 390. Historical Archaeology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103 or ANTH 105/INTL 104; and any history course. A review of historical archaeology, recognizing its contemporary emphasis on the spread of European cultures across the globe beginning in the 15th century. Methods and findings of historical archaeological research from the United States and around the world will be covered with special emphasis on the study of documents and artifacts related to the emergence and present state of the modern world. Crosslisted as: ANTH 394.

HIST 391. Topics in History. 1-3 Hours.

Semester course; 1, 2 or 3 lecture hours. Variable credit. May be repeated with different topics for a maximum of 9 credits. An in-depth study of a selected topic in history. See the Schedule of Classes for specific topics to be offered each semester.

HIST 392. Revolutions in Science I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the history of science from the ancient Greeks to 1800, focusing on the development of scientific ideas, practices and institutions in Western society. Crosslisted as: SCTS 392.

HIST 393. Revolutions in Science II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the history of science from 1800 to the present, focusing on the development of scientific ideas, practices and institutions in Western society. Crosslisted as: SCTS 393.

HIST 394. Technology in Europe and America. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the history of the technological development of Europe and North America from antiquity through the end of the 20th century. Outlines major historical trends and turning points in the development and use of technology, and students will take up a small number of illustrative case studies.

HIST 397. Genetics and Society: 1865 to the Present. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An investigation of the science and technology of heredity in its historical, cultural and political contexts, emphasizing the ways in which genetic theories have been applied in attempting to solve social and biological problems. Crosslisted as: SCTS 397.

HIST 398. Medicine and Public Health: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different thematic content for a maximum of six credits. Studies in selected topics in the history of medicine, medical science or public health. Includes introduction to the interdisciplinary approaches practiced in the history of medicine as well as the historical content and relevant analytical skills needed to examine the specific course theme. Crosslisted as: SCTS 398.

HIST 399. Introduction to Science and Technology Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the study of science, technology and medicine from political, sociological and historical perspectives, focusing on case studies that illustrate the methods and theories used to examine the structure and behavior of the scientific community and the role of scientific knowledge in shaping public culture. Crosslisted as: GVPA 399/SCTS 300.

HIST 401. Studies in Ancient History: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of ancient history.

HIST 402. Studies in Medieval History: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of medieval history.

HIST 403. Studies in Early Modern European History: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. Repeatable once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of early modern European history.

HIST 404. Studies in Modern European History: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. Repeatable once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of modern European history.

HIST 406. Studies in Middle Eastern History: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of Middle Eastern history.

HIST 407. Studies in Early American History: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of early American history.

HIST 408. Studies in Modern American History: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of modern American history.

HIST 409. Studies in Latin American History: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of Latin American history.

HIST 410. Studies in African History: ____ 3 Hours.

Semester course; 3 lecture hours, 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of African history.

HIST 411. Studies in the African Diaspora: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of the African diaspora.

HIST 412. Studies in Asian History: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of Asian history.

HIST 413. Studies in Atlantic History: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of Atlantic history.

HIST 414. Studies in Indigenous History: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of indigenous history.

HIST 415. Studies in the History of Religion: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of religious history.

HIST 416. Studies in the History of Women, Gender and Sexuality: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: HIST 300 or permission of instructor. Repeatable once, with a different topic, for credit. Courses taught under this heading provide advanced study and analysis of the theory and field of the history of women, gender and sexuality.

HIST 417. Studies in African American History: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of African American history.

HIST 420. Studies in Historical Method: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Focuses on a particular methodology used by historians as they investigate the past.

HIST 421. Studies in Comparative History: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: HIST 300 or permission of instructor. Undertakes a topic that cuts across regions and cultures, making comparative judgments about human events.

HIST 422. Studies in Public History: ____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different thematic content for a maximum of six credits. Prerequisites: HIST 300 with a minimum grade of C; and HIST 323. Studies in a selected topic, method, approach or issue in history which is produced for, by and/or with the public, outside of the classroom context. Includes the historical content and relevant analytical skills needed to examine the specific course theme.

HIST 450. Professional Development for History Majors II. 1 Hour.

Semester course; 1 lecture hour (delivered online). 1 credit. Prerequisite: HIST 309. Supports students as they acquire skills in writing and creating multiple genres of professional self-representation. Students will translate their career goals – and the skills the major instills – into multiple forms, including a professional digital presence, resumes or CVs, and personal statements.

HIST 460. Professional Development for History Majors III. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: HIST 450. Explores the process of seeking professional employment using the skills in research, analytic reading, persuasive writing and oral presentation which have been developed through the course of the history major.

HIST 485. Seminar in Historiography. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for maximum of 6 credits with different topics. Introduction to questions in historiography, meaning, methodology and interpretation in the teaching and writing of history.

HIST 490. Senior Seminar in History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 9 credits. Prerequisite: HIST 300 with a minimum grade of C. Research and analysis of a selected historical topic in a seminar setting. See the Schedule of Classes for each semester's offerings.

HIST 492. Independent Study. 2-4 Hours.

Semester course; variable hours. 2-4 credits per semester. Maximum total of 6 credits. Open generally to students of only junior and senior standing who have acquired 12 credits in the departmental disciplines. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course.

HIST 493. Internship. 2-4 Hours.

Semester course; 2-4 hours; 2-4 credits. May be repeated for a maximum total of 6 credits. Prerequisite: HIST 300 with a minimum grade of C. Enrollment generally open to students with senior standing. Students receive credit for work on historical projects with approved agencies. Determination of the amount of credit and permission of departmental internship coordinator must be procured prior to registration for the course.

Humanities and Sciences (HUMS)**HUMS 202. Choices in a Consumer Society.** 1 Hour.

Semester course; 1 lecture hour (delivered online). 1 credit. Corequisite: UNIV 111 or UNIV 112. Provides a framework for understanding the nature of choices made in a consumer society, with an emphasis on the financial consequences of those choices. Students will gain the practical knowledge needed to make informed personal financial decisions as they address immediate, short-term and long-term consumer choices. Administered primarily as a self-paced, computer-aided instructional course.

HUMS 291. Special Topics in the Humanities and Sciences. 1-4 Hours.

Semester course; 1-4 credits. May be repeated with different content. Specialized topics in the liberal arts and sciences designed to provide an overview of a topic not provided by an existing course or program. May be multidisciplinary. Graded as pass/fail or normal letter grading at the option of the instructor.

HUMS 300. Great Questions of the Social Sciences. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The social sciences explore human aspects of the world in fields of study that include anthropology, criminology, economics, education, geography, law, political science, psychology and sociology. This course explores fundamental questions of social science and examines their historical and contemporary relevance.

HUMS 391. Special Topics in the Humanities and Sciences. 1-4 Hours.

Semester course; variable hours. 1-4 credits. May be repeated with different content. Specialized topics in the liberal arts and sciences designed to provide an overview of a topic not provided by an existing course or program. May be multidisciplinary. Graded as pass/fail or normal letter grading at the option of the instructor.

Humanities and Sciences – Interdisciplinary (HUSI)**HUSI 190. College Seminar.** 1 Hour.

1 lecture hour. 1 credit. May be repeated once for credit. Open only to students who participate in these programs. A seminar designed for first-year programs coordinated through the office of the dean of the College of Humanities and Sciences. Designed to help students integrate general education courses.

HUSI 399. Experiential Learning: ____. 0 Hours.

Semester course; 0 lecture hours. 0 credits. Participation in a College of Humanities and Sciences-designated experiential learning activity or project. Provides the student with an opportunity to engage in meaningful hands-on research, scholarship or creative work directly relevant to realizing their personal and professional goals. Registration requires permission of the instructor, who will confirm with the college dean's office that a qualifying experience has been approved for the student. Graded as pass/fail.

HUSI 491. College Topics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of 6 credits. Open primarily to seniors; others with permission of instructor. A discussion of complex issues that are of enduring value or of critical interest to society. The goals of the course are to (1) bring general principles from disciplinary or a variety of disciplinary contexts to bear on specific problems; (2) exercise critical thinking; (3) understand and integrate diverse perspectives; and (4) explore models of decision-making, underlying assumptions and implications. See the Schedule of Classes for specific topics to be offered each semester.

Interdisciplinary Science (INSC)**INSC 201. Energy!.** 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MATH 131, MATH 139, MATH 141, MATH 151, MATH 200 or higher MATH; or BUSN 171*, BUSN 212** or SCMA 301***; or STAT 208, STAT 210, STAT 212 or higher STAT; or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. A study of global energy demands, how they are being met, environmental consequences and alternative energy sources. *Formerly MGMT 171, SCMA 171; **formerly MGMT 212, SCMA 212; ***formerly MGMT 301.

INSC 300. Experiencing Science. 3 Hours.

Semester course; 5 studio hours. 3 credits. Prerequisites: 4 credits in biology, 3 credits in physical science, 3 credits in mathematics, and STAT 208, 210, 212, or 312. Study of the methods and processes used by scientists in investigations. Guided, active replication of great discoveries in major scientific disciplines in physical science, life science and earth science.

INSC 301. Investigatory Mathematics and Science. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: 4 credits in biology, 4 credits in physical science, 3 credits in mathematics and STAT 208 or STAT 210. Students investigate real-world science problems, formulate model solutions to the problems, produce project reports and present their solutions to class. Problems selected from areas including water quality, epidemics and spread of diseases, heat loss and gain, genetics and drugs in the body.

INSC 310. Content of Elementary Science. 3 Hours.

Semester course; 4 lecture/laboratory hours. 3 credits. Prerequisite: 11 credits of science courses. Designed for preservice elementary school teachers. Develops mastery of select topics in the physical, earth and life science strands appropriate to the K-6 level. Topics will be presented in the context of hands-on activities designed for the classroom, using techniques such as guided inquiry and the learning cycle.

INSC 490. Capstone Research Experience in Interdisciplinary Science. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits. Prerequisite: UNIV 200 or HONR 200. Enrollment is restricted to seniors in the science major with at least 85 credit hours earned toward the degree. Intensive study of a contemporary scientific problem engaging more than one scientific discipline. Emphasis on understanding scientific research and science writing. Course is taught online and requires an average of six to 10 hours per week of student effort.

International Studies (INTL)**INTL 101. Human Societies and Globalization. 3 Hours.**

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. An interdisciplinary inquiry into how societies around the world are organized and how they are interrelated on social, economic, political and cultural dimensions. The course is organized around themes that are important to prominent globalization processes – topics such as human rights, global inequalities, cultural globalization, global crime, globalization and religion, the global mass media, and environmental issues. Students also explore the implications of rapid social change for international issues and interpersonal interaction.

INTL 102. Introduction to Political Economy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Seminar on the development of critical thought and economic analysis of policy issues. Focus is on how policy choices affect society and the individual, the economic methodology that guides policy choices, and the institutional and political environments within which policy is derived. Issues cover a broad range of topics including environmental issues, tax policy, inflation expectations, unemployment, foreign trade and the effectiveness of fiscal and monetary policies. Crosslisted as: ECON 101.

INTL 104. Introduction to Archaeology. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A survey of archaeological sites, methods and theories from around the world, from the earliest human cultures, to the rise and spread of civilizations, to the modern era. Crosslisted as: ANTH 105.

INTL 105. International Relations. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. An introductory analysis of interstate relations and world affairs. Attention focuses on theories of international politics, military capabilities and their application, international organizations, global economic trends, domestic sources of state behavior and other selected issues as appropriate. Crosslisted as: POLI 105.

INTL 151. Global Communications. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Explores how communication media and globalization drive each other and how they both impact the nation-state as well as international institutions. Examines how technology, the global economy and international media corporations influence culture, politics, business, law and other institutions in countries around the world. Explores the relationship between media systems and governments and how both are affected by technology and globalization. Crosslisted as: MASC 151.

INTL 200. Introduction to African Societies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course introduces the student to the African continent, its peoples and cultures. It covers such general characteristics as the physical and geographical features, climate, topography, traditional economies, languages, religions, social systems and other cultural features that are traditional to its people. Crosslisted as: AFAM 200/ANTH 200.

INTL 201. Rethinking the Middle East. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An interdisciplinary comprehensive approach to understanding the Middle East and North Africa. Offers an overview of the region and its place in the contemporary world that includes, but is not limited to, its sociocultural composition, geography, traditions and cultural output.

INTL 204. Language and Groups in the United States. 3,4 Hours.

Semester course; 3-4 lecture hours. 3-4 credits. Taught in English. This course introduces students to the sociocultural experience and formation of identity of non-English-speaking peoples in the United States. Students explore the dynamic between English and a specific heritage language and its interaction with artistic, cultural and social issues through fiction and nonfiction texts, films and multimedia pertaining to specific language groups, such as: Latinos, Italian-Americans, German-Americans or Native Americans. See the Schedule of Classes for specific topics to be offered each semester. Crosslisted as: FRLG 204.

INTL 211. Contemporary World Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 112 or both ENGL 295 and HONR 200. A study of selected literature published in the past 25 years and chosen from a number of different nations and cultures. Crosslisted as: ENGL 211.

INTL 215. International Studies in the Professional World. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: WRLD 210. Enrollment is restricted to international studies majors with at least sophomore standing. This course provides students majoring in international studies with strategies for professional readiness and academic success. In addition, students will explore pre-professional opportunities and compile an e-portfolio and curriculum vitae. Graded as pass/fail.

INTL 250. Confronting Climate Crisis. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the many ways that people – including students – are confronting the climate crisis, from the local to the global. Engages with major debates in the fight to understand and address climate crisis, centering ways in which Black, migrant, Indigenous peoples and folks in the Global South are forging a path toward socially just responses. Crosslisted as: SOCY 250.

INTL 291. Topics in International Studies. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different content for a maximum of six credits. An introductory study of a specialized topic in international studies. See the Schedule of Classes for specific topics to be offered each semester.

INTL 295. Media Diplomacy and Globalization. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course introduces students to the relationship between media and globalization through the concept of media diplomacy. Students engage with conceptual, archival and practical learning activities, including comparative media analysis at national and transnational scales. Students will be able to better position themselves in a world characterized by integration and interdependence through communications technologies.

INTL 303. World Regions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of the various regions of the earth, including land forms, climate, resources, peoples, agriculture and urban conditions. Regions to be selected each semester from Anglo-America, Latin America, western Europe, Eastern Europe, the former USSR, Middle East and North Africa, Africa (south of the Sahara), Indian subcontinent, China, Japan, Southeast Asia, and Oceania. May be taken only once for credit. Crosslisted as: URSP 303.

INTL 306. Judaism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A general survey of the dynamics and characteristic patterns of Jewish civilization encompassing history, practices and beliefs. Crosslisted as: RELS 306.

INTL 307. Black Religion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An analysis of the role of religion in the lives of blacks with an emphasis on African religions and philosophies, the black church in America, and the roles of the various faiths, sects and cults. Crosslisted as: AFAM 307/RELS 307.

INTL 309. Gender and Global Health. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines how health policies produce and regulate gendered bodies and sexualities. Topics may include how colonial medicine and health policies of detection, diagnosis, surveillance, quarantine and confinement were implemented as methods of social control. Analyzes continuities between colonial medicine and more contemporary interventions that in the name of individual and communal health attempt to shape proper sexualities and gendering. Crosslisted as: AFAM 309/ANTH 309/GSW 309.

INTL 314. Human-Environment Interactions: Foundations and Applications. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A comparative study of the ecology and natural history of human populations, including the environments as determining factors in the evolution of human institutions and technology, resources management, and population crises; cultural traditions as mechanisms of population control; basic theory of population biology. Crosslisted as: ENVS 314.

INTL 315. Economic Development. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210; and ECON 211. An introduction to the process of economic development. Surveys development theory and experiences of underdeveloped countries of Africa, Asia, Latin America and the Caribbean and of developed countries. Explores obstacles to development and policies and tools for stimulating economic development. Crosslisted as: ECON 315.

INTL 316. Religious and Ethnic Minorities in the Middle East. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Provides an overview of ethnic and religious minorities in the contemporary Middle East and North Africa. Covers the main theories in ethnic studies in order to examine how the concept of minority (religious and ethnic) has emerged as a key factor in the cultural, economic, political, religious and educational policies of modern Middle Eastern countries.

INTL 317. Islam. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the emergence of Islam in Arabia in the seventh century and its subsequent developments, including a look at the Qur'an (the holy book), the Prophetic traditions, the concept of God, and mysticism (sufism) and law (shari'ah) and an overview of ritual practices, fundamental beliefs, theological principles and current issues in Islam and international relationship. Crosslisted as: RELS 317.

INTL 320. International Marketing. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Designed to help students develop an understanding of international marketing policies and the differences among foreign marketing environments. Students compare and contrast domestic and international marketing and examine recent changes in the international marketing environment. Crosslisted as: MKTG 320.

INTL 321. Buddhism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A critical survey of the origins, basic beliefs, sacred text, themes, practices, history, key figures, subject matters, schools of thought and current issues in Buddhism. Crosslisted as: RELS 321.

INTL 324. Indian Religious Traditions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A systematic analysis of the major theories of Indian religious and philosophical thought: Vedas, Upanishads, Gita, Charvaka, Jainism, Buddhism, the six systems of Hinduism and contemporary developments. Crosslisted as: PHIL 324/RELS 324.

INTL 325. Nature, Culture, Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course explores the origins and development of 'the environment' as a problem of nature, culture and justice. The readings and lectures cover the history of environmental activism, the disproportionate impact of environmental problems on marginalized and impoverished communities, the tensions between economic inequality, economic development and environmental preservation, and the climate change catastrophe.

INTL 327. Introduction to Intercultural Communication. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the basic concepts, principles and skills for improving verbal and nonverbal communication with persons from different cultures. Using a cultural general approach, topics discussed include the concept of culture, barriers to intercultural communication, verbal communication process and nonverbal communication aspects. Appropriate for business and non-business majors. Crosslisted as: MGMT 329.

INTL 328. Russian Society in Transition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or permission of the instructor. An analysis of Russian culture and social institutions as they are today and in historical perspective. Throughout the course interrelationships among politics, the economy and social life are examined, with particular emphasis on the ideological implications of Russian/Soviet architecture, art and mass media; on environmental issues and health; on social problems and the legal systems; and on gender, the work world and family interaction.

INTL 329. International Economics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210; and ECON 211. An analysis of economic and political influences on exports and imports, balance of payments, foreign investment, exchange rates and international monetary systems. Crosslisted as: ECON 329.

INTL 330. Global Societies: Trends and Issues. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. An analysis of factors that are promoting the globalization of social, economic and political relations, and an inquiry into implications of these developments for individuals, localities, nations and the world community. The course will highlight the impact of culture and ethnicity, historical and emerging patterns of international business activity and their societal significance, divergent strategies for economic and social development in the world's regions, and the effects of population growth and environmental problems on public life within and among nations. Crosslisted as: SOCY 330.

INTL 331. Survey of Latin American Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SPAN 300; SPAN 305 or 307 or 311; corequisite: SPAN 301. Conducted in Spanish. An introduction to major authors and trends up to the present. Crosslisted as: SPAN 331.

INTL 332. Revolutions and Counterrevolutions in the Middle East. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An overview of the Arab uprisings of 2011 and the ways in which the mass protests continue to shape the region. Includes an introduction to theories of revolution and counter-revolution. Examines in detail the social, political and economic reasons for the uprisings, as well as the connection to earlier revolutions in the region.

INTL 333. Geography of Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, peoples, livelihoods, settlement patterns and cultural groupings of sub-Saharan Africa. Crosslisted as: AFAM 333/URSP 333.

INTL 334. Regional Geography of _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, resources, peoples, agricultural and urban conditions in a specific region such as North America, Europe, Latin America, the Middle East and India, the USSR and Eastern Europe. See the Schedule of Classes for specific region to be studied each semester. Crosslisted as: URSP 334.

INTL 338. Eastern Religions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introductory survey of Eastern religions, such as Hinduism, Buddhism, Confucianism, Taoism and Shinto, including their historical formation and foundational ideas, symbols, stories, and rituals and influence on personal and social life. Crosslisted as: RELS 338.

INTL 339. Western Religions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introductory survey of Western religions, such as Zoroastrianism, Judaism, Christianity and Islam, including their historical formation and foundational ideas, symbols, stories, and rituals and influence on personal and social life. Crosslisted as: RELS 339.

INTL 340. World Cities Outside of North America. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduction to the theories and ideas of urbanism through writings and cases of major global cities outside of the United States. Crosslisted as: URSP 340.

INTL 341. Global Ethics and the World's Religions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A critical survey of ethical concepts and issues in the thought and practice of major religious traditions. Comparison of ethical perspectives on selected themes and attention to cooperative efforts toward a global ethic. Crosslisted as: RELS 340.

INTL 345. Great Cities of the World. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An interdisciplinary course with a focus on the origin, expansion and significance of one or more cities, the specifics of its/their culture and the role of language. Particular emphasis will be placed on relating the physical, social and economic aspects of the city's growth and development to the cultural expression of urbanism. Crosslisted as: FRLG 345/URSP 350.

INTL 348. South American Ethnography. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. General ethnographic survey of both highland and lowland indigenous cultures of South America and cultural changes as a result of European contact. Crosslisted as: ANTH 348.

INTL 349. Rethinking a Continent: Latin America. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. This course surveys contemporary cultures of Latin America. It addresses historical sociocultural developments from an anthropological perspective and introduces concepts from social justice studies, development anthropology and applied anthropology. Crosslisted as: ANTH 349.

INTL 350. Rethinking a Continent: Europe. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103, INTL 101 or INTL 103; and UNIV 200 or HONR 200. An exploration of European political and sociocultural development from prehistory to modernity with an emphasis on integrative and disintegrative forces that have shaped cultures and identities in the European region as part of a larger geopolitical configuration. This course will focus on the diverse sociocultural compositions as well as the various cultural outputs of the region through an interdisciplinary approach. Crosslisted as: ANTH 350.

INTL 351. Middle Eastern Government and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A comparative analysis of political systems in the Middle East including the study of contemporary aspects of traditionalism, the political nature of transition, the instruments of political modernization, and evolution and revolution in the political process of Middle Eastern states. The course will explore the primary bases of cleavage and conflict and the principal forces that shape the policies and political dynamics of the region. Crosslisted as: POLI 351.

INTL 352. European Governments and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A comparative study of the political systems of selected western and eastern European countries. Crosslisted as: POLI 352.

INTL 353. Latin American Governments and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of politics characteristic of Latin American systems, including democratic reformism, military authoritarianism and revolutionary socialism. The course also examines the contemporary problems of fledgling democracies as they cope with economic and debt crises and various opposition challenges. Crosslisted as: POLI 353.

INTL 354. Russian and Eurasian Government and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the origins, institutions, processes and disintegration of the Soviet political system and the ongoing reform efforts during the post-Soviet period. Special emphasis is placed on the politics of the transition to a democratic political system and a market economy. Other topics include nationality issues, social problems and foreign policy. Crosslisted as: POLI 354.

INTL 355. Asian Governments and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A comparative analysis of the politics and governments of major Asian states, with a focus on Japan, China and India. Crosslisted as: POLI 355.

INTL 356. African Government and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will introduce students to the basic outlines of government and politics in Africa. The course will consider such topics as colonialism, elitism, and nationalism and modernization strategies. Using the comparative approach, the course will primarily focus on West, East and Central Africa. Crosslisted as: POLI 356/AFAM 356.

INTL 357. Politics of Southern Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of racial and political developments in the southern tip of Africa. While South Africa will be the primary focus of analysis, other countries in the region such as Zimbabwe, Angola and Mozambique will be studied. Crosslisted as: POLI 357/AFAM 357.

INTL 358. Concepts of Comparative Government. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Comparative study of politics and governments. Introduces concepts and theories used in the study of political systems. Topics include democratization and democratic governance, the role of the state, one-party and military regimes, revolution, and economic and political development. Crosslisted as: POLI 358.

INTL 360. World Religions' Classics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A critical reading of selected works from among the spiritual classics of Judaism, Christianity, Islam, Hinduism, Taoism and other religious traditions. Crosslisted as: RELS 350.

INTL 361. Issues in World Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An exploration of several significant issues in world politics. Topics may include peacekeeping and collective security, international economic competitiveness, global environmental politics as well as selected others. Topics will vary with current events and trends in the international arena. Crosslisted as: POLI 361.

INTL 362. International Organizations and Institutions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the background development structure and operations of organizations and institutions such as the United Nations, the European Community and the Organization of American States. Crosslisted as: POLI 362.

INTL 363. U.S. Foreign Policy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An analytical survey of processes and practices in the formulation of U.S. foreign policy, including an introduction to the goals, problems of implementation and current challenges faced by policy makers. Crosslisted as: POLI 363.

INTL 364. Vietnam. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An analysis of the complete record of the conflict in Vietnam. The primary focus will be on the period of U.S. involvement. The course will examine closely how and why the U.S. became involved in Vietnam and what impact the Vietnam War has had on political institutions and behavior. In particular, the course will examine what impact the period of U.S. involvement has had upon U.S. foreign policy. The course also will consider additional topics including public opinion and the war, the relationship between the president and Congress in light of the war, and contemporary U.S. politics as a backlash against the political movements of the 1960s. Crosslisted as: POLI 364.

INTL 365. International Political Economy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of both theoretical and current policy issues in international political economy. Theories to be covered include liberalism, mercantilism, Marxism, regionalism, world systems theory and others. Policy issues include differing styles of capitalism in the industrialized world, the political economy of development, the politics of international corporate alliances and others. Crosslisted as: POLI 365.

INTL 366. African Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of regional and/or cultural traditions of African literature with special attention paid to socio-political perspectives. Crosslisted as: AFAM 363/ENGL 363.

INTL 367. Caribbean Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A survey of West Indian writings. Attention will be given to African, European and Amerindian influences, as well as to the emergence of a West Indian literary tradition. Crosslisted as: AFAM 365/ENGL 365.

INTL 368. Women and Global Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of women and global politics, providing both a feminist re-examination of traditional international-relations theories and a comparative analysis of the political, legal and economic status of the world's women. The impact of women on global political institutions such as the United Nations will be addressed as well as other feminist and grass roots means of taking political action. Crosslisted as: GSWS 366/POLI 366.

INTL 370. Studies in the Music of the African Continent and Diaspora. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 6 credits. Prerequisite: MHIS 243 or MHIS/AFAM 250. An in-depth examination of selected topics and issues in African-derived musical and cultural traditions. See the Schedule of Classes for specific topics to be offered each semester. Crosslisted as: AFAM 350/MHIS 350.

INTL 375. Interdisciplinary Methods for International Studies Research. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Survey course examining a range of humanistic and social scientific research methods used by international and global studies. This course equips students with the ability to generate unique, answerable and ethical research questions concerning world cultures, spaces and social formations. Data will be generated and analyzed through interviews, ethnography and participant observation, archival research, close reading, translation, discourse analysis, and action research. As a final product, students will produce a research proposal.

INTL 381. Modern Identities: Nation Building. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Critically explores how nation building and national identities have developed over the past two centuries among peoples across the globe. Class discussions will examine theoretical perceptions of these processes and focus on how they shaped and shape realities in different times and places. Crosslisted as: ANTH 381.

INTL 385. International Migration and Displacement. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An interdisciplinary approach to the study of contemporary migration and population displacement in the global context. In addition to an in-depth study of the theories of modern migration, the course also focuses on the examination of voluntary and involuntary movement across borders. Possible topics include narratives of migration, global migratory flows and patterns, environmental factors, refugees and asylum seekers, and tactics of bordering.

INTL 390. Historic and Ethnic Textiles. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 290 or IDES 446 or permission of instructor. An examination of the history of textile design and production around the world. Crosslisted as: FASH 390.

INTL 398. Directed Study Abroad. 8 Hours.

Semester course; variable hours. 0-8 credits per semester. May be repeated for a maximum of 8 credits with approval of student's major department. Permission of academic adviser required. A course involving travel and/or residence in a foreign country as features of the student's work on a pre-arranged project. Intended primarily for students participating in student exchange programs.

INTL 409. Modern Islamic Thought and Global Trends. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Introduces students to the integral relationship of Islam to major events of global concern and contextualizes these events into the wider modern and postmodern developments of Islamic thought and its intellectual and ideological self-interrogation. This course will provide students with the opportunity to study both the background of modern Islamic thought and selected contemporary events. Crosslisted as: RELS 409.

INTL 412. Zen Buddhism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. A study of Zen Buddhism, including backgrounds in Indian philosophy and practice, development in China and Korea, and present-day Zen theory and practice in Japan and in Western countries. Crosslisted as: PHIL 412/RELS 412.

INTL 415. Economic Anthropology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Provides an overview of the anthropological approach to the "economic" in social life. Analyzes the role played by systems of reciprocity and exchange in ethnographic contexts. Concepts employed by anthropologists in the study of traditional subsistence economies are used to examine modern industrialized societies. Crosslisted as: ANTH 415.

INTL 416. International Financial Management. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 311. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Financial management of business in an international environment. Emphasis on tools and techniques to prepare financial managers of multinational firms to effectively respond to the challenges of the international environment. Crosslisted as: FIRE 316.

INTL 418. International Management. 3 Hours.

3 lecture hours. 3 credits. Prerequisite: junior standing. The study of the environment of international business, ethics and social responsibility in international settings, culture and its effect on behavior and management practice, and the strategies and management practices of firms engaged in international activities. Aims to provide students with the knowledge, skills and sensitivities needed to be effective managers in the international business environment. Crosslisted as: MGMT 418.

INTL 419. Doing Business in Europe. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: junior standing and permission of instructor. Designed primarily as a core integrative course for students enrolled in the Certificate in International Management Studies, but other students are welcome. The course has three goals: a) integration of foreign languages, European studies and international management; b) infusion of other business areas relevant to doing business in Europe (such as international marketing, finance law and economics); and c) the development of cultural sensitivity and social responsibility. The course will be organized as a series of seminars with faculty and other speakers from the above disciplines. Crosslisted as: MGMT 419.

INTL 420. Women of Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103 or AFAM 103. This course looks at the traditional roles of women in African societies and examines how women have coped in different environments. It focuses on the institutionalized aspects of similarities and differences in women's lives in pastoral and horticultural societies and those with mixed economies, and will contrast these with women's roles in large state societies of Africa and in the modern urbanized context. Crosslisted as: AFAM 420/ANTH 420.

INTL 421. Civilization of Latin America II. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. This course explores the cultural diversity of Latin America and the social and political forces behind cultural change. Topics will focus on a specific interdisciplinary theme, such as urban life, the politics of identity and on a specific area of Latin America. See the Schedule of Classes for the specific topic to be offered each semester. Crosslisted as: SPAN 421.

INTL 425. Religion, Magic and Witchcraft. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. A survey of the nature and variety of beliefs outside of the major streams of religious thought. Among topics considered are myth, totemism, taboo and sorcery. Emphasis on understanding supernatural beliefs and practices in relation to culture and society. Crosslisted as: RELS 425/ANTH 425.

INTL 441. Islamic Mysticism: the Sufis. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Introduces students to the major Sufi masters and their works. It covers ideological and practical development of Islamic mysticism as compared to the developments within Islam itself. Crosslisted as: RELS 441.

INTL 445. Activism and Dissidence. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will explore the history and theory behind activist and dissident movements. Readings will be drawn from many types of dissident texts, including political theory, sociology, philosophy, history, literature, theology, art and testimonials from activists on the ground. Students will explore the connections between today's anti-authoritarian and anti-colonial movements around the world with historically relevant precedents and key texts of theoretical foundations. Core questions will include: Why do activists choose to engage in politics? Why have governments responded so differently to activists throughout history? What are the challenges facing people around the world as they contest established norms and injustices? Assignments will ask students to hone their writing skills and engage in conversation with activist communities in order to better understand multiple worldviews.

INTL 446. International Human Resource Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 331, INTL/MGMT 418 or ECON/INTL 329. Covers the application of human resource management activities in an international context. Highlights similarities and differences with domestic methods; current practices in the selection, development, compensation and maintenance of parent-country, host-country and third-country nationals; and the impact of regulatory and cultural differences between countries. Crosslisted as: MGMT 446.

INTL 448. Digital Marketing. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301. Enrollment is restricted to students who have completed a minimum of 54 credit hours (junior standing). Examines social media, mobile and Internet marketing as necessary ingredients to successful marketing strategy. Analyzes and applies digital techniques for market evaluation, consumer and competitive analysis, market comparison and selection, and effective marketing communication design and delivery. Crosslisted as: MKTG 448.

INTL 449. Religion, Globalization and Social Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: RELS 340/INTL 341, WRLD 210 or WRLD 220; UNIV 200 or HONR 200. Explores the role religions are playing in the work of building a socially just and environmentally sustainable world community. Crosslisted as: RELS 450.

INTL 450. Francophone Literatures and Cultures. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisite: FREN 301; FREN 305 or 307; FREN 320 or 321 or 330 or 331. Conducted in French. Introduces students to the literatures and cultures of the Francophone world. Provides an overview of the Francophone world and an in-depth study of literary works written in French from Africa, the Caribbean, North America, Asia and Europe. Also explores the impact of Colonial history on Francophone literatures and cultures. See the Schedule of Classes for the specific topic to be offered each semester. Crosslisted as: FREN 450.

INTL 451. Religion, Racism and Social Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: RELS 340/INTL 341, WRLD 210 or WRLD 220; UNIV 200 or HONR 200. Explores the complex history and contemporary relationships between religion, racism and social justice. Crosslisted as: RELS 451/AFAM 451.

INTL 452. The Politics of Developing Areas. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Analysis of the processes of political and economic development. Includes a study of various challenges facing developing countries, such as economic inequalities, environmental degradation, mass political participation, military coups, revolution and civil war. Crosslisted as: POLI 359.

INTL 453. Western Religions, Women and Social Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: UNIV 200 or HONR 200; and RELS 108, GSWS 201 or WRLD 210. Explores the experience and portrayal of women in the three Abrahamic traditions: Judaism, Islam and Christianity. Study focuses on how these religions and their texts bear upon the social, economic, political and spiritual lives of women. Special attention is given to the impact of globalization and religious fundamentalism on women. Crosslisted as: RELS 453/GSWS 453.

INTL 454. Cross-cultural Communication. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the dynamics of cross-cultural communication that applies linguistic tools to understanding cultural issues and solving communication problems. Crosslisted as: ENGL 454/ANTH 450.

INTL 455. Anthropology of Development and Globalization. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103, INTL 101 or WRLD 210. Consists of a theoretical and practical understanding of development through an anthropological approach to social, cultural and economic change. Focuses on a critical examination of the agents of development: practitioners, consultants, non-governmental organizations and non-state agencies. Emphasis will be on the relation of development to the lived experiences of people around the world. Crosslisted as: ANTH 455.

INTL 457. Comparative Perspectives on Cultures and Societies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103; UNIV 200 or HONR 200. Examination of the theoretical, methodological and ethical problems that arise from anthropological comparisons of cultures. Crosslisted as: ANTH 457.

INTL 458. Religion and Ecojustice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: RELS 108 or INTL/SOCY 250. Explores Eastern, Western and indigenous religious traditions' understanding of the meaning of nature, including human nature; our ethical obligations to nature, including other species; and how different traditions imagine, value and interact with nature. Considers how diverse religious communities are involved in efforts to address socio-environmental issues like the climate crisis, consumerism, environmental racism, indigenous sovereignty, protection of forests and oceans, access to healthy air, water, land and food, and the establishment of an ecological society. Crosslisted as: RELS 458.

INTL 460. Contemporary Issues in Middle Eastern and Islamic Studies: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisites: UNIV 200 or HONR 200; and INTL 201 or INTL/RELS 317. Provides advanced study and analysis of contemporary issues in Middle Eastern and Islamic studies.

INTL 465. Rethinking Globalization. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: WRLD 210. Explores a variety of theories germane to the study, analysis and critique of globalization from an interdisciplinary perspective. Emphasis is placed on bringing different concepts and theoretical frameworks from across the humanities and social sciences into conversation and debate. Topics include challenges that have threatened the prospects of a globalized world from the early 1990s, the contemporary rethinking of globalization and the aspects of globalization that may be perceived as problematic.

INTL 468. Comparative National Security Policy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of national security policies and policy-making in a diverse set of nation-states. Emphasis is placed on comparing how threat perception, historical context, ideology, political structure and leadership impact national security policies of both powerful and weak nation-states. Crosslisted as: POLI 368.

INTL 480. China in Transition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Traces how China is making the transition from a planned to market economy, and what implications this transition has on the political, social and urban landscape. Class discussions are grounded on a basic understanding of China's modern history and regional geography. Crosslisted as: POLI 360.

INTL 490. Senior Capstone in International Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Enrollment is restricted to students with senior standing in the international studies major who have a minimum of 85 credits earned toward the degree, including a minimum of nine credits earned within the respective concentration. An individualized research project focusing on international issues and undertaken in a capstone seminar setting.

INTL 491. Topics in International Studies. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. An in-depth study of a particular topic in international studies. See the Schedule of Classes for specific topics to be offered each semester.

INTL 492. Independent Study. 1-3 Hours.

Semester course; variable hours. 1-3 credits. Maximum total of 4 credits in all independent study courses. Generally open to students of junior and senior standing who have acquired at least 12 credits in international studies courses. Determination of amount of credit and permission of instructor and director must be obtained before registration of the course.

INTL 493. International Studies Internship. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits (40 clock hours per credit). May be repeated for a maximum of six credits, however only three credits can count toward the major concentration. Enrollment is restricted to international studies majors and requires permission of the internship coordinator. Designed for international studies majors to gain workplace experience in internationally oriented public and private organizations and agencies.

INTL 499. Senior Seminar. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisites: completion of 18 INTL credits at the 300- or 400-level; senior standing. Pre- or corequisite: INTL 490, 492, or 493. Focuses on self-assessment, compilation of a portfolio and curriculum vitae, career and graduate school preparation and on the lifelong application of skills and knowledge acquired in the program. Students will critically assess their experience in the international and area studies program.

Italian (ITAL)**ITAL 101. Beginning Italian I. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Enrollment requires any student with previous exposure to Italian to take the placement test to determine eligibility. For students with no prior knowledge of Italian. Beginning grammar, reading, writing and oral skills.

ITAL 102. Beginning Italian II. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: ITAL 101 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Continuation of beginning grammar, reading, writing and oral skills.

ITAL 201. Intermediate Italian I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ITAL 102 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Italian. Building toward intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

ITAL 202. Intermediate Italian II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ITAL 201 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Italian. Increasing intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

ITAL 205. Intermediate Conversation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ITAL 201. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation.

ITAL 300. Communication and Composition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ITAL 202, ITAL 205 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Italian. Building toward intermediate-high proficiency in the three modes of communication: interpretive, interpersonal and presentational. Authentic materials enhance intercultural competence and communication skills.

ITAL 320. Italian Cinema: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of six credits. Prerequisite: ITAL 202 or ITAL 205. Conducted in Italian. Examines Italian culture, history and society by exploring some of the most important genres, directors and actors in Italian cinema. See the Schedule of Classes for specific topic to be offered each semester.

ITAL 330. Themes in Italian Literature: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of six credits. Prerequisite: ITAL 202 or ITAL 205. Conducted in Italian. An in-depth study of selected topics in Italian texts. See the Schedule of Classes for specific topic to be offered each semester.

ITAL 391. Topics in Italian. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated with different topics for a maximum of 6 credits. Pre- or corequisite: ITAL 320 or ITAL 330. Conducted in Italian. An in-depth study of selected topics in Italian. See the Schedule of Classes for specific topics to be offered each semester.

Language and Cultural Competence (LGCC)**LGCC 101. Introduction to Language and Culture for Professionals I: ____ 1-3 Hours.**

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for credit with a different language. Designed for anyone concerned about the effectiveness of communicating with diverse linguistic communities. The communication focus includes an introduction to basic structures and target terminology used in the professions. This course cannot be used to fulfill requirements of general education in the college or the foreign language major or minor.

LGCC 102. Introduction to Language and Culture for Professionals II: ____ 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for credit with a different language. Prerequisite: LGCC 101 or the equivalent. Designed for anyone concerned about the effectiveness of communicating with diverse linguistic communities. The communication focus includes continued practice with basic structures and target terminology used in the professions. This course cannot be used to fulfill requirements of general education in the college or the foreign language major or minor.

LGCC 197. Basic Cultural Competence Training. 1-3 Hours.

Semester course; 1-3 hours. 1-3 credits. Designed for anyone concerned about the effectiveness of people working and living in multicultural societies. Bridges theory and practice through a series of hands-on exercises, simulations, stories and real-world examples to optimize the learners' skill development necessary for effective intercultural communication. Graded as pass/fail.

LGCC 201. Intermediate Language and Culture for Professionals I: ____ 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Prerequisite: LGCC 102 or the equivalent. Designed for anyone concerned about the effectiveness of communicating at an intermediate level with diverse linguistic communities. Delves further into grammatical structures, cultural concepts and target terminology used in the professions. This course cannot be used to fulfill requirements of general education in the college or the foreign language major or minor.

LGCC 202. Intermediate Language and Culture for Professionals II: ____ 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Prerequisite: LGCC 201 or the equivalent. Designed for students concerned about the effectiveness of communicating at an advanced intermediate level with diverse linguistic communities. Offers continued instruction in cultural concepts, basic structures and target terminology used in the professions. This course cannot be used to fulfill requirements of general education in the college or the foreign language major or minor.

LGCC 297. Cultural Competence for Health Care Professionals. 1-3 Hours.

Semester course; 1-3 hours. 1-3 credits. Designed for health care, social work, public health and related providers who work with the growing number of immigrants, refugees and minorities in the U.S. Focus is on the basics of intercultural-communication competence for health care settings to help health care providers build deeper knowledge and understanding of patients/clients' cultural values and beliefs and how they may influence clients' attitudes and behaviors. Graded as pass/fail.

LGCC 405. Spanish Language and Culture for Health Care Providers. 2 Hours.

I Continuous courses; 2 lecture hours. 2-2-2 credits. Prerequisite: permission of instructor. Completion of LGCC 405 to enroll in LGCC 406. Completion of LGCC 406 to enroll in LGCC 407. Open only to students enrolled in health care programs such as nursing, medicine, allied health, pharmacy, dentistry, or health care practitioners. A survey of the changing demographics of patients in health care and the language and cultural skills required to provide adequate health care services. The communication focus includes basic structures and medical terminology used during assessments and phrases commonly used during physical examinations. These courses cannot be used to fulfill requirements for the Spanish major or minor, nor can they fulfill the general education language requirement.

LGCC 406. Spanish Language and Culture for Health Care Providers. 2 Hours.

II Continuous courses; 2 lecture hours. 2-2-2 credits. Prerequisite: permission of instructor. Completion of LGCC 405 to enroll in LGCC 406. Completion of LGCC 406 to enroll in LGCC 407. Open only to students enrolled in health care programs such as nursing, medicine, allied health, pharmacy, dentistry, or health care practitioners. A survey of the changing demographics of patients in health care and the language and cultural skills required to provide adequate health care services. The communication focus includes basic structures and medical terminology used during assessments and phrases commonly used during physical examinations. These courses cannot be used to fulfill requirements for the Spanish major or minor, nor can they fulfill the general education language requirement.

LGCC 407. Spanish Language and Culture for Health Care Providers. 2 Hours.

III Continuous courses; 2 lecture hours. 2-2-2 credits. Prerequisite: permission of instructor. Completion of LGCC 405 to enroll in LGCC 406. Completion of LGCC 406 to enroll in LGCC 407. Open only to students enrolled in health care programs such as nursing, medicine, allied health, pharmacy, dentistry, or health care practitioners. A survey of the changing demographics of patients in health care and the language and cultural skills required to provide adequate health care services. The communication focus includes basic structures and medical terminology used during assessments and phrases commonly used during physical examinations. These courses cannot be used to fulfill requirements for the Spanish major or minor, nor can they fulfill the general education language requirement.

Language Skills (LASK)

LASK 103. Introduction to Languages. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A course designed to help students understand how languages function through a survey and contrastive analysis of language systems, with attention to the sociocultural, psychological and historical aspects of languages. Completion of this course does not qualify a student to take the 200 level of a language without passing a language placement test. Crosslisted as: LING 103.

LASK 203. Classical Elements in the English Language. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Development of English vocabulary through a study of Greek and Latin elements in English: derivatives, roots and loan words. Some emphasis on the special vocabularies of the sciences.

Latin (LATN)

LATN 101. Beginning Latin I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment requires any student with previous exposure to Latin to take the placement test to determine eligibility. For students with no prior knowledge of Latin. Beginning grammar, reading and writing skills.

LATN 102. Beginning Latin II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: LATN 101 or the equivalent. Continuation of beginning grammar, reading and writing skills. Introduction to Latin authors and related aspects of Roman civilization.

LATN 201. Intermediate Latin I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: LATN 102 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Brief grammar review with a parallel study of political and literary trends and developments as found in several of the major Latin writers with emphasis on prose of Cicero, Pliny the Younger and Sallust.

LATN 202. Intermediate Latin II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: LATN 201 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Brief grammar review with a parallel study of political and literary trends and developments as found in several of the major Latin writers. Poetry, with selected readings from Catullus, Tibullus, Ovid and Vergil.

LATN 330. Themes in Latin Literature: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of 6 credits. Prerequisites: LATN 202. An in-depth study of selected topics such as science and medicine, law, or satire in works by authors such as Caesar, Cicero, Horace, Catullus, Ovid, Virgil, Marcus Aurelius and Lucretius. See the Schedule of Classes for specific topic to be offered each semester. Texts are in the original language.

LATN 331. Representative Authors in Latin Literature: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of 6 credits. Prerequisites: LATN 202. Selected readings by authors from the Archaic Period, the Classical Age, Silver Age and Patristic Latin with a focus on their impact on the political and social agendas of the day and on us today. See the Schedule of Classes for specific topic to be offered each semester. Texts are in the original language.

Linguistics (LING)

LING 103. Introduction to Languages. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A course designed to help students understand how languages function through a survey and contrastive analysis of language systems, with attention to the sociocultural, psychological and historical aspects of languages. Completion of this course does not qualify a student to take the 200 level of a language without passing a language placement test. Crosslisted as: LASK 103.

LING 390. Introduction to Linguistics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. An introduction to methods of language analysis, emphasizing the study of sounds and sound patterns, and units of meaning and their arrangements. Crosslisted as: ENGL 390/ANTH 390.

LING 392. Language, Culture and Cognition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 220 or 230. Introduces theoretical and methodological foundations for the study of language from sociocultural perspectives. The perspectives include linguistic, philosophical, psychological, sociological and anthropological contributions to the understanding of verbal and nonverbal communication as a social activity embedded in cultural contexts. No prior training in linguistics is presupposed. Crosslisted as: ANTH 328/ENGL 392/FRLG 328.

LING 402. Language Issues in the Spanish-speaking World. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. Conducted in Spanish. Through a variety of topics this course explores the links between language and human behavior as exemplified by language phenomena in the Spanish-speaking world. Topics will be drawn mainly from sociolinguistics, language and culture, and education and applied linguistics. See the Schedule of Classes for the specific topic to be offered each semester. Crosslisted as: SPAN 402.

LING 450. Modern Grammar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Study of modern English grammar and usage with some attention to linguistic theory. May not be used to satisfy the literature requirement of the College of Humanities and Sciences. Crosslisted as: ENGL 450.

LING 451. History of the English Language. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. The historical development of the English language; etymology, morphology, orthography and semantics. May not be used to satisfy the literature requirement of the College of Humanities and Sciences. Crosslisted as: ENGL 451.

LING 452. Language and Gender. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. A study of relationships between gender and language focusing on such issues as differences between the ways women and men use language, relationships between language and power and ways in which language reflects and reinforces cultural attitudes toward gender. May not be used to satisfy the literature requirement of the College of Humanities and Sciences. Crosslisted as: GSWS 452/ENGL 452.

LING 453. Modern Rhetoric. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. A study of a broad range of modern rhetorical theories, emphasizing their possible relationships with linguistics, literary criticism, civic engagement and the process of writing. Crosslisted as: ENGL 453.

Mass Communications (MASC)**MASC 101. Mass Communications. 3 Hours.**

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A comprehensive overview of mass media which examines its history and evolution. Emphasis is given to the ways in which communications technologies have shaped and are shaped by society. Considers how digital and earlier technologies have led to increasing integration of world cultures and economies. Includes discussion of mass media law and ethics, including the origins and evolution of a free press and the legal framework of contemporary mass media practice.

MASC 151. Global Communications. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Explores how communication media and globalization drive each other and how they both impact the nation-state as well as international institutions. Examines how technology, the global economy and international media corporations influence culture, politics, business, law and other institutions in countries around the world. Explores the relationship between media systems and governments and how both are affected by technology and globalization. Crosslisted as: INTL 151.

MASC 201. Curiousness. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours (delivered online, face-to-face or hybrid). 3 credits. Study and practice of the first attribute for success in creativity: curiosity. Students engage in practical applications, readings, lectures, demonstrations and in-class exercises that build curiosity and help students identify and trust their natural curious nature. Provides advertising and non-advertising majors with rigorous and provocative challenges to stimulate further interest in creating for media.

MASC 203. Journalism Writing. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MASC 101 minimum grade of C, UNIV 112 or both ENGL 295 and HONR 200 with minimum grade(s) of C, and minimum cumulative GPA of 2.5. Study and practice in fact gathering and development of basic writing skills for print, broadcast and online journalism. Focuses on journalistic storytelling, grammar, Associated Press style and knowledge of current affairs.

MASC 204. Story. 3 Hours.

Semester course; 1 lecture and 4 laboratory hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MASC 101 minimum grade of C and 201 minimum grade of C, UNIV 112 or both ENGL 295 and HONR 200 with minimum grade(s) of C, and minimum cumulative GPA of 2.5. Focuses on writing for advertising and consumer communications (the best advertising tells stories to which consumers can relate). Students study the parts of a story, what makes a story interesting and how to find those things. Practice includes looking for, finding and constructing a story. A survey of many different ways storytelling is involved in making advertising. Practice in applying storytelling skills to several advertising and communication projects.

MASC 205. Introduction to Public Relations Writing. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MASC 101 with minimum grade of C; and UNIV 112 or both ENGL 295 and HONR 200 with minimum grade(s) of C. Enrollment is restricted to mass communications majors with a minimum cumulative GPA of 2.5. Introduces students to the fundamentals of effective writing in the field of public relations. Students learn the principles of rhetoric, narratives and effective storytelling and then apply these skills by writing compelling and persuasive messages for mass communications. Students also explore the basics of audience analysis and how to write for different stakeholders using brand language.

MASC 210. Public Relations. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Introduction to public relations principles and practices, including analysis of tools, media, ethical responsibilities and emerging technologies. Special attention to the theory and research literature on rational and ethical persuasion.

MASC 251. Global Health and Social Media. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An online service-learning class in which students explore the theory and practice of social media campaigns for global health issues and develop projects for nonprofit clients. The class will explore the following issues: theories and concepts of social media campaigns about global health issues; practical application of social media in health campaigns; targeting online audiences through social media; utilization of multimedia content for social media; and organizational strategies for social media to achieve social benefits.

MASC 255. Media Production Foundation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Overview of media production history, evolution and contemporary impact domestically and internationally. Focuses on the development and review of appropriate technologies and media formats, the industries and businesses who use them, and how these technologies have been and are used to create and share various types of communication messages. Examines relevant global, economic and regulatory influences and forces.

MASC 261. History and Development of Journalism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 101 with a minimum grade of C. An examination of the regulatory, technical, economic and creative foundations of print, broadcast and Web-based journalism. Historical, contemporary and ethical issues are also addressed.

MASC 274. Diversity in the Media. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MASC 101 with a minimum grade of C. Examines historical and contemporary issues associated with the presence and portrayal of selected groups in/by the media in the United States. Examines groups based on race, ethnicity, national origin, gender, sexual orientation, disability, religion and other characteristics. Issues related to diversity and diversity awareness in advertising, journalism and public relations are also explored.

MASC 285. Media Writing. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits.

Prerequisites: MASC 101 and MASC 255, each with a minimum grade of C; UNIV 112 or both ENGL 295 and HONR 200 with minimum grade(s) of C. Enrollment is restricted to mass communications majors with a minimum cumulative GPA of 2.5. Introduces students to various kinds of media writing, such as advertisements, training materials, and dramatic programming. Includes study and practice of content and styles of informational, persuasive and dramatic writing for various media platforms. Focuses on appropriate storytelling techniques, grammar and writing impact.

MASC 290. Ethical Problems in Mass Media. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 101 minimum grade of C. Examination and analysis of contemporary issues and problems in conventional and new media. The philosophical foundation and principles of ethical decision-making are explored. Critical and unresolved issues are discussed within the legal and ethical framework of modern mass media practice. Students are required to design and justify resolutions to the issues and present defenses for the resolution proposals.

MASC 291. Topics in Communications. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated once with different content. A study of a specialized topic in mass communications. See the Schedule of Classes for specific topics to be offered.

MASC 300. Technical Prowess. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MASC 203, MASC 204, MASC 205 or MASC 285 with a minimum grade of C. Examines the functions of visual and graphic communication in the print and electronic media. Focuses on mastery of graphics software and basic design principles. Students gain hands-on experience with state-of-the-art computer graphics and layout programs.

MASC 301. Graphics for Journalism. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 203 with a minimum grade of C. For journalism students only. Examines the functions of visual and graphic communication in the print and electronic media. Focuses on creative typographic and layout design principles and integrates practice in editing, graphic creation, digital-image manipulation and professional publishing. Students gain hands-on experience with state-of-the-art computer graphics and layout programs used in newspaper and magazine journalism. (May not be taken if student has taken MASC 300 or 334.).

MASC 303. Reporting for Print and Web. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 203 minimum grade of C and UNIV 200 minimum grade of C or HONR 200 minimum grade of C. Detailed study in reporting and writing news stories for print publications and websites. Focus on interviewing, writing news and features and preparing for entry-level reporting assignments. Students also will learn online presentation skills, including photos, audio, video and interactive elements.

MASC 305. Copy Editing. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MASC 300 and MASC 303, each with a minimum grade of C. Instruction and practice in basic newspaper and online editing with a focus on practical experience in editing local and news service copy for publication. Includes emphasis on headline writing, development of news judgment, accuracy and fairness, and potential legal problems for copy editors. Attention also will be paid to layout and design for newspapers and online.

MASC 317. Visual Acuteness. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MASC 300 with a minimum grade of C. Enrollment is restricted to advertising majors. Study and practice of visual problem-solving and graphic design. This course uses design thinking, conceptual thinking and process. Topics include building harmonious systems, using the typographic grid and understanding the relationship between type and image.

MASC 333. Integrated Communication Writing. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MASC 205, MASC 210, and UNIV 200 or HONR 200, each with a minimum grade of C. Enrollment is restricted to public relations students. This course is designed for students who have completed an introductory course in public relations writing to expand their skills to write for specific media channels. The course will focus on paid, owned, earned and shared media, and how to craft effective messages using industry writing tools, writing across languages, accessibility writing and writing for diverse audiences. Students will learn to use writing tools and techniques to create compelling and persuasive content for a variety of media channels.

MASC 334. Visual Communication and Design for Public Relations. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MASC 203 and MASC 210, each with a minimum grade of C. Enrollment is restricted to public relations students or media studies minors. Provides hands-on experience with current graphic design software such as Adobe Illustrator, Photoshop and InDesign while building skills for conceiving, developing and critiquing design projects for public relations. Explores theoretical and practical approaches to visual communication and message development. Exposes students to the language skills and empathy required to work with professional designers in the industry. Establishes a diverse portfolio of graphic design materials. (May not be taken if student has completed MASC 300 or MASC 301.).

MASC 335. Multimedia Production. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MASC 300 with a minimum grade of C. Multimedia technology course used to advance the digital and practical skills developed in prerequisite course. Explores current and innovative approaches to multimedia tools and technology used for communication professionals including, but not limited to, multimedia photography, audio and video storytelling, desktop publishing and website design. Explores industry trends in digital, online and mobile communication. Establishes a diverse portfolio of multimedia projects.

MASC 336. Social Media for Public Relations. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: ENGL 304, MASC 300, MASC 333 and MASC 337, each with a minimum grade of C. Enrollment is restricted to public relations students. Covers development, trends and application of social media. Focuses on social media as a strategic tool for public relations professionals. Identifies and analyzes functionality and best practices, including audience engagement, benchmarking and appropriate metrics for social media monitoring, measurement and evaluation.

MASC 337. Public Relations Strategy. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MASC 205 and MASC 210, each with a minimum grade of C. Enrollment is restricted to public relations students. Teaches the strategic process for building public relations campaigns and other communication plans. Includes thorough instruction for setting goals, objectives, strategies and tactics. Establishes a method for measuring and evaluating effectiveness in public relations efforts supplemented by industry examples and case studies.

MASC 338. Public Relations Professionalism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGL 304, MASC 333, MASC 334 and MASC 337, each with a minimum grade of C. Enrollment is restricted to public relations students. Reinforces professionalism skills and career competencies for the public relations industry. Strengthens verbal and interpersonal skills used for pitching, presenting, influencing and engaging with audiences. Institutes a plan for employment supported by skillsets in networking, job-seeking and applying, interviewing, and relationship building. Explores options for public relations career paths, development opportunities, specializations and certifications. Establishes a diverse portfolio of public relations materials.

MASC 341. Feature and Article Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 303 minimum grade of C or 363 minimum grade of C. Practice in preparing articles and features for newspapers and magazines. Emphasis is on creative journalistic writing and development of writing skills.

MASC 344. Data Journalism and Visualization. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 203; and STAT 208 or STAT 210. Enrollment is restricted to mass communications majors. A practical guide to computer-assisted reporting and data-driven storytelling. Focus on finding authoritative sources and information on the internet, analyzing data with spreadsheets and other tools and creating online graphics. Students will learn how to evaluate the reliability of electronic information and how the First Amendment and journalism ethics apply to data.

MASC 359. International Media Coverage: The Middle East. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 101 or MASC 151 with a minimum grade of C. This interdisciplinary course explores the media's role in covering cultural, political, religious and other issues in the Middle East. Students will examine the role and impact of the media in both the United States and Middle East in shaping global and regional public opinion. Using webcam and online technology, VCU students will discuss cross-cultural perspectives with students from the other U.S. universities and universities in the Middle East. Crosslisted as: WRLD 359.

MASC 363. Introduction to Broadcast Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 203 with a minimum grade of C. Corequisite: MASC 367. Students will concentrate on developing news writing and reporting skills for television and radio. Course work will include weekly writing assignments and the production of broadcast-quality radio and television stories. Knowledge of current events is essential.

MASC 367. Beginning Media Production. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: UNIV 200 with a minimum grade of C. Enrollment is restricted to mass communications majors. Focuses on the purpose, function and execution of basic techniques of media production, especially for audio and video. Emphasizes production of professional-quality media content for various applications. Covers equipment, stages of production, recording and editing.

MASC 380. Media and Culture. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MASC 203, MASC 204, MASC 205 or MASC 285 with a minimum grade of C. An advanced conversation about the development of media, technology, trends and their impact on culture. Examines the role of traditional and underrepresented media. Challenges students to critically consider the role of media against evolving changes in society.

MASC 381. Great Advertising. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 380 minimum grade of C. Explores the practitioner-oriented approach to the creation, preparation and evaluation of advertising, branding and communications. Views great advertising from the perspective of integrated marketing communication and utilizes case studies of advertising and branding campaigns for some of the world's best-known brands.

MASC 382. Acumen. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 380 minimum grade of C. Focuses on excelling in the business aspects of advertising, branding and communications. To understand an advertising client's business needs, one must understand how the client does business. Students will learn about advertising from within the context of marketing, business and commerce.

MASC 383. User Experience. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 300 with a minimum grade of C. Introduction to the strategy and design of user experiences in communications. Students learn to create both physical and digital experiences for audiences based on research, data and human behaviors. This is a class about demystifying UX design, which goes beyond web design, and using principles to improve skills students can use in any field. This includes the UX process, collaboration, design thinking, storytelling, user personas, and research, accessibility and testing. By the completion of the class, students will have knowledge of the fundamentals of UX design, be proficient in design thinking principles and have developed skills that can be used with their chosen concentration.

MASC 390. Ethical Problems in Mass Media. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MASC 203, MASC 204, MASC 205 or MASC 285 with a minimum grade of C. Examines and analyzes contemporary issues and problems in conventional and new media. Explores the philosophical foundation and principles of ethical decision-making. Discusses critical and unresolved issues within the legal and ethical framework of modern mass media practice. Students are expected to engage in active discussions both online and in class.

MASC 392. Perspicuousness. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MASC 204; and UNIV 200 or HONR 200, both with a minimum grade of C. Intensive practice in choosing the right word for the right occasion. Study of the different types of advertising copy used by both local and national advertisers. Focuses on creative thinking and inspired writing for advertising, branding and communications.

MASC 393. Creativity for Television. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 380 minimum grade of C. For mass communications majors only. Learn the process of developing professional-level television advertising with a concentration in creative thinking and solutions. Students create TV commercials with attention to scripts, storyboards, talent, visual composition, editing, music, sound effects and direction.

MASC 394. Imagination. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MASC 300 with a minimum grade of C. Study of art direction: practice in visualizing and utilizing media space aesthetically. Students complete assignments each week, ranging from traditional advertising to alternative media venues. Results are presented in front of the class for critique by faculty and fellow students.

MASC 396. Mobile and Social Media Journalism. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 303 with minimum grade of C. Integrates journalism skills and concepts from previous writing and reporting classes and adapts them to mobile and social media. Students work in a newsroom environment to utilize mobile devices and social media platforms to identify compelling story ideas, effectively break news and report on important news events and issues while applying theories and concepts of social networking to journalism. Students explore emerging technologies, develop their own professional social media portfolios and build digital communities.

MASC 397. Ubiquity. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 204 minimum grade of C. Using media to help achieve the client's ad objective. An intensive problem-based course on using mass, personal and social media to engage the consumer, to help communicate the brand's message and to add impact to a communications campaign. Students will study media planning and buying of all types of media (TV, radio, newspapers, magazines, outdoor, online and nontraditional).

MASC 398. Awareness. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 204 with a minimum grade of C. Understanding what advertisers can look for in their research and how they use research to connect with consumers. Through this intensive research practicum focused on account planning, students will learn to research consumers, competition and brands. Students will use quantitative (such as online surveys) and qualitative (such as focus groups, panel studies, one-on-one interviews) methods to research consumers and target audiences. Students will conduct competitive market research on brands.

MASC 399. Empathy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 204 with a minimum grade of C. Focuses on managing client accounts, team management, group dynamics, negotiating and presentation skills. Students learn how to persuade through understanding of others, including how to make smarter decisions, spark innovation and solve problems more quickly, and how to create a culture of candor, trust, resilience and accountability in clients and in coworkers.

MASC 401. Introduction to Podcasting. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 203, MASC 204, MASC 205 or MASC 285 with a minimum grade of C. This project-based course teaches the production skills necessary to begin a career as a podcast producer. Students will learn how to develop, pitch and produce a podcast, with a focus on the narrative and technical aspects of production. This includes the use of industry standard audio production software and hardware, research methods, scripting practices, interview techniques, and hosting.

MASC 403. Advanced Reporting. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 274 and MASC 303, both with a minimum grade of C. Enrollment is restricted to mass communications majors. Capstone course for journalism/print-online concentration. Intensive study of the techniques of reporting meetings and news of public affairs. Attention will be paid to covering governmental agencies at all levels. Instruction in newspaper editing included. Quality of writing will be a paramount and continual consideration. Emphasis on fast-paced deadlines. This course may not be taken simultaneously with MASC 404, MASC 475 or MASC 496 without permission from the instructor.

MASC 404. Specialized Project Reporting. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 274 and MASC 303, both with a minimum grade of C. Enrollment is restricted to mass communications majors. Capstone course for journalism/print-online concentration. Provides news beat experience for students reporting on complex issues facing the public in the urban community. Emphasis also on editing, team reporting, in-depth research and interviewing techniques, and use of public records. This course may not be taken simultaneously with MASC 403, MASC 475 or MASC 496 without permission from the instructor.

MASC 408. Communications Law. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MASC 203, MASC 204, MASC 205 or MASC 285 with a minimum grade of C. Study of legal issues affecting the practice of advertising, journalism and public relations. Examination and analysis of contemporary issues and problems in conventional and new media. Critical and unresolved issues are discussed within the legal framework of modern mass media practice.

MASC 409. Truth and Honor. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 204 minimum grade of C and 380 minimum grade of C. For mass communications majors only. A survey of laws pertaining to the creation of advertising, such as trademark and copyright, and to the effects of advertising in the culture. A discussion of ethical questions pertaining to persuasion, communication and the effects of advertising in the culture.

MASC 410. Media Entrepreneurship. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 285 with a minimum grade of C. Enrollment is restricted to mass communications majors. Students will execute hands-on, media-based, public-facing entrepreneurial projects with a view to how, why and for whom independent and freelance professional work rises above the noise and can serve both local and global audiences. Students will learn how to start their own business/passion-led project work with intention and diversity via partnership, collaboration, social calls and direct discourse.

MASC 415. Advanced Media Production. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 300 and MASC 367, both with a minimum grade of C. Study and practice of advanced media production skills and techniques. Focuses on audio and video production for visual storytelling, including advanced professional field production, camera operation and media editing.

MASC 423. Tourism and Hospitality Public Relations. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 203 and MASC 210, each with a minimum grade of C. Enrollment restricted to public relations students. Examines the role and practice of public relations in the tourism and hospitality industries. Students will learn how to use public relations strategies and tactics to stimulate interest among travelers in destinations and specific activities. Emphasis on media relations, special events, sponsorships/partnerships and social media.

MASC 424. Sports and Entertainment Public Relations. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 203 and MASC 210, each with a minimum grade of C. Enrollment restricted to public relations students. Examines the role and practice of public relations in the sports and entertainment industries. Students will learn the role of public relations in managing relationships with the news media, fans and fan groups, and other key audiences. Focus on media relations, social media, sponsorships/partnerships, promotions and community relations.

MASC 425. Public Relations Research Methods. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: STAT 208 or STAT 210; MASC 333 and MASC 337, each with a minimum grade of C. Enrollment is restricted to public relations students. An introduction to the role of research in public relations, with primary emphasis on content analysis, focus group, survey and communication audit methods, and the evaluation of quantitative research data.

MASC 426. Influencer Relations. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MASC 333 and MASC 336, each with minimum grade of C for public relations students; MASC 392 or MASC 398, each with a minimum grade of C for advertising students. Enrollment is restricted to public relations and advertising students. Explores the evolution and impact of online influencers such as bloggers, vloggers, reviewers and critics and their ability to affect audience decision-making. Presents strategies and best practices for identifying and cultivating strategic relationships with these influencers, as well as how to apply their influence to a larger communication strategy. Students will learn to leverage the influencer framework to generate better content and more subscribers for clients and organizations.

MASC 433. Special Events. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 203 and MASC 210, each with a minimum grade of C. Enrollment restricted to public relations students only. Students learn the theory and organizational strategies of special events as a function of public relations. Topics include client consulting, objective setting, budgeting, sponsorships, vendor negotiations and follow-up procedures.

MASC 435. Crisis Communication. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MASC 300, MASC 333 and MASC 337, each with a minimum grade of C. Enrollment is restricted to public relations students. Students learn techniques for dealing with sudden and unexpected situations that have a negative impact on organizations and their images to key constituencies. Through case studies and crisis simulation exercises, students develop strategic solutions for crisis situations. Students are provided with the insights, confidence and practical expertise needed to manage the consequences of a wide range of possible crises in ways that maintain, or even enhance, their employer's reputation.

MASC 438. Organizational Communications. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 425 with a minimum grade of C. Enrollment restricted to public relations students only. Focuses on the tools to communicate with employees, volunteers and special organizational internal publics, and how those internal messages are used to achieve the goals and objectives of organizations. Students learn the theories of organizational communication and the techniques used to conduct an internal audit of the communication climate in an organization.

MASC 439. Agency. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MASC 333, MASC 335, MASC 336, MASC 337, MASC 425 and MASC 499, each with a minimum grade of C. Corequisite: MASC 274. Enrollment is restricted to public relations students. Fast-paced, professionally driven course where students take the lead to fulfill the public relations needs of clients in the community. Working from the first class through the end of the semester, students apply theoretical and practical skillsets learned in the program to perform research, strategic plan development, tactical design and execution. Assesses students' theoretical and practical learning achieved in the program as a capstone course concluding with a final presentation for critical feedback by the client(s) and other industry professionals.

MASC 440. Media Animation. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 300 with a minimum grade of C. Enrollment is restricted to mass communications majors. Study and practice of media animation, including physical (e.g., puppets and claymation) and digital creations. Focus on development and current applications of the art form and demonstrating basic digital media animation competency through class projects.

MASC 450. Style. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MASC 392 and MASC 394, both with a minimum grade of C. Enrollment is restricted to mass communications majors. An advanced, intensive study of advertising style, forming one's own sense of style and the creative process. Emphasizing strategic and creative development of advertising campaigns. Students will conceptualize advertising campaigns, execute digitally produced, comprehensive advertisements and campaign materials, and assemble a final portfolio. Culminates in a formal portfolio review with professionals from the advertising industry.

MASC 451. Invention. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MASC 274 and MASC 450, both with a minimum grade of C. Enrollment is restricted to mass communications majors. An advanced, intensive study of inventiveness in the creative process. Emphasis on strategic and creative development of advertising campaigns that builds on what students learned about advertising style in MASC 450. Prepares students for post-graduate work or study. Students will conceptualize and produce advertising campaigns and assemble a final portfolio. Culminates in a formal portfolio review with professionals from the advertising industry.

MASC 459. Judgment. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 274, MASC 398, MASC 399 and six additional credits of MASC electives, each with minimum grades of C. Enrollment is restricted to mass communications majors. Application and demonstration of inspiration, innovation, advertising knowledge and skills. Designed to help students in the strategic concentration compile a strong, comprehensive body of work used in brand communications. Students will develop competence in evaluating communication concepts, market situations and client and agency concerns.

MASC 460. Advanced Television Newsgathering. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 363 and 367, both with minimum grade of C. Corequisite: MASC 415. Television news practicum. Using the university and the city of Richmond as their classroom, students will report, write and produce television and multimedia news stories. Electronic newsgathering and editing equipment will be utilized to create professional-caliber projects.

MASC 462. Photojournalism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 363 minimum grade of C and 367 minimum grade of C. Examination of theoretical, technical and practical use of photography in communications and reporting, along with theories and legal guidelines of photojournalism. Training in news photography (both still and video) and its application in converged media. Students must have their own manually operable 35 mm film or digital (minimum 3.2 megapixels) single lens reflex cameras with at least a 50 mm lens or a zoom lens capable of 50 mm shooting. Students will use departmental video cameras.

MASC 463. Advanced Radio Newsgathering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 363 minimum grade of C and 367 minimum grade of C. Radio practicum. Using the university and city of Richmond as their classroom, students will report, write and produce radio news stories. Studio and remote equipment will be utilized to create professional-caliber projects.

MASC 465. Newscasting. 6 Hours.

Semester course; 2 lecture and 8 laboratory hours. 6 credits. Prerequisites: MASC 274, MASC 303, MASC 415 and MASC 460, each with minimum grade of C. Concentrates on developing on-air and producing skills across television studio and field situations. Emphasizes journalistic principles in delivery of news, public affairs, editorial and interviews. Stresses grammar, diction and broadcast writing. Students are expected to create timely, proficient video news content that could be published through the Robertson Newsroom's distribution channels.

MASC 466. Television Studio Production. 3 Hours.

Semester course; 1 lecture and 4 laboratory hours. 3 credits. May be repeated for a maximum of six credits. Prerequisite: MASC 203, MASC 204 or MASC 285 with minimum grade of C. Instruction and practice in basic television and studio production. Explores standards, contemporary technologies and best-practice techniques for modern studio video production.

MASC 467. CreateAthon at VCU. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: for advertising students: MASC 392 and 394 each with a minimum grade of C, or MASC 398 and 399 each with a minimum grade of C, or approval by instructor; for public relations students: MASC 333, MASC 335 or MASC 337 with a minimum grade of C. Enrollment is restricted to mass communications majors. Students will be selected to work with area nonprofit clients to create and produce a wide variety of advertising and promotional materials. Students develop strategy, write creative briefs, recruit teams to work with them during CreateAthon at VCU (a marathon creative event held during the semester), present work to clients and follow deliverables through production. Strong emphasis on leadership and commitment to working with nonprofits.

MASC 474. Diversity in the Media. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 101 with a minimum grade of C. Enrollment restricted to mass communications majors and media studies minors. Examines historical and contemporary issues associated with the presence and portrayal of selected groups in/by the media in the United States. Examines groups based on race, ethnicity, national origin, gender, sexual orientation, disability, religion and other characteristics. Issues related to diversity and diversity awareness in advertising, journalism and public relations are also explored.

MASC 475. Capital News Service. 6 Hours.

Semester course; 2 lecture and 8 laboratory hours. 6 credits. Prerequisites: MASC 274 and MASC 303, both with a minimum grade of C. Enrollment is restricted to mass communications majors. Advanced journalism students report on complex issues facing the public. Emphasis on covering state government and politics, including the Virginia General Assembly, the governor, regulatory agencies and elections. Students are expected to create timely, proficient news content that could be published through the Capital News Service newswire and the Robertson Newsroom's other distribution channels. Strong emphasis on fast-paced deadlines.

MASC 480. Touch. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 398 minimum grade of C and 399 minimum grade of C. For mass communications majors only. Designing advertising strategies that touch the target audience and engage them in the brand. Students learn to understand the research, the consumer, the competition and the client's brand so that they can develop a strong communication strategy. This is an advanced study of the strategic side of advertising.

MASC 481. Completeness. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: creative advertising concentration: MASC 392 and 394, both with minimum grade of C; strategic advertising concentration: MASC 398 and 399, both with minimum grade of C. Enrollment is restricted to mass communications majors. Intensive study in the planning and preparation of advertising campaigns. Students develop complete advertising plans including research, media and creative strategies, sales promotion plans and merchandising plans.

MASC 483. The Documentary. 3 Hours.

Semester course; 1 lecture and 4 laboratory hours. 3 credits. Prerequisite: MASC 367 with a minimum grade of C. An exploration of techniques for television, film documentaries and docuseries. The course will center on the development, writing and production of a documentary, with students ultimately completing their own documentary project.

MASC 484. Media Foundry. 3 Hours.

Semester course; 1 lecture and 4 laboratory hours. 3 credits. May be repeated for a maximum of six credits with different topics. Prerequisites: MASC 274, MASC 415, MASC 499 and PHTO 290, each with a minimum grade of C. Enrollment is restricted to mass communications majors. Capstone course. Advanced application of perspectives and skills learned about developing stories and creating compelling media production portfolio content for various audiences.

MASC 485. Web Site Design. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 300, 301 or 334 with a minimum grade of C. Students will receive an introduction to the processes, principles and tools of website design, development and production. The course will focus on the development of strong interactive interfaces, animation, graphic images, text, and functional site design and organization. In this hands-on, computer-based course, students will design and develop a comprehensive site and launch it to the Internet. Increasing the students' knowledge of design principles and technical skills with Web development tools will be emphasized.

MASC 488. Strategic Health Communication. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 336 with a minimum grade of C. Enrollment is restricted to public relations students. Covers the design, implementation and evaluation of health-focused media campaigns, and examines behavioral theories and research on media influences with respect to both beneficial and harmful effects on well-being. Students will focus on effective message design as well as responding to emerging viral conversations, translating health communication language into language accessible for the public and designing a digital media-based health communication campaign for an actual client.

MASC 491. Topics in Communications. 1-3 Hours.

Semester course; 1-3 lecture hours (delivered online, face-to-face or hybrid). 1-3 credits. May be repeated with different topics for a maximum of nine credits. Prerequisite: MASC 203, MASC 204, MASC 205 or MASC 285, either with a minimum grade of C. An intensive study of a specialized field of mass communications.

MASC 492. Independent Study. 1-3 Hours.

Semester course; 1-3 independent study hours. 1-3 credits. Maximum of three credits per semester; may be repeated for a maximum total of six credits for all independent study courses. Prerequisite: MASC 203, MASC 204, MASC 205 or MASC 285, with a minimum grade of C. The course is designed for students who wish to study subject matter not offered elsewhere in the mass communications curriculum.

MASC 493. Fieldwork/Internship. 1-3 Hours.

Semester course; 1-3 field experience hours (delivered online, face-to-face or hybrid). 1-3 credits. May be repeated with different topics; maximum total of six credits may be applied toward graduation. Prerequisite: MASC 203, MASC 204, MASC 205 or MASC 285, with a minimum grade of C. Enrollment requires permission of internship coordinator. Selected students receive on-the-job training under the supervision of an instructor and the employer. Internships are available in a variety of media outlets and related organizations.

MASC 496. Mobile and Social Media Journalism. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 303, 363 and 367, each with minimum grade of C. Capstone course for print-online journalism students. Integrates journalism skills and concepts from previous writing and reporting classes and adapts them to mobile and social media. Students work in a newsroom environment to utilize mobile devices and social media platforms to identify compelling story ideas, effectively break news and report on important news events and issues while applying theories and concepts of online social networking to journalism. Students develop their own professional social media portfolios and build online communities. This course may not be taken simultaneously with MASC 403, MASC 404 or MASC 475 without permission from the instructor.

MASC 499. Career Minded. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MASC 398 and MASC 399, each with a minimum grade of C; or MASC 392 and MASC 394, each with a minimum grade of C; or ENGL 304, MASC 300, MASC 333 and MASC 337, each with a minimum grade of C; or MASC 303 with a minimum grade of C; or MASC 367 with a minimum grade of C. A study of emotional intelligence and transferable skills in the workplace. Students explore multi-platform interview skills, strategic networking, career plans and a professional online presence while developing career documents such as resumes that incorporate AI and applicant tracking system innovations.

Mathematics (MATH)**MATH 001. Elementary Algebra. 0 Hours.**

Semester course; 3 lecture or 3 laboratory/tutorial hours. No credit. Prerequisite: permission of the department chair. The purpose of this course is to provide laboratory and tutorial instruction for those seeking remediation or review of high school algebra. Topics include basic properties of real numbers, operations with algebraic expressions, solution of equations and inequalities, exponents and radicals, introduction to functions and graphing.

MATH 120. Seeing, Playing, Deciding – This is Math?. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Students will learn about the beautiful and often surprising interactions between mathematics and three broad areas: the visual arts, games and public policy. Representative topics include perspective in the visual arts; tessellations; origami; games and strategies in recreational settings and in the social and natural sciences; the often hidden mathematics behind public policy; and assessing quantitative claims in the public arena.

MATH 129. Introduction to College Algebra. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study in algebraic functions through graphical, numerical, symbolic and verbal representations. Topics include the exploration of linear, quadratic, polynomial, exponential and logarithmic functions. Real-world applications and the development of algebra skills are an integral part of the course. This course will not satisfy any general education requirements. Students may receive credit toward graduation for only one of MATH 129 and MATH 141.

MATH 131. Introduction to Contemporary Mathematics. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Topics include optimization problems, data handling, growth and symmetry, and mathematics with applications in areas of social choice. Major emphasis is on the process of taking a real-world situation, converting the situation to an abstract modeling problem, solving the problem and applying what is learned to the original situation. Does not serve as a prerequisite for MATH 151 or other advanced mathematical sciences courses.

MATH 139. College Algebra with Applications. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 129 with a minimum grade of C or placement through the VCU Math Placement Test within the one-year period immediately preceding the beginning of the course. An in-depth exploration of the characteristics, graphs and applications of linear, exponential, logarithmic and power functions. Topics include fundamental concepts of functions, including but not limited to transformations, inverses, arithmetic operations and composition. Opportunities to investigate, analyze and communicate findings from real-world scenarios will be supported by the use of technology. Students may receive credit toward graduation for only one of MATH 139 and MATH 141.

MATH 141. Algebra with Applications. 4 Hours.

Semester course; 4 lecture hours (delivered online, face-to-face or hybrid). 4 credits. Prerequisite: one year of high school algebra and satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. Topics include concepts and applications of linear, exponential, logarithmic, power and quadratic functions; graphing; transformations and inverses of functions; algebra and composition of functions. Students may not receive credit toward graduation for both MATH 141 and either MATH 129 or MATH 139.

MATH 151. Precalculus Mathematics. 4 Hours.

Semester course; 3 lecture and 1 mathematics laboratory/recitation hours. 4 credits. Prerequisite: MATH 139 or MATH 141 with a minimum grade of C, or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case where the stated alternative prerequisite course has been completed at VCU. Concepts and applications of algebra and trigonometry. Topics include graphics, transformations and inverses of functions; linear, exponential, logarithmic, power, polynomial, rational and trigonometric functions.

MATH 191. Topics in Mathematics. 1-3 Hours.

Semester course; 1-3 credits. May be repeated for credit. A study of selected topics in mathematics. For a course to meet the general education requirements it must be stated in the Schedule of Classes. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

MATH 200. Calculus with Analytic Geometry I. 4 Hours.

Semester course; 4 lecture hours. 4 credits. Prerequisite: MATH 151 with a minimum grade of C or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. Limits, continuity, derivatives, differentials, antiderivatives and definite integrals.

MATH 201. Calculus with Analytic Geometry II. 4 Hours.

Semester course; 4 lecture hours. 4 credits. Prerequisite: MATH 200 with a minimum grade of C. Applications of differentiation and integration. Selected topics in analytic geometry. Infinite series.

MATH 211. Mathematical Structures. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 151, MATH 200, MATH 201 or BUSN 212* with a minimum grade of C, or calculus-level placement on the VCU Mathematics Placement Test within the one-year period immediately preceding enrollment in the course. An alternative prerequisite course may be approved at the discretion of the academic adviser. An introduction to mathematical logic and set theory, including applications in Boolean algebras and graph theory. *Previously MGMT 212, SCMA 212.

MATH 230. Mathematics in Civilization. 3 Hours.

Semester course; 3 lecture hours. 3 credits. For Honors College students only. The growth, development and far-reaching applications of trigonometry, navigation, cartography, logarithms and algebra through ancient, medieval, post-Renaissance and modern times are explored. Will include methods to solve mathematical problems using various historical procedures and will involve collaboration through group projects.

MATH 255. Introduction to Computational Mathematics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201 with a minimum grade of C. (A core course for mathematics/applied mathematics majors.) An introduction to computer algebra systems (CAS) and their use in mathematical, scientific and engineering investigations/computations. Introductory mathematical computer programming using a CAS, including implementation of problem-specific algorithms.

MATH 291. Topics in Mathematics. 1-3 Hours.

Semester course; 1-3 credits. May be repeated for credit. A study of selected topics in mathematics. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

MATH 300. Introduction to Mathematical Reasoning. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201 with a minimum grade of C. (A core course for mathematics/applied mathematics majors.) An introduction to basic concepts of mathematical reasoning and the writing of proofs in an elementary setting. Direct, indirect and induction proofs. Illustrations of the concepts include basic proofs from mathematical logic, elementary set theory, elementary number theory, number systems, foundations of calculus, relations, equivalence relations, functions and counting with emphasis on combinatorial proofs.

MATH 301. Differential Equations. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201 with a minimum grade of C. Solutions of ordinary differential equations of first order. Solutions of higher order linear differential equations with constant coefficients and variable coefficients by the methods of undetermined coefficients and variation of parameters, solutions by Laplace transforms and applications.

MATH 302. Numerical Calculus. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 255 (or knowledge of a programming language/mathematical software package) and MATH 201, each with a minimum grade of C, or permission of the instructor. An introduction to numerical algorithms for solving systems of linear equations, finding zeroes, numerical differentiation and definite integration, optimization.

MATH 303. Investigations in Geometry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 361 with a minimum grade of C. Enrollment is restricted to students majoring in programs to prepare early childhood and elementary teachers (B.S.Ed. in Elementary Education and Teaching and B.S.Ed. in Early Childhood Education and Teaching). A study of topics in Euclidean geometry to include congruence, similarity, measurement, coordinate geometry, symmetry and transformation in both two and three dimensions. These topics will be investigated using manipulatives and computer software.

MATH 305. Elementary Number Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 300 with a minimum grade of C. Divisibility, congruences, Euler phi-function, Fermat's Theorem, primitive roots, Diophantine equations.

MATH 307. Multivariate Calculus. 4 Hours.

Semester course; 4 lecture hours. 4 credits. Prerequisite: MATH 201 with a minimum grade of C. The calculus of vector-valued functions and of functions of more than one variable. Partial derivatives, multiple integrals, line integrals, surface integrals and curvilinear coordinates. Lagrange multipliers; theorems of Green, Gauss and Stokes. Applications.

MATH 310. Linear Algebra. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 139 or MATH 141 with a minimum grade of C or a score on the VCU Mathematics Placement Test sufficiently high to place into MATH 151. Systems of linear equations, vector spaces, linear dependence, bases, dimensions, linear mappings, matrices, determinants, quadratic forms, orthogonal reduction to diagonal form, eigenvalues and geometric applications.

MATH 324. Mathematical Problem Solving. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 300 and MATH 310, each with a minimum grade of C. A study of mathematical problem solving in areas of mathematics related to secondary mathematics education. Promotes the development of problem-solving skills through the use of explicit strategies, reflective practice and collaborative reasoning. Also provides the knowledge, skills and dispositions to support the development of mathematical problem solving in secondary mathematics students. A course designed for the secondary teacher preparation concentration.

MATH 350. Introductory Combinatorics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201 with a minimum grade of C. An introduction to basic combinatorial concepts such as combinations, permutations, binomial coefficients, Fibonacci numbers and Pascal's triangle; basic theorems such as the pigeonhole principle and Newton's binomial theorem; algorithms such as bubble sort and quicksort; and discussion of basic applications such as chessboard problems, combinatorial games, magic squares and Latin squares.

MATH 351. Applied Abstract Algebra. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 300 with a minimum grade of C. A survey of several areas in applied abstract algebra which have applications in computer science such as groups, codes, matrix algebra, finite fields and advanced graph theory.

MATH 353. Experimental Mathematics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201 with a minimum grade of C. An introduction to a mathematical computing package, computer manipulation of lists and sets, and symbolic computing. Numerical computation will be used to investigate mathematical objects, such as integers, prime numbers, graphs, matrices and to identify properties and patterns among these objects. Random methods will be used to explore properties and patterns in long sequences and large collections.

MATH 356. Graphs and Algorithms. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201 with a minimum grade of C. An introduction to basic graph theoretic concepts such as trees, colorings and matchings; basic theorems such as the handshaking lemma and the Gallai identities; algorithms such as Dijkstra's and Kruskal's; and discussion of famous open problems such as finding shortest tours for a traveling salesman.

MATH 361. Numbers and Operations. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 131, STAT 208 or STAT 210 with a minimum grade of C. Pre- or corequisite: TEDU 101. Enrollment is restricted to students majoring in programs to prepare early childhood and elementary teachers (B.S.Ed. in Elementary Education and Teaching and B.S.Ed. in Early Childhood Education and Teaching). Ways of representing numbers, relationships between numbers, number systems, the meanings of operations and how they relate to one another, and computation within the number systems as a foundation for algebra. The course includes structured observations of elementary-level students.

MATH 362. Algebra and Functions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 361 with a minimum grade of C. Enrollment is restricted to students majoring in programs to prepare early childhood and elementary teachers (B.S.Ed. in Elementary Education and Teaching and B.S.Ed. in Early Childhood Education and Teaching). This course will explore a variety of numerical topics including proportional reasoning, number theory and algebraic concepts. Attention will be given to the transition from arithmetic to algebra, working with quantitative change, and the description and prediction of change. Topics will be investigated through problem-solving and mathematical discourse. The course includes structured observations of elementary-level students.

MATH 380. Introduction to Mathematical Biology. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisites: MATH 200 and BIOL 151, both with a minimum grade of C, or permission of instructor. An introduction to mathematical biology. Various mathematical modeling tools will be covered and implemented in a range of biological areas. Additionally, the collaborative research process will be presented and discussed. Crosslisted as: BNFO 380.

MATH 391. Topics in Mathematics. 1-3 Hours.

Semester course; 1-3 credits. May be repeated for credit. A study of selected topics in mathematics. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

MATH 401. Introduction to Abstract Algebra. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 300 and MATH 310, each with a minimum grade of C. An introduction to groups, rings and fields from an axiomatic point of view. Coset decomposition and basic morphisms.

MATH 404. Algebraic Structures and Functions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 300 and MATH 310, each with a minimum grade of C; one additional mathematical sciences course. Enrollment requires permission of the instructor. Groups and semi-groups, rings, fields, and integral domains. Study of the main connections between abstract algebra and the secondary mathematics curriculum. A course designed for the secondary mathematics concentration.

MATH 407. Real Analysis. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 300 with a minimum grade of C. Theoretical aspects of calculus. Topics include properties of real numbers, countable and uncountable sets, sequences and series, limits, continuity, derivatives, and Riemann integration.

MATH 409. General Topology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 407 with a minimum grade of C. Foundations and fundamental concepts of point-set topology. Topological spaces, continuity, convergence, connected sets, compactness, product spaces, quotient spaces, function spaces, separation properties.

MATH 411. Excursions in Geometry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 300, MATH 307 and MATH 310, each with a minimum grade of C. An introduction to the fundamental concepts of geometry on manifolds. A study of charts and atlases, local and global properties, regular and rational functions and maps, and smoothness and tangent spaces. Other topics may include Riemannian metrics, projective varieties or integration on manifolds.

MATH 415. Numerical Methods. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 255, MATH 301 and MATH 310, each with a minimum grade of C. Numerical methods for interpolation, solving systems of linear equations and initial value problems (ordinary differential equations) and the exploration of computational error.

MATH 424. Modeling with Mathematics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: STAT 212, MATH 255 and MATH 310, all with a minimum grade of C, or permission of instructor. A study of mathematical modeling for teaching secondary mathematics, including different types of and purposes for mathematical models and designing modeling tasks. Provides the knowledge, skills and dispositions to teach mathematical modeling. A course designed for the secondary mathematics concentration.

MATH 427. Excursions in Analysis: Real. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 307, MATH 310 and MATH 407, each with a minimum grade of C. May be repeated once for credit with a different emphasis and permission of the instructor. Intensive study of ideas and applications from real analysis.

MATH 428. Excursions in Analysis: Complex. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 307, MATH 310 and MATH 407, each with a minimum grade of C. May be repeated once for credit with a different emphasis and permission of the instructor. Intensive study of ideas and applications from complex analysis.

MATH 429. Excursions in Analysis: Applied. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301, MATH 307, MATH 310 and MATH 407, each with a minimum grade of C. May be repeated once for credit with a different emphasis and permission of the instructor. Intensive study of ideas and applications from applied analysis.

MATH 430. The History of Mathematics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 300, MATH 307 and MATH 310, all with a minimum grade of C. Geared toward students intending to teach secondary mathematics this course surveys major trends in the development of mathematics from ancient times to the modern era and considers the cultural and social contexts of mathematical activity.

MATH 431. Expositions in Modern Mathematics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 300, MATH 307, MATH 310, and either MATH 301 or OPER 327, all with a minimum grade of C. Descriptively studies several major ideas relevant to present-day mathematics, such as the advent of pure abstraction, difficulties in the logical foundations of mathematics, the impact of mathematics and statistics in the 20th century and the computer revolution.

MATH 432. Ordinary Differential Equations. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 300, MATH 301, MATH 307 and MATH 310, each with a minimum grade of C. Existence and uniqueness of solutions, linearization and stability analysis, Lyapunov stability theory, periodic solutions, and bifurcations. Applications and simulations are emphasized.

MATH 433. Partial Differential Equations. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 300, MATH 301, MATH 307 and MATH 310, each with a minimum grade of C. Parabolic (heat), hyperbolic (wave) and elliptic (steady-state) partial differential equations are studied. Solution techniques such as separation of variables, reflection methods, integral transform methods and numerical methods are demonstrated. Practical problems and applications are emphasized.

MATH 434. Discrete Dynamical Systems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 300, MATH 301, MATH 307 and MATH 310, each with a minimum grade of C. Theory and applications of difference equations including existence and uniqueness of solutions, linearization and stability, periodic solutions, and bifurcations.

MATH 435. Mathematical and Computational Modeling. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301 and MATH 310, each with minimum grade of C. Focuses on general mathematical modeling principles. A variety of application areas are explored through a complete model development cycle. This process involves the theoretical development of a mathematical model, implementation of a computational solution and exploration of the solution within the context of the application area.

MATH 454. Using Technology in the Teaching of Mathematics. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MATH 200 and STAT 212, each with a minimum grade of C; six additional credits in the mathematical sciences; and permission of the instructor. Using graphing calculators, calculator-based labs and computer software packages in teaching topics in algebra, geometry, trigonometry, statistics, finance and calculus.

MATH 480. Methods of Applied Mathematics for the Life Sciences: Discrete. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301, MATH 307, MATH 310 and MATH 380, each with a minimum grade of C. Focuses on the use of discrete dynamical system models to describe phenomena in biology and medicine. Students will explore the theoretical mathematics necessary to analyze these models. Computational solutions to these models will be developed and implemented to validate the models and to further explore the biological phenomena.

MATH 481. Methods of Applied Mathematics for the Life Sciences: ODE. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301, MATH 307, MATH 310 and MATH 380, each with a minimum grade of C. Focuses on the use of ordinary differential equation models to describe phenomena in biology and medicine. Students will explore the theoretical mathematics necessary to analyze these models. Computational solutions to these models will be developed and implemented to validate the models and to further explore the biological phenomena.

MATH 482. Methods of Applied Mathematics for the Life Sciences: PDE. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301, MATH 307, MATH 310 and MATH 380, each with a minimum grade of C. Focuses on the use of partial differential equation models to describe phenomena in biology and medicine. Students will explore the theoretical mathematics necessary to analyze these models. Computational solutions to these models will be developed and implemented to validate the model and to further explore the biological phenomena.

MATH 490. Mathematical Expositions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: UNIV 200 or HONR 200 with a minimum grade of C. Enrollment is restricted to seniors in mathematical sciences with a minimum of 85 credit hours taken toward the degree. Required for all majors in the Department of Mathematics and Applied Mathematics. A senior capstone course in the major designed to help students attain proficiency in expository mathematical writing and oral presentation, which require the efficient and effective use of mathematics and the English language. Students will learn a variety of topics in mathematics, write reviews of selected award-winning mathematics papers and write a senior paper.

MATH 492. Independent Study. 1-4 Hours.

Semester course; variable hours. 1-4 credits. Maximum 4 credits per semester; maximum total of 6 credits. Generally open only to students of junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration for the course. The student must submit a proposal for investigating some area or problem not contained in the regular curriculum. The results of the student's study will be presented in a report.

MATH 493. Mathematical Sciences Internship. 3 Hours.

Semester course; the equivalent of at least 15 work hours per week for a 15-week semester. 3 credits. Mathematical sciences majors only with junior or senior standing. Admission by permission from the department chair. Through placement in a position in business, industry, government or the university, the student will serve as an intern in order to obtain a broader knowledge of the mathematical sciences and their applications.

Military Sciences (MILS)**MILS 101. Military Science and Leadership: Introduction to the Army. 1 Hour.**

Semester course; 1 lecture and 1 laboratory hour. 1 credit. Introduces students to fundamental components of service as an officer in the U.S. Army. Forms building blocks of progressive lessons in values, fitness, leadership and officership. Also addresses "life skills" including communications theory and practice (written and oral) and interpersonal relationships.

MILS 102. Military Science and Leadership: Foundations of Agile and Adaptive Leadership. 1 Hour.

Semester course; 1 lecture and 1 laboratory hour. 1 credit. Introduces students to "life skills" of problem-solving, decision-making and leadership. Designed to help students be more effective as leaders, both immediately on campus and in the long term in either military or civilian life. Introduces students to fundamental officer skills such as map reading, land navigation, tactics and leadership values/actions. Using these basic skills, students will build a rudimentary understanding of the core competencies necessary to become an Army officer and leader.

MILS 201. Military Science and Leadership: Leadership and Decision Making. 2 Hours.

Semester course; 2 lecture and 1 laboratory hours. 2 credits. Prerequisites: MILS 101 and MILS 102 or permission of department chair. Explores the dimensions of creative and innovative tactical leadership strategies and styles by examining team dynamics and two historical leadership theories that form the basis of the Army leadership framework. Aspects of personal motivation and team building are practiced by planning, executing and assessing team exercises, and by participating in leadership labs. The course continues to develop knowledge of leadership values and attributes through understanding Army rank, structure and duties as well as broadening knowledge of land navigation and squad tactics. Case studies provide a tangible context for learning the Soldiers Creed and Warrior Ethos as they apply in the contemporary operating environment.

MILS 202. Military Science and Leadership: Army Doctrine and Team Development. 2 Hours.

Semester course; 2 lecture and 1 laboratory hours. 2 credits. Prerequisite: MILS 201 or permission of department chair. Examines the challenges of leading tactical teams in the complex contemporary operating environment (COE). Highlights dimensions of terrain analysis, patrolling and operation orders. Continued study of the theoretical basis of the Army leadership framework explores the dynamics of adaptive leadership in the context of military operations. Cadets develop greater self-awareness as they assess their own leadership styles and practice communication and team-building skills. COE case studies give insight into the importance and practice of teamwork and tactics in real-world scenarios.

MILS 203. Military Science and Leadership: Leader's Training Course. 6 Hours.

0-6 credits. Prerequisites: enrollment in the ROTC program, military service obligation and permission of department chair. Five-week summer course consisting of leadership training at Fort Knox, Ky. Completion of this course equates to completion of MILS 101, 102, 201 and 202, and enables students to enroll in the advanced military leadership courses. Amount of academic credit awarded depends upon amount of basic military science credit previously earned. Travel pay and salary provided through Department of Military Science and Leadership. Graded pass/fail.

MILS 301. Military Science and Leadership: Training Management and the Warfighting Function. 3 Hours.

Semester course; 3 lecture and 1 laboratory hours. 3 credits. Prerequisites: MILS 101, MILS 102, MILS 201 and MILS 202 (or MILS 203), permission of department chair and military service obligation. Challenges cadets to study, practice and evaluate adaptive team leadership skills as they are presented with the demands of the ROTC Leader Development and Assessment Course. Challenging scenarios related to small unit tactical operations are used to develop self-awareness and critical thinking skills. Cadets receive systematic and specific feedback on leadership abilities.

MILS 302. Military Science and Leadership: Applied Leadership in Small Unit Operations. 3 Hours.

Semester course; 3 lecture and 1 laboratory hours. 3 credits. Prerequisite: MILS 301 or permission of department chair. Provides instruction and case studies that build upon leadership competencies and military skills attained in MILS 301 in preparation for future responsibilities as Army officers. Specific instruction is given in individual leader development, planning and execution of small unit operations, individual and team development, and the Army as a career choice.

MILS 306. Military Science. 0 Hours.

0 credit. Prerequisite: MILS 302 and successful completion of four basic military science courses or MILS 203 Basic Military Science for six credits. ROTC National Advanced Leadership Camp. The ROTC camp summer practicum is six weeks long. Individual and group experience for application of leadership training. Exposure to leadership situations that require decisions made under physical and mental stress conditions.

MILS 401. Military Science and Leadership: The Army Officer. 3 Hours.

Semester course; 3 lecture and 1 laboratory hours. 3 credits. Prerequisite: MILS 302 or permission of department chair. Develops student proficiency in planning, executing and assessing complex operations, functioning as a member of a staff, and providing performance feedback to subordinates. Cadets are given situational opportunities to assess risk, make ethical decisions and lead fellow ROTC cadets. Lessons on military justice and personnel processes prepare cadets to make the transition to becoming Army officers. MS IV (senior) cadets lead lower-level cadets. Both classroom and battalion leadership experiences are designed to prepare MS IV cadets for their first unit of assignment. Cadets identify responsibilities of key staff, coordinate staff roles and use battalion operations situations to teach, train and develop subordinates.

MILS 402. Military Science and Leadership: Company Grade Leadership. 3 Hours.

Semester course; 3 lecture and 1 laboratory hours. 3 credits. Prerequisites: MILS 301, MILS 302 and MILS 401, or permission of department chair. Explores the dynamics of leading in the complex situations of current military operations in the contemporary operating environment. Cadets examine differences in customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism. Cadets also explore aspects of interacting with non-government organizations, civilians on the battlefield and host nation support. Course places significant emphasis on preparing cadets for Basic Officer Leadership courses and their first unit of assignment. Utilizes case studies, scenarios and "What now, Lieutenant?" exercises to prepare cadets to face the complex ethical and practical demands of leading as a commissioned officer in the U.S. Army.

MILS 492. Military Science and Leadership: Independent Study. 1-3 Hours.

Semester course; 1-3 independent study hours. 1-3 credits. Maximum of 3 credits per semester; maximum total of 6 credits for all independent study courses. Enrollment is restricted to students of junior or senior standing who have acquired a minimum of 12 credits in military science and leadership. Determination of the amount of credit and permission of the department must be obtained prior to registration. The course is a mechanism to continue students' study of leadership and Army doctrine when they have exhausted all other available military science courses. Students will critically examine several historical and contemporary leaders through the lens of different theories of leadership. These theories will come from the Army's leadership model, as well as those used in the civilian sector. At the conclusion of this course, students will have mastered the Army's leadership model and be prepared to develop subordinate leaders as second lieutenants in the U.S. Army. Graded as pass/fail.

New Media and Textual Studies (NEXT)**NEXT 240. Reading Technology, Media and Culture. 3 Hours.**

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Builds on students' ability to analyze texts, media and associated cultural productions, emphasizing critical thinking, relationships between forms and cultural contexts. Individual sections may focus on a particular theme, unifying question or interdisciplinary approach.

NEXT 383. Digital Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A survey of current topics in the critical study of digital media.

NEXT 491. Topics in Digital Studies: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of six credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. Focused study of specific topics in the critical study of digital media.

Operations Research (OPER)**OPER 327. Mathematical Modeling. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 200. Fundamental concepts of mathematical modeling. Topics may include differential equation models, optimization models and probabilistic models. Practical problems will be discussed throughout.

OPER 391. Topics in Operations Research. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a maximum of 6 credits. A study of selected topics in operations research. See the Schedule of Classes for specific topics to be offered each semester and prerequisites. Because of the changing subject matter to be treated in this course, enrollment requires permission of the instructor.

OPER 427. Deterministic Operations Research. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 245 or CMSC 255, MATH 310 and OPER 327. Introduction to topics in optimization including linear programming, network models and integer programming. Focuses on constructing sound models and on solving them using appropriate software. Algorithms and model properties are also discussed. Students may not receive degree credit for both OPER 427 and OPER 527.

OPER 428. Stochastic Operations Research. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 245 or CMSC 255, MATH 310 and STAT 309. Introduction to topics in discrete-event and Monte Carlo simulation including the application of probabilistic models in real-world situations, random number generation, random variate generation and Monte Carlo integration. Students may not receive degree credit for both OPER 428 and OPER 528.

Philosophy (PHIL)**PHIL 101. Introduction to Philosophy. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. An introduction to some of the main branches of philosophy. Some of the issues that might be addressed are: What is knowledge? Is reason or experience the basis for all knowledge? Can we have knowledge of the past or of the future? What is truth? Does God exist? Is there a mental realm separate from the material realm? Are the laws of nature deterministic? Do we have free will? What makes an action morally permissible? What is the proper role of the state in regulating our lives? This course is directed primarily at first- and second-year students.

PHIL 103. Ancient Greek and Medieval Western Philosophy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of Western philosophy from the ancient Greeks (e.g., Socrates, Plato and Aristotle) through the medieval period (e.g., Augustine and St. Thomas Aquinas).

PHIL 104. Modern Western Philosophy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of Western philosophy from the Renaissance to the 19th century (e.g., Hobbes, Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, Kant, Hegel and Marx).

PHIL 201. Introduction to Ethics. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. An introduction to the main topics in moral philosophy. Includes a discussion of contemporary moral issues. Possible topics include the morality of abortion, animal rights, world hunger, pornography, capital punishment, sexual behavior, environmental ethics and reverse discrimination.

PHIL 202. Ethics of Artificial Intelligence. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. An exploration of the nature of artificial intelligence and the ethical questions raised by its use and creation. Possible topics include the moral status of AI, the nature of consciousness, whether AI is capable of thought and reason, the value alignment problem, algorithmic bias, responsibility for actions chosen by AI, transparency in AI decision-making, data privacy and existential risks to humanity posed by AI.

PHIL 211. History of Ethics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 112 or both ENGL 295 and HONR 200. A philosophical investigation of the main concepts and theories of ethics and their application to fundamental moral questions, as illustrated by the ethical systems of such historically important Western philosophers as Plato, Aristotle, Augustine, Hume, Mill and Kant.

PHIL 212. Ethics and Applications. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 112 or both ENGL 295 and HONR 200. A philosophical investigation of the main concepts and theories of ethics, with applications to fundamental moral questions as they arise in different areas. Such problems as abortion, the welfare of animals, world hunger, pornography, capital punishment, nuclear defense, sexual behavior, environmental ethics and reverse discrimination may be used as illustrations.

PHIL 213. Ethics and Health Care. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 112 or both ENGL 295 and HONR 200. A philosophical investigation of the main concepts and theories of ethics, with applications to fundamental moral questions as they arise in health care. The following issues may be used as illustrations: abortion, euthanasia and the right to die, human experimentation, treating mental illness, genetic technologies, the concepts of health and disease, and the funding of health care.

PHIL 214. Ethics and Business. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 112 or both ENGL 295 and HONR 200. A philosophical investigation of the main concepts and theories of ethics, with applications to fundamental moral questions as they arise in business. The following issues may be used as illustration: affirmative action, investment in unethical companies or countries, product safety, whistle blowing and advertising.

PHIL 221. Critical Thinking. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to inductive and deductive reasoning, with emphasis on common errors and fallacies.

PHIL 222. Logic. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An evaluation of deductive arguments utilizing the methods of symbolic logic.

PHIL 230. Reason, Science and the Self. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Open to Honors College students only. The reasonableness of a belief often depends on the arguments that support it. One primary goal of this course is to sharpen the abilities to identify, analyze and assess arguments. Another primary goal is to show how to apply critical reasoning skills to philosophical explorations of the nature of science, knowledge and personal identity.

PHIL 250. Thinking About Thinking. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 112 or both ENGL 295 and HONR 200. An interdisciplinary course about thinking. Covers the development of the principles of reasoning, such questions as how thinking relates to behavior and brain activity and how to think about specific areas of our lives, such as science, morality, religion, the arts and the law.

PHIL 291. Topics in Philosophy. 1-4 Hours.

Semester course; variable hours. 1-4 credits. Prerequisite: as specified in the Schedule of Classes or written permission of instructor. An introductory study of an individual philosopher, a particular philosophical problem or a narrowly defined period or school. See the Schedule of Classes for specific topics to be offered each semester.

PHIL 300. Philosophical Concepts. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHIL 101, PHIL 103 or PHIL 104; and PHIL 221 or PHIL 222; and one more PHIL course; or permission of instructor. An introduction to basic philosophical concepts and distinctions to be used throughout various areas of philosophy. These concepts and distinctions include universals/particulars, realism/anti-realism, intension/extension, modality, possible worlds, analytic/synthetic, a priori/a posteriori, linguistic/mental content and internalism/externalism.

PHIL 301. Metaphysics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHIL 101, PHIL 103 or PHIL 104; and PHIL 221 or PHIL 222; and one more PHIL course; or permission of instructor. An examination of central metaphysical issues. Topics may include free will and determinism, identity, time, causation, personhood, and universals and particulars.

PHIL 302. Epistemology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHIL 101, PHIL 103 or PHIL 104; and PHIL 221 or PHIL 222; and one more PHIL course; or permission of instructor. An examination of central epistemological issues, for example, the problem of justification, empirical knowledge, perception, rationality and truth.

PHIL 303. Philosophy of Language. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: 9 credits in philosophy including PHIL 222 and 6 additional credits, at least 3 of which must be from PHIL 101, PHIL 103 or PHIL 104, or permission of the instructor. An examination of central issues in the philosophy of language; for example, the nature of meaning and reference, reductionism, properties of languages and the character of artificial symbols systems.

PHIL 304. Philosophy of Mind. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHIL 101, PHIL 103 or PHIL 104; and PHIL 221 or PHIL 222; and one more PHIL course; or permission of instructor. An examination of central issues in the philosophy of mind. Topics may include the mind-body problem, consciousness, the self, artificial intelligence and the language of thought.

PHIL 320. Philosophy of Law. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: 9 credits in philosophy, which must include PHIL 221 or PHIL 222; and PHIL 201, PHIL 202, PHIL 211, PHIL 212, PHIL 213 or PHIL 214. A critical examination of the nature of law and criminal justice in the light of important human values. The following topics will be considered: the nature of law and legal reasoning, the legal enforcement of morality, and such controversies as punishment versus rehabilitation and the right to due process versus the need for public safety.

PHIL 322. Tibetan Buddhism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A basic introduction to the history, development and mythology of the Buddhism of Tibet focusing on the Indian heritage and shared basis of all Buddhist practices, a clear identification of the three vehicles found in Buddhism, and a careful consideration of the path of the Bodhisattva, the hero of Great Vehicle Buddhism. Crosslisted as: RELS 322.

PHIL 324. Indian Religious Traditions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A systematic analysis of the major theories of Indian religious and philosophical thought: Vedas, Upanishads, Gita, Charvaka, Jainism, Buddhism, the six systems of Hinduism and contemporary developments. Crosslisted as: INTL 324/ RELS 324.

PHIL 326. Existentialism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHIL 101, PHIL 103, PHIL 104, PHIL 201, PHIL 211, PHIL 212, PHIL 213, PHIL 214, PHIL 221 or PHIL 222. An examination of the nature of truth, freedom, responsibility, individuality and interpersonal relations as found in some principal writings of Kierkegaard, Nietzsche, Jaspers, Sartre, Heidegger, Camus, Buber and Marcel. Crosslisted as: RELS 326.

PHIL 327. Normative Ethics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHIL 221 or PHIL 222; PHIL 201, PHIL 202, PHIL 211, PHIL 212, PHIL 213 or PHIL 214; and three additional credits of philosophy; or permission of instructor. A study of issues in systematic normative ethics, including such topics as egoism, consequentialism, utilitarianism, deontology and the theory of the virtues.

PHIL 328. Metaethics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHIL 222; PHIL 201, PHIL 202, PHIL 211, PHIL 212, PHIL 213 or PHIL 214; and three additional credits of philosophy; or permission of instructor. A study of issues in the semantics and metaphysics of ethics. Such topics as the following will be discussed: the objectivity of ethical judgements, the semantic value of ethical judgements and the possibility of ethical knowledge.

PHIL 331. Philosophy of Science. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: 3 credits of philosophy and 6 credits of natural sciences courses. An examination of the bases of scientific inquiry in both the natural and social sciences; including a study of such topics as hypothesis formation and testing, and the nature of scientific laws, theories and explanations.

PHIL 332. Philosophy of Artificial Intelligence. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: PHIL 201 or PHIL 202. An in-depth exploration of some of the philosophical foundations and consequences of artificial intelligence. Possible topics include relevant history of philosophy, standard philosophical criticisms of AI and different explanations for its success, whether AI can offer explanations, adversarial examples, the transparency/interpretability problem, the legal philosophy surrounding automated agents, concerns about bias in AI, and the use of AI in aesthetics, art and scientific data analysis.

PHIL 335. Social and Political Philosophy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: 9 credits in philosophy, which must include PHIL 221 or PHIL 222, and one of PHIL 201, PHIL 202, PHIL 211, PHIL 212, PHIL 213 or PHIL 214; or permission of instructor. A critical examination of political power and of the relationship between the individual and society. Possible topics include: anarchism and the justification of having a state at all; political views about what sort of state is justified (e.g., conservatism, liberalism, communitarianism, feminism, Marxism); private vs. collective property; market vs. planned economies; democracy vs. totalitarianism; and civil disobedience and revolution.

PHIL 340. Philosophy for Children. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: two philosophy courses, which must include at least one of PHIL 101, 103 or 104. A service-learning course requiring at least 15 hours of service in which students will be required to lead philosophical discussions with primary/secondary schoolchildren. An analysis of perennial philosophical questions and problems with the aim of introducing them to children. Some of the questions that might be addressed include: What is happiness? What is justice? What is a mind? Can a mind exist apart from a body? Can machines think? What is time? What is knowledge? What are the limits of human knowledge?

PHIL 391. Topics in Philosophy. 1-4 Hours.

Semester course; variable hours. 1-4 credits. Prerequisite: as specified in the Schedule of Classes or permission of instructor. A study of an individual philosopher, a particular philosophical problem or a narrowly defined period or school. See the Schedule of Classes for specific topics to be offered each semester.

PHIL 412. Zen Buddhism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. A study of Zen Buddhism, including backgrounds in Indian philosophy and practice, development in China and Korea, and present-day Zen theory and practice in Japan and in Western countries. Crosslisted as: RELS 412/INTL 412.

PHIL 421. Aesthetics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHIL 101, 103, 104, 201, 211, 212, 213, 214, 221 or 222. A critical survey of philosophies of art from antiquity to the 20th century. Topics include: the nature of art, creativity, aesthetic experience and aesthetic judgments.

PHIL 430. Philosophy of Religion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHIL 101, PHIL 103, PHIL 104, PHIL 201, PHIL 211, PHIL 212, PHIL 213, PHIL 214, PHIL 221 or PHIL 222. An introduction to the major problems and questions of religion and reason. Special reference will be made to the nature of God, the nature of man, the problem of evil, the source of good, immortality and the basis of authority. Crosslisted as: RELS 430.

PHIL 440. Mysticism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. A critical analysis of the varieties of mysticism in world religions. Arguments for and against mysticism will be emphasized. Mysticism will be related to art, psychology, science, philosophy, theology and magic. Crosslisted as: RELS 440.

PHIL 490. Seminar in Philosophy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of six credits. Prerequisite: PHIL 300, PHIL 301, PHIL 302, PHIL 303, PHIL 304, PHIL 320, PHIL 327, PHIL 328 or PHIL 335 (or permission of instructor in exceptional cases). Research and analysis of selected philosophical topic in a seminar setting. Must be taken at least once as a senior (i.e., after the completion of at least 85 credit hours toward the degree) to satisfy the capstone requirement.

PHIL 492. Independent Study. 1-4 Hours.

Semester course; variable hours. Variable credit. Maximum of 6 credits per semester; maximum total of 12 credits for all independent study courses. Open generally to students of only junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. An independent study course to allow interested majors in philosophy to do research, under the direction of a professor qualified in that field, in an area of major interest.

PHIL 496. Senior Research Project. 1-4 Hours.

Semester course; 1-4 credits. Prerequisites: Senior status; two courses from PHIL 301, 302, 303, 320, 327, 335, 391; and written approval by faculty supervisor. An individual research project to develop a polished journal-length research paper. This course is intended primarily for students who wish to develop a dossier paper for submission to a philosophy graduate program.

Physics (PHYS)**PHYS 101. Foundations of Physics. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. For non-science majors. Introduction to the fundamental ideas of physics. The course covers selected topics in mechanics, heat, optics, electricity and magnetism, and modern physics. Not applicable toward the physics major. An optional laboratory may be taken with this course; see PHYZ 101.

PHYS 103. Elementary Astronomy. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A descriptive approach to astronomy dealing with basic features of our solar system, our galaxy and the universe. Not applicable toward physics major. An optional laboratory may be taken with this course; see PHYZ 103.

PHYS 107. Wonders of Technology. 4 Hours.

Semester course; 5 lecture/laboratory/recitation hours. 4 credits. Introduction to physics concepts involved in everyday technological applications. The course covers selected topics in mechanics, heat, optics, electricity and magnetism, and modern physics by depicting their role in common devices. The laboratory focuses on applications of physics principles to everyday real-life situations. Not applicable toward the physics major.

PHYS 201. General Physics I. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: MATH 151. Designed primarily for life-science majors. Basic concepts of motion, waves and heat. Not applicable toward the physics major.

PHYS 202. General Physics II. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: PHYS 201 or PHYS 207. Designed primarily for life-science majors. Basic concepts of electricity, magnetism, light and modern physics. Not applicable toward the physics major.

PHYS 207. University Physics I. 5 Hours.

Semester course; 3 lecture, 1 recitation and 3 laboratory hours. 5 credits. Prerequisite: MATH 200 or permission of instructor. A vector- and calculus-based introduction to the fundamental concepts of mechanics, heat and wave motion.

PHYS 208. University Physics II. 5 Hours.

Semester course; 3 lecture, 1 recitation and 3 laboratory hours. 5 credits. Prerequisite: PHYS 207. Corequisite: MATH 201. A vector- and calculus-based introduction to the fundamentals of electricity, magnetism and optics.

PHYS 211. Physical Analysis. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 201 and PHYS 208. Corequisite: MATH 307. Extends the discussion of physical phenomena introduced in prerequisite courses to introduce topics and skills needed for more advanced physics courses. Topics include applying complex analysis to wave motion and oscillations, methods to solve problems in mechanics and an introduction to classical thermodynamics using multivariate analysis.

PHYS 215. Science, Technology and Society. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examination of scientific breakthroughs that have led to transformational technologies that are continuing to impact society today. Topics include a historical perspective, an understanding of scientific principles and technologies and an examination of how such discoveries have changed society. Not applicable toward physics major.

PHYS 291. Topics in Physical Science. 1-3 Hours.

Semester course; 1-3 lecture or laboratory hours. 1-3 credits per semester. A study of a selected topic in physics, astronomy, geology, meteorology or oceanography. Not applicable toward physics major. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

PHYS 301. Classical Mechanics I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 208 with a minimum grade of B or PHYS 211 with a minimum grade of C; and MATH 307. Corequisite: MATH 301. Review of vector calculus. Newtonian mechanics: single particle, oscillations, motion under central forces and dynamics of systems of particles.

PHYS 302. Classical Mechanics II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 301 and MATH 301. Motion in noninertial frames, dynamics of rigid bodies, coupled oscillators, continuous systems and wave equations in one dimension.

PHYS 307. The Physics of Sound and Music. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: A 100- or 200-level physics course or equivalent and the ability to read music or sing or play a musical instrument, or permission of instructor. Basics of the physics of waves and sound. Fourier synthesis, tone quality, human ear and voice, musical temperament and pitch, physics of musical instruments, electronic synthesizers, sound recording and reproduction, room and auditorium acoustics. Not applicable toward the physics major. Crosslisted as: MHIS 307.

PHYS 315. Energy and the Environment. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment restricted to non-physics majors with junior or senior standing; not applicable to the physics major. A study of society's demands for energy, how it is currently being met, the environmental consequences thereof and some discussion of alternatives. Crosslisted as: ENVS 315.

PHYS 317. Preparing for the MCAT and Medical Sciences. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 152, CHEM 102, PHYS 202 or PHYS 208. This course introduces physics majors to areas of medical practice where physical sciences play a key role. These include but are not limited to radiology and radiation oncology, orthopedics, pulmonology, and electrophysiology. Students will also review key topics in physics and life sciences that are tested on the Medical College Admissions Test. Broadly, these include chemical and physical foundations of biological systems as well as biological and biochemical foundations of living systems.

PHYS 320. Modern Physics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 208 and MATH 307. Corequisite: MATH 301. Foundations of modern physics including special relativity, thermal radiation and quantization, wave-particle duality of radiation and matter, Schrodinger equation, atomic, nuclear and particle physics, and molecular structure and spectra. A continuation of PHYS 208.

PHYS 325. Visualization of Physics Using Mathematica. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 208 and MATH 307. Corequisite: PHYS 301 or PHYS 320. Visualization of various areas of physics using the Mathematica language for performing numerical calculations and producing graphics and animations. Examples will be taken from classical mechanics, classical electromagnetism, modern physics, statistical mechanics and condensed matter physics.

PHYS 335. Experimental Skills for Physicists. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: PHYS 320 and PHYS 320. Practical skills in experimental physics, including understanding and use of circuit-based electronics, critical-thinking, error analysis and writing research papers. Skills will be used to address engaging and current real-world challenges.

PHYS 340. Statistical Mechanics and Thermodynamics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 301 and MATH 301. Microscopic theory of temperature, heat and entropy, kinetic theory, multicomponent systems, and quantum statistics. Mathematical relationships of thermodynamics.

PHYS 351. Guided Inquiry for University Physics I. 1.5 Hour.

Semester course; 1 lecture and 1 recitation hour. 1.5 credits. Prerequisites: PHYS 207 and permission of instructor. Student learning assistants aid in recitation sections of PHYS 207 University Physics I using guided inquiry and group-based activities. Further develops the core skills of PHYS 207. Introduces students to the principles of active and collaborative learning in physics through practical, hands-on problem-solving, class discussions and demonstrations.

PHYS 352. Guided Inquiry for University Physics II. 1.5 Hour.

Semester course; 1 lecture and 1 recitation hour. 1.5 credits. Prerequisites: PHYS 208 and permission of instructor. Student learning assistants aid in recitation sections of PHYS 208 University Physics II using guided inquiry and group-based activities. Further develops the core skills of PHYS 208. Introduces students to the principles of active and collaborative learning in physics through practical, hands-on problem-solving, class discussions and demonstrations.

PHYS 376. Electromagnetism I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 301 and MATH 301. Electrostatics, magnetism and electromagnetic properties of matter, Maxwell's equations, electromagnetic waves, boundary conditions, and polarization.

PHYS 377. Electromagnetism II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHYS 376. Advanced topics in electromagnetism, such as the microscopic theory of magnetism, slowly varying currents, physics of plasmas, electromagnetic properties of superconductors, Maxwell's equations and propagation of electromagnetic waves in bounded media, dispersive media, electromagnetic radiation, electrodynamics of moving charges, and the relativistic formulation of electrodynamics.

PHYS 380. Quantum Physics I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 301, PHYS 320 and MATH 301, or permission of instructor. Brief introduction to the correspondence between classical and quantum mechanics, Schrodinger wave equation, operator methods in quantum mechanics, angular momentum and conservation laws, solution to harmonic oscillator and the hydrogen atom, magnetic dipole momentum and spin.

PHYS 391. Topics in Physics. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits per semester. Maximum total of 6 credits. In-depth study of a selected topic in physics or physics-related technology, usually at a level requiring only elementary algebra. Not applicable toward physics major. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

PHYS 397. Directed Study. 1-3 Hours.

Semester course; variable hours. 1-3 credits per semester. Maximum of 3 credits applicable toward physics major requirement; maximum total of 4 credits. Open to nonmajors. Determination of amount of credit and permission of instructor must be obtained before registration of course. Intended to allow nonmajors and majors to examine in detail an area of physics or physics-related technology not otherwise available in upper-level courses. May involve either directed readings or directed laboratory work.

PHYS 417. Topics in Biophysics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 208, CHEM 102 and BIOL 152. An introduction to biophysics examining many topics in life sciences. The course will introduce how to understand phenomena in life sciences from a quantitative perspective and use physical models for complex systems. Topics include Brownian motion, mechanical and chemical equilibrium, electrostatics, molecular machines, pattern formation and physical tools in biology.

PHYS 420. Quantum Physics II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHYS 380 or permission of instructor. Transition rates, addition of angular momentum, multi-electron atoms-ground state, X-ray and optical excitations, time independent perturbation theory, relativistic hydrogen atom and the structure of atoms, collision theory, nuclear structure, elementary particles and their symmetries.

PHYS 422. Optics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHYS 376 or permission of instructor. Comprehensive study of propagation of light, including geometrical optics, polarization, interference, diffraction, Fourier optics and quantum optics.

PHYS 425. Computational Physics and Data Analysis. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHYS 340. Introduces students to topics in computational physics and computational tools used for data analysis. This course teaches basic skills in programming in the context of applying them to biophysics-related problems. It is assumed that students have no computer programming experience, but have a modest understanding of physical systems.

PHYS 440. Introduction to Condensed Matter Physics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 340 and 380. Corequisite: PHYS 376. Structure and bonding in solids, phonons, free electron Fermi gas, energy bands, semiconductors, Fermi surface, optical properties and magnetism.

PHYS 450. Senior Physics Laboratory. 3 Hours.

Semester course; 1 lecture and 4 laboratory hours. 3 credits. Prerequisites: PHYS 301 and 320, and PHYZ 320. Experiments in condensed matter physics with an introduction to the instrumentation and data analysis used in the research laboratory.

PHYS 470. Introduction to Nanoscience. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHYS 320. An overview and introduction to a wide range of topics in nanoscience and nanotechnology from the point of view of physics, chemistry, engineering and biology. Takes a systems-based approach to demonstrate how different nano-concepts come together to create systems with unique functions and characteristics.

PHYS 480. Particle Physics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 340, PHYS 376 and PHYS 420. Basic concepts of particle physics, including the Dirac equation, lowest-order quantum electrodynamics calculations, scattering amplitudes and cross sections, the weak interaction, processes involving quarks and their symmetries, and quantum chromodynamics.

PHYS 483. Introduction to Astrophysics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHYS 320. Basic concepts of star formation and evolution, galactic structures, and cosmology. Includes stellar atmospheres and interiors, the sun, the Milky Way and other galaxies, and black holes.

PHYS 490. Seminar in Conceptual Physics. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisites: PHYS 340, PHYS 376, PHYS 380 and PHYZ 320. Restricted to seniors in physics with at least 85 credit hours taken toward the degree. A senior capstone course in physics designed to help students formulate physics-related questions in such a way that they can obtain quantitative answers. Students will describe their results in a senior paper and in an oral presentation.

PHYS 491. Topics in Physics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Maximum of 3 credits applicable toward physics major requirement; maximum total of 6 credits. An in-depth study of a selected topic in physics. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

PHYS 492. Independent Study. 1-3 Hours.

Semester course; variable hours. 1-3 credits per semester. Maximum of 3 credits applicable toward physics major requirement; maximum total of 8 credits. Open generally to students of only junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. Independent projects in experimental or theoretical physics.

Physics Lab (PHYZ)**PHYZ 101. Foundations of Physics Laboratory. 1 Hour.**

Semester course; 2 laboratory hours. 1 credit. Corequisite: PHYS 101. An optional laboratory consisting of experiments and activities correlated with PHYS 101.

PHYZ 103. Elementary Astronomy Laboratory. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: PHYS 103. An optional laboratory course consisting of experiments and activities related to PHYS 103.

PHYZ 320. Modern Physics Laboratory. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisite: PHYS 320. Experimental work correlated with PHYS 320.

Political Science (POLI)**POLI 103. U.S. Government and Politics. 3 Hours.**

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A study of American national government focusing on its underlying political ideas, constitutional basis, major institutions and their interaction in the determination of public policy.

POLI 105. International Relations. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. An introductory analysis of interstate relations and world affairs. Attention focuses on theories of international politics, military capabilities and their application, international organizations, global economic trends, domestic sources of state behavior and other selected issues as appropriate. Crosslisted as: INTL 105.

POLI 107. Political Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces students to the great thinkers and ideas of political theory. Provides an analysis of the relationship between ethics and politics in contemporary democracy and current challenges to traditional democratic theory. Topics discussed may include the nature of human existence and civilization; political obligations between the state and the citizen and among citizens; attempts to justify authority; the content and uses of power; and the right to disobedience and resistance, freedom, social justice, and equality.

POLI 109. Comparative Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces students to the ways in which societies around the world govern themselves. Covers such topics as the historical evolution of the political system, political processes and institutions, and key issues in contemporary public policy for a globally representative group of 10 to 15 countries.

POLI 300. Issues in American Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An exploration of several significant issues in American politics. Topics may include political polarization, political misinformation and disinformation, electoral reforms, activism, and social movements, as well as selected others. Topics will vary with current events and trends in domestic politics.

POLI 301. U.S. Parties and Elections. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An overview of U.S. political parties and elections. Topics will include the history, organization and methods of U.S. political parties, presidential nominations and elections; Congressional elections.

POLI 302. Politics of the Civil Rights Movement. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The main objectives of the course are to introduce and examine the personalities and activities of the modern Civil Rights Movement. The course provides the historical background leading up to the peak years of the struggle for racial equality in America. It has special focus on the events of the 1960s and particularly their implication for the current state of U.S. Civil Rights. Crosslisted as: AFAM 302.

POLI 303. Public Opinion and Polling. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The study of the formation, expression and influence of individual and organized public opinion on political institutions in the U.S. Topics include how the public forms and expresses attitudes, how public opinion influences political outcomes and how public opinion is measured and analyzed.

POLI 304. Presidential Primaries. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment requires permission of the instructor. Introduces students to the historical and political contexts of presidential primary campaigning. Investigates candidate strategy and ways candidates seek out money, media coverage and grassroots organization. Includes a week-long trip to New Hampshire during the first-in-the-nation primary to provide students with hands-on experience. Offered as an intersession class during presidential election years.

POLI 305. Political Campaigns and Communication. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of political campaigns focusing on presidential elections. Analysis includes the study of electoral contexts, political mobilization, campaign organizational structures and strategies, campaign rhetoric, and the evolution of campaign-related technology such as polling and social media.

POLI 306. The Congress. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the behavior of legislators and the structures and processes of legislative decision making in the U.S. Congress. Analysis will include both the internal and external environment of congressional policy making, and an assessment of the impact of congressional policy.

POLI 307. Political Behavior. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces students to the major theoretical approaches and empirical research in the field of mass political behavior, with a particular emphasis on how individuals develop their ideologies and party identifications, as well as how those and other factors shape political decisions.

POLI 308. U.S. Presidency. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A political and institutional study of the chief executive, focusing especially on the presidential personality and relations with Congress, the bureaucracy, the courts and the shaping of domestic and foreign policy.

POLI 309. Bureaucratic Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An analysis of the nature of bureaucracy and bureaucratic phenomena in American governments; the role and involvement of the bureaucracy in politics and the policy-making process. Primary focus on theories and approaches to understanding the central role of bureaucracy in modern society and its use and abuse of power.

POLI 310. Public Policy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An analytical survey of policy formulation and implementation in the United States, together with an examination of the impact of policy upon individuals and groups in American society.

POLI 311. Politics of the Environment. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An exploration of the current controversy about environmental politics and the issues and crises it centers on. Special attention will be given to the constitutional, political and geographical factors in the development of environmental policy and the organized effort to deal with governmental actions and inaction and its impact on policy outcomes. Crosslisted as: ENVS 311.

POLI 312. Media and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Provides a general overview of how media influence political attitudes and political behavior. Students will analyze the role of new media, soft media and infotainment and how it mediates political messages to the general public. Students will also explore the effects of various types of communications on Americans' attitudes and behaviors, including the rise of "fake news," partisan media, mis- and disinformation, and fact-checking.

POLI 313. U.S. Constitutional Law: Civil Rights and Civil Liberties. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the major provisions of the U.S. Constitution concerning civil rights and civil liberties as interpreted by the U.S. Supreme Court. Topics to be covered include how the federal courts enforce individual rights found in the Constitution, limitations on governmental actions and the use of the Constitution as a starting point for discussions of the nation's need to balance competing interests of individuals, government and societal values.

POLI 314. U.S. Constitutional Law: Structure of Government. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the development of the Constitution as it pertains to the structure of U.S. government. Topics to be covered include an introduction to the operation of the Supreme Court, separation of powers, decisions on federalism, the powers of Congress, the president, the judiciary and judicial review.

POLI 315. Courts and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of theories and models of judicial decision-making in the Supreme Court, focusing on judicial structure and procedures, policy-making analysis, political ideology, and judicial activism.

POLI 316. Women and the Law. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will introduce students to the history, politics and status of women under the American legal system. Topics to be covered may include equal protection, sexual violence, the particular rights of women of color and lesbians, reproductive rights of women of color and lesbians, reproductive rights, women criminals and women in the legal profession. Crosslisted as: GSWS 316.

POLI 318. Politics of Race, Class and Gender. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the racial, class and gender influences on the history and development of political values, conflicts, processes, structures and public policy in the United States. Crosslisted as: AFAM 318/GSW 318.

POLI 319. Women and American Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course analyzes the participation of women in American politics. Attention is given to both women's historical and contemporary roles in politics, their participation as voters and citizens, and their behavior as candidates and office holders. Additional topics may include workplace, family and education issues and reproductive rights. Crosslisted as: GSW 319.

POLI 320. Research Methods in Political Science. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will familiarize you with the basic principles of conducting political science research. The course will review the scientific method as it applies to politics, introduce a variety of approaches to the study of political science, and practice core research skills.

POLI 321. Urban Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of urban political power and influence, governance, and public policy. Topics include: power and influence, governmental structures and the political process, public policy, and service delivery.

POLI 322. State and Local Government and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of the politics and governance of states and localities. Attention is devoted to political culture, interest groups, political parties, the legislative, executive and judicial components of state government, along with the structure and political processes of local governments.

POLI 323. Virginia Government and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of Virginia state government and politics, with appropriate attention given to political culture, interest groups, political parties, the media and the legislative, executive and judicial branches of government.

POLI 324. The Science of Elections. 3 Hours.

Semester course; 3 lecture hours. 3 credits hours. This course examines the electoral systems used in the United States and in other democracies from a scientific perspective to illuminate the links between the design of elections and democratic outcomes. It provides an introduction to social choice and voting theory and surveys contemporary challenges, such as gerrymandering, voter suppression and political manipulation.

POLI 329. Intergovernmental Relations. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of vertical and horizontal intergovernmental relations. Attention will be given to the major variants of federalism. The role of categorical and block grants in programmatic federalism will be assessed. Trends in intergovernmental relations will be advanced.

POLI 330. Lobbying. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Provides students with a practical overview of lobbying in the U.S. system, including its historical context; how different types of groups use lobbying as a tactic to influence government; and regulations and ethical considerations. Students will have a working knowledge of the American lobbying industry; the types of groups that employ lobbying as a political strategy to attain their organizational goals; and how money is used within the American system.

POLI 331. Public Administration. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the concepts and practices of public administration in the United States. Particular attention will be given to the administrative procedures and practices of the national government and of the government in Virginia.

POLI 332. Administrative Law. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Survey of the major functions of the modern administrative state as interpreted by the U.S. Supreme Court. Topics to be covered include the constitutional and legal authority of bureaucratic agencies, rulemaking and adjudication, and judicial review of agency action. Emphasizes the tensions found in the administrative process, how administrators try to address them while performing their jobs and how the environment surrounding administrative behavior affects administrators trying to do their work.

POLI 339. Politics in Film. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Addresses how political ideas and concepts are created and propagated in film. Views the film industry as a critically important agent of political socialization.

POLI 340. Feminist Political Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course provides a survey of leading feminist political theory ideas from historic to contemporary feminist works, including feminist epistemologies, ontologies and ideas about politics, governance, government, citizenship, agency, equality, difference, sex, gender, race, nationalism, economics, family and reproduction.

POLI 341. History of Political Theory: Classical to Modern. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of leading political ideas of the ancient and medieval periods.

POLI 342. History of Political Theory: Modern to Contemporary. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of leading political ideas of modern and contemporary thought.

POLI 343. Black Political Thought. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An historical and sociological perspective on the political and social ideas of black thinkers from David Walker to the present. Crosslisted as: AFAM 343.

POLI 344. Contemporary Political Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course provides a survey of recent trends in political theory. It examines updates of the major ideological traditions, arguments about the nature of modernity and recent developments in environment, feminist and non-Western thought.

POLI 345. African-American Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. In this course, students will discuss and analyze the dynamics of the black experience in the American political system. The status of African-Americans in the United States and the struggle for racial equality will be examined, as will the manner in which American institutions have responded to these phenomena. Students will examine the race/class metric in African-American politics, particularly policies of Affirmative Action as a black progress strategy. Crosslisted as: AFAM 345.

POLI 346. Black Political Activism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces students to the long history of Black political activism in the United States, focusing on racial justice and anti-racist movements. Utilizes historical, social scientific and legal frameworks.

POLI 347. Black Queer Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credit hours. Examines the history, key issues and contemporary scholarship of Black queer politics. Focuses on themes of justice, equity, gender, sexuality and race.

POLI 350. Democratic and Authoritarian Rule. 3 Hours.

Semester course; 3 lecture hours. 3 credit hours. An examination of the nature of democratic and authoritarian rule in a cross-regional perspective. We explore several fundamental issues in comparative politics, such as the differences and similarities between democratic and authoritarian regimes and the forces that create and destroy them.

POLI 351. Middle Eastern Government and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A comparative analysis of political systems in the Middle East including the study of contemporary aspects of traditionalism, the political nature of transition, the instruments of political modernization, and evolution and revolution in the political process of Middle Eastern states. The course will explore the primary bases of cleavage and conflict and the principal forces that shape the policies and political dynamics of the region. Crosslisted as: INTL 351.

POLI 352. European Governments and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A comparative study of the political systems of selected western and eastern European countries. Crosslisted as: INTL 352.

POLI 353. Latin American Governments and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of politics characteristic of Latin American systems, including democratic reformism, military authoritarianism and revolutionary socialism. The course also examines the contemporary problems of fledgling democracies as they cope with economic and debt crises and various opposition challenges. Crosslisted as: INTL 353.

POLI 354. Russian and Eurasian Government and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the origins, institutions, processes and disintegration of the Soviet political system and the ongoing reform efforts during the post-Soviet period. Special emphasis is placed on the politics of the transition to a democratic political system and a market economy. Other topics include nationality issues, social problems and foreign policy. Crosslisted as: INTL 354.

POLI 355. Asian Governments and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A comparative analysis of the politics and governments of major Asian states, with a focus on Japan, China and India. Crosslisted as: INTL 355.

POLI 356. African Government and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will introduce students to the basic outlines of government and politics in Africa. The course will consider such topics as colonialism, elitism, and nationalism and modernization strategies. Using the comparative approach, the course will primarily focus on West, East and Central Africa. Crosslisted as: AFAM 356/INTL 356.

POLI 357. Politics of Southern Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of racial and political developments in the southern tip of Africa. While South Africa will be the primary focus of analysis, other countries in the region such as Zimbabwe, Angola and Mozambique will be studied. Crosslisted as: AFAM 357/INTL 357.

POLI 358. Concepts of Comparative Government. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Comparative study of politics and governments. Introduces concepts and theories used in the study of political systems. Topics include democratization and democratic governance, the role of the state, one-party and military regimes, revolution, and economic and political development. Crosslisted as: INTL 358.

POLI 359. The Politics of Developing Areas. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Analysis of the processes of political and economic development. Includes a study of various challenges facing developing countries, such as economic inequalities, environmental degradation, mass political participation, military coups, revolution and civil war. Crosslisted as: INTL 452.

POLI 360. China in Transition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Traces how China is making the transition from a planned to market economy, and what implications this transition has on the political, social and urban landscape. Class discussions are grounded on a basic understanding of China's modern history and regional geography. Crosslisted as: INTL 480.

POLI 361. Issues in World Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An exploration of several significant issues in world politics. Topics may include peacekeeping and collective security, international economic competitiveness, global environmental politics as well as selected others. Topics will vary with current events and trends in the international arena. Crosslisted as: INTL 361.

POLI 362. International Organizations and Institutions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the background development structure and operations of organizations and institutions such as the United Nations, the European Community and the Organization of American States. Crosslisted as: INTL 362.

POLI 363. U.S. Foreign Policy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An analytical survey of processes and practices in the formulation of U.S. foreign policy, including an introduction to the goals, problems of implementation and current challenges faced by policy makers. Crosslisted as: INTL 363.

POLI 364. Vietnam. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An analysis of the complete record of the conflict in Vietnam. The primary focus will be on the period of U.S. involvement. The course will examine closely how and why the U.S. became involved in Vietnam and what impact the Vietnam War has had on political institutions and behavior. In particular, the course will examine what impact the period of U.S. involvement has had upon U.S. foreign policy. The course also will consider additional topics including public opinion and the war, the relationship between the president and Congress in light of the war, and contemporary U.S. politics as a backlash against the political movements of the 1960s. Crosslisted as: INTL 364.

POLI 365. International Political Economy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of both theoretical and current policy issues in international political economy. Theories to be covered include liberalism, mercantilism, Marxism, regionalism, world systems theory and others. Policy issues include differing styles of capitalism in the industrialized world, the political economy of development, the politics of international corporate alliances and others. Crosslisted as: INTL 365.

POLI 366. Women and Global Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of women and global politics, providing both a feminist re-examination of traditional international-relations theories and a comparative analysis of the political, legal and economic status of the world's women. The impact of women on global political institutions such as the United Nations will be addressed as well as other feminist and grass roots means of taking political action. Crosslisted as: GSWS 366/INTL 368.

POLI 367. Terrorism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the modern problem of terrorism with an emphasis on the political nature of terrorist acts. Examines the history of terrorism, domestically within the U.S. and internationally, the role of religion, the structures and operations of terrorist organizations, as well as counterterrorism policies and policy-making. Crosslisted as: HSEP 301.

POLI 368. Comparative National Security Policy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of national security policies and policy-making in a diverse set of nation-states. Emphasis is placed on comparing how threat perception, historical context, ideology, political structure and leadership impact national security policies of both powerful and weak nation-states. Crosslisted as: INTL 468.

POLI 369. U.S. National Security. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of key issues in U.S. national security including national security decision-making, the use of force, military intervention, nuclear strategy and strategic arms control, ballistic missile defense, the transformation of war due to technology and globalization, defense policy, planning and budgeting, the impact of technology on strategy from airpower to cyberspace and robotics, and critical regional issues.

POLI 370. Foundations of Nonprofit Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the history and foundations of the nonprofit agency in the U.S. and abroad. Compares and contrasts relationships between business, government and the nonprofit sector. Discusses requirements for formalizing and managing nonprofit organizations from the perspectives of the volunteer board and employees. Examines issues of accountability, policy, research and resource development.

POLI 372. Ethics, Law and Governance. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines how legal, legislative and public policy issues affect the development and growth of nonprofit organizations. Examines ethical principals and legal issues related to personnel and employment, as well as the goals of advocacy and its importance to nonprofit practitioners.

POLI 374. Financial Management for Nonprofits. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines how nonprofit organizations are influenced by prices, distribution of goods and services and the distribution of income and wealth. Topics include financial-statement analysis, time-value of money, budgeting concepts and techniques, securities valuation, long- and short-term financial planning issues and working capital management. Designed to develop skills in decision-making in financial management of the nonprofit organization.

POLI 375. Fund Development and Grant Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the parameters within which nonprofit managers raise funds; the historical, organizational, legal and ethical contexts of fundraising for nonprofit organizations; the philosophy of philanthropy in the U.S. and the various motivations for giving; and practical guidelines for identifying potential donors.

POLI 376. The Politics of Food. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course examines how access to and availability of food and water are shaped by both international and domestic politics. From the Farm Bill to the United Nations, and through the study of explicit crops and commodities, the course will help to explain why there are millions of people who are food insecure, from the most underdeveloped to the richest countries in the world.

POLI 377. European Security. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will explore the various historical and contemporary factors behind European security. Students will learn more about pivotal moments from Europe's past that provide valuable lessons about state behavior, diplomacy, conflict and peace, and then apply these lessons to current events and even try to anticipate what will happen in the future.

POLI 378. East Asian International Relations. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the major international relationships in East Asia: the rivalry between China and Japan; the trilateral dynamics of China, Japan and Korea; Southeast Asian nations' interactions with major powers and each other; the inter-Korean stalemate; and the role of non-East Asian states, particularly the U.S. and Russia. Special attention is given to the impact of the rise of China in the 21st century.

POLI 379. African Development and Democracy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course examines how the strategic use of violence, social divisions and other conflicts have obstructed Africa's economic and political development.

POLI 380. Human Security. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the key elements of human security: the positive and negative impacts of globalization, the rise and impact of civil violence within many nations, the dilemmas of the aid industry, the impact of non-state actors, and issues related to chronic poverty, food security and water security.

POLI 381. The Politics of Genocide. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of genocide as a recurring social and political phenomenon. The course begins with a study of the Holocaust within the context of transnational dynamics including colonialism, antisemitism and racial theory.

POLI 382. International Health. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the basic principles of international and comparative health, as well as the national and international institutional structures in place to address health challenges. Focuses on the political, economic, social and individual burdens of inadequate health to societies and the international community. The implementation of global health programs and methods used to evaluate them are studied in detail.

POLI 383. The Middle East and North Africa in Transition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of the political, social and economic aspects of the "new" Middle East and North Africa after what has come to be known as "The Arab Spring." Topics addressed include a historical and geographical overview of the Arab world prior to the mass uprisings, an examination of the political and economic motivations for popular unrest in several Arab countries, the role of women and youth movements as well as social media in mass demonstrations that happened in several Arab countries, the wider regional and global impact of the uprisings, and an assessment of the Arab world today.

POLI 384. International Law. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Covers the rules and practices of international law as a vehicle for exploring the relations among states, international organizations and individuals within the international system.

POLI 385. International Security. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the theoretical and policy structures underlying international relations -- specifically international security relationships -- between and among nation-states.

POLI 386. Environmental Security. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Focuses on how the availability of natural resources affect human civilization and how political power artificially determines their accessibility.

POLI 387. Politics of the European Union. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Exposes students to the history, institutions and policies of the European Union alongside key issues facing the EU and its member states.

POLI 388. International Relations Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the international theoretical and policy structures underlying international relations and specifically how to make general explanations across world politics. It will provide a conceptual understanding of international relations theories, international politics, the role of logic and evidence in crafting explanations and, ultimately, how to square conflicting explanations of international systems.

POLI 389. Politics of Immigration. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will look at the politics of immigration from a comparative perspective: grounded in the U.S. but examining immigration rules, migration patterns and diaspora communities in other countries as well.

POLI 391. Topics in Political Science. 3 Hours.

Semester course; 0-3 lecture hours (delivered online, face-to-face or hybrid). 0-3 credits. A maximum total of nine credits in all departmental topics courses may be applied to the major. An intensive survey of a specialized field of political interest.

POLI 448. Scope and Method of Political Science. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: POLI 103 or permission of instructor. A comprehensive and systematic study of the philosophy of political science, various theories seeking to explain political phenomena and some of the techniques of political analysis.

POLI 490. Senior Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: 24 credits in political science courses or permission of instructor. A capstone course examining the major ideas and debates in each of the four sub-fields of the discipline of political science: American government, political theory, comparative politics and international relations. Students are required to produce a research project on a critical issue in one of the sub-fields.

POLI 491. Topics in Political Science. 3 Hours.

Semester course; 0-3 lecture hours. 0-3 credits (delivered online, face-to-face or hybrid). Maximum total of 9 credits in all departmental topics courses may be applied to the major. An intensive survey of a specialized field of political interest.

POLI 492. Independent Study. 1-4 Hours.

Semester course; variable hours. Variable credit. Maximum of 4 credits per semester; maximum total of 6 credits for all independent study courses. Open generally to students of only junior or senior standing who have acquired at least 12 credits in political science. Determination of the amount of credit and permission of the instructor and department chair must be obtained prior to registration of the course. An independent study course that allows a political science major or other student who meets the requirement to do research, under the direction of an instructor qualified in that area, in a subject or field of major interest.

POLI 493. Political Science Internship. 1-6 Hours.

Semester course; variable hours. 1-6 credits. (50 hours per credit.) May be repeated for a maximum of 6 credits. Permission of internship coordinator required. Restricted to political science majors, nonprofit management and administration minors and public management minors. Provides an opportunity to relate theory to practice through observation and actual experience within the field of political science. Graded as pass/fail.

POLI 494. Political Science Mentorship. 1-3 Hours.

Semester course; variable hours. 1-3 credits. Prerequisites: 24 credits in political science courses including POLI 103, 105, 107 and 109, permission of instructor, and 3.3 GPA in POLI courses. May be repeated for a maximum of 6 credits. A mentorship course that allows students to develop advanced research skills, to experience managing a classroom and to present the results of their research in a classroom setting. Different sections of the course specialize in different subfields of political science: U.S. government, comparative politics, international relations and political theory.

POLI 495. Vertically Integrated Projects. 1-2 Hours.

Semester course; 1-2 research hours. 1-2 credits. May be repeated for a maximum total of eight credits. Enrollment requires permission of the project faculty adviser. This course provides undergraduate students the opportunity to participate in multiyear, multidisciplinary research projects under the guidance of faculty in their areas of expertise. As they address research and development issues, students learn and practice many different professional skills, make substantial contributions to the project and experience many different roles on a large, multidisciplinary design/discovery team.

Portuguese (PORT)

PORT 101. Beginning Portuguese I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment requires any student with previous exposure to Portuguese to take the placement test to determine eligibility. For students with no prior knowledge of Portuguese. Beginning grammar, reading, writing, reading and oral skills.

PORT 102. Beginning Portuguese II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PORT 101 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Continuation of beginning grammar, reading, writing and oral skills.

PORT 201. Intermediate Portuguese I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PORT 102 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Portuguese. Building toward intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

PORT 202. Intermediate Portuguese II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PORT 201 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Portuguese. Increasing intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

PORT 391. Topics in Portuguese. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated with different topics for a maximum of 12 credits. Prerequisite: PORT 202. An in-depth study of selected topics in Portuguese. See the Schedule of Classes for specific topic to be offered each semester.

Psychology (PSYC)

PSYC 101. Introduction to Psychology. 4 Hours.

Semester course; 3 lecture and 1 computer-assisted laboratory hours (delivered online, face-to-face or hybrid). 4 credits. A survey of the basic principles, methods of investigation and fields of study and application. Includes individualized application of principles and methods in computerized learning activities. This course is a prerequisite for upper-level work in the field of psychology.

PSYC 202. Discovering the Major: Psychology. 1 Hour.

Semester course; 1 lecture hour (delivered online or face-to-face). 1 credit. Prerequisite: PSYC 101. An exploration of the academic career within psychology. Promotes academic success and lifelong learning, as well as raises awareness of what the psychology major offers.

PSYC 214. Applications of Statistics. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: PSYC 101 and STAT 210 both with a minimum grade of C. Frequency distributions, measures of central tendency and variability; sampling, probability, correlation and significance tests as applied in psychological data.

PSYC 301. Child Psychology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. A study is made of the growth and development of the child until puberty. Childlike is viewed in terms of physical, mental, social, emotional and educational factors. PSYC 304 Life Span Developmental Psychology also may not be taken for credit.

PSYC 302. Psychology of Adolescence. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PSYC 101. A study of mental, moral, social and physical development from puberty to maturity viewed as in child psychology. Designed for secondary school teachers, youth leaders and professional psychologists.

PSYC 303. Personal Adjustment. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Surveys major theories of personality as a basis for studying theory, research and intervention into areas that require personal adjustment. Such areas include sense of self, stress and coping, work and career and several varieties of interpersonal relationships. Positive adjustment and growth as well as problems are discussed.

PSYC 304. Life Span Developmental Psychology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Reviews the basic concepts and principles of physical, cognitive and social development at each major stage of life-prenatal, infancy, toddlerhood, preschool, middle childhood, adolescence, adulthood and old age. Consideration is given to the study of development at each stage of life and to different theoretical explanations for development. PSYC 301 Child Psychology may not also be taken for credit.

PSYC 305. Educational Psychology. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: PSYC 101. The application of psychological principles to the teaching-learning process, with special emphasis on theories of learning and development. Crosslisted as: EDUS 305.

PSYC 306. Psychology of Adult Development. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. The life stages and transitions of the young adult, middle age and young-old phases of the life cycle are considered, following a review of methods of research within life-span development psychology. Topics include the impact of events such as birth of the first child, job relocation, mid-life re-evaluation and anticipated retirement.

PSYC 307. Community Solutions: Multiple Perspectives. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Explores possibilities for addressing social concerns of the Richmond community by understanding the complex nature of social issues as essential to their successful amelioration via perspectives of life and social sciences. Toward this end, expertise from the social sciences, the life sciences and the community are integrated. Includes a service-learning experience (a 20-hour volunteer requirement). Crosslisted as: LFSC 307.

PSYC 308. Stress and its Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Physiological and psychological aspects of stressors and the stress response. Review of principles, research and methods of stress management, such as relaxation, self-suggestions, meditation and biofeedback.

PSYC 309. Personality. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. The study of the various approaches to understanding human behavior in terms of personality theory. Various theories will be examined for commonality and uniqueness in assumptions, dynamics and development of personality.

PSYC 310. Industrial Psychology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Application of psychological principles and techniques to problems in personnel management and human engineering; recruitment, selection, training and placement in industry; criteria in testing and test development; morale evaluation and improvement, employee counseling; work-management communications; human engineering in equipment design, quality control, working conditions and safety.

PSYC 317. Experimental Methods. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: PSYC 214 with a minimum grade of C. Introduction to experimental procedures and laboratory techniques in psychology. Demonstrations and experiments in sensation, perception, learning, emotion and motivation.

PSYC 318. Principles of Psychological Tests and Measurements. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: minimum grade of C in PSYC 101 and minimum grade of C in STAT 210. Concepts in psychological measurement and a survey of commonly used tests; testing procedures and rationale underlying these tests; tests of intelligence, aptitude, achievement, interest and personality critically examined, procedures described for selecting and evaluating specific group tests in these areas.

PSYC 321. Social Psychology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Survey theory and research in social psychology. Topics include interpersonal and social influence processes, attitudes and social cognition, the impact of personality on social behavior, conformity, leadership and small group behavior.

PSYC 322. Personality and Behavior of the African American. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. A study of personality factors such as motivation, ego-functioning and the socialization processes, with special emphasis on living conditions of African-Americans. Crosslisted as: AFAM 322.

PSYC 323. Interpersonal Relations. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Analyzes human relations from various theoretical perspectives. Typical topics include the effects of attraction, friendship, love and dependency on relationships; the evolution of relationships from initiation through termination. Strategies for increasing effectiveness of communication between individuals also are addressed.

PSYC 325. Careers in Psychology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Enrollment is restricted to psychology majors (standard curriculum/all concentrations). Examines career development, the working world, aspirations for graduate school and/or other advanced training in psychology. Topics include career paths in psychology and related disciplines, as well as the application of psychological assessments and their applications to understanding these pathways.

PSYC 333. Psychology and Religious Experience. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Religious belief and experience as viewed by major psychological theorists. How psychological methodology has been used to study religious experience. Topics include personality factors and development, conversion experiences, religious experiences and mental health and human values. Crosslisted as: RELS 333.

PSYC 335. Psychology of Women. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Overview of issues in psychology relevant to women. Topics include: research methods of women's issues; sex-role socialization; women and hormones; psychological androgyny; personality theory and counseling strategies for women; women and language; women and violence; and rape and abuse. Crosslisted as: GSWS 335.

PSYC 340. Introduction to the Helping Relationship. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Overview to the dynamics of communication in a helping relationship. Didactic material includes the principles of empathy, nonverbal behavior, problem-solving, crisis intervention and interview techniques. Basic paraprofessional counselor skills will be demonstrated and practiced through structured exercises.

PSYC 341. Group Dynamics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Social and psychological principles and research related to the individual in groups. Specific topics include motivation for individuals forming and joining groups, performance and productivity of group members, group leadership and majority and minority influence. The group will be examined in relation to the larger society and as a subculture in itself. Crosslisted as: SOCY 341.

PSYC 401. Physiological Psychology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Data from the fields of anatomy and physiology are presented, and their implications for psychology are discussed. The central nervous system, internal environment, vision, audition, reflexes, emotion, learning behavior disorders and their physiological components. Behavior of the human organisms is studied from the biopsychological point of view.

PSYC 404. Social Psychology of Emotions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PSYC 101, SOCY 101. An examination of the social shaping of emotion as well as its function in maintaining the social process. Cross-cultural uniformities and diversity in basic emotions and their expression are addressed as well as selected social psychological theories of emotions.

PSYC 406. Perception. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Perception of information from sensory systems with concentration on vision and hearing. Research and theories on how we learn and judge color, form, movement, depth and how individuals integrate these in object identification.

PSYC 407. Psychology of the Abnormal. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Development of personality is discussed, with emphasis on factors leading to maladjustment. Lectures and reading cover the symptom groups of emotional disorders of both psychological and organic origin. Methods of assessing and treating these disorders are surveyed.

PSYC 410. Principles of Learning and Cognition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Comprehensive treatment of learning and cognition with emphasis on humans, from behavioral, cognitive, biological and developmental viewpoints. Topics include conditioning, information processing, memory, sociobiology and cognitive and moral development.

PSYC 412. Health Psychology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Application of the principles and techniques of psychology to the field of medicine, to health maintenance and to illness. The integration of theoretical, research and applied issues is emphasized in the analysis of such topics as psychological/behavioral factors contributing to and protecting against physical illness (stress, smoking, exercise), factors relating to treatment and recovery (coping, treatment compliance), psychological problems resulting from illness and injury, and specific techniques and problem areas in health psychology (such as biofeedback, pain management, pediatric psychology, geropsychology, rehabilitation psychology and lifestyle change.).

PSYC 414. Psychology of Women's Health. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Overviews the psychological research on women's health. Topics include health behavior change, personality and individual differences, cognitive factors, disease-specific behaviors and interventions. Crosslisted as: GSWS 414.

PSYC 415. Psychological Theories of Addiction. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PSYC 101; and PSYC 407 or PSYC 410. Enrollment is restricted to psychology majors (standard curriculum/all concentrations) and minors in psychology. An overview of current and historical theories related to the causes of and risk factors for problematic drug use and other addictive behaviors. Describes specific effects of different drugs of abuse and explores various behaviors (gambling, gaming, internet use) that have been identified as addictive in nature. Provides an understanding of the harms and costs associated with drug use and abuse, major approaches to understanding drug addiction (e.g., epidemiological, biological, genetic, behavioral, cognitive, transtheoretical/motivational, sociocultural, developmental), and the human experience of addiction. Introduces research methods used to generate knowledge about the causes of drug use and abuse.

PSYC 416. Psychological Treatment of Addiction. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 415. Enrollment restricted to psychology majors (standard curriculum/all concentrations). A review of evidence-based practices in the assessment, diagnosis and treatment of substance use, abuse and dependence, and comorbid conditions. Discusses psychosocial and psychological approaches as well as medication-assisted therapies for substance use disorders. Examines societal views of addiction and their influences on treatment capacity and services, as well as treatment needs and services for special populations (e.g., pregnant women, adolescents).

PSYC 426. Child Psychopathology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PSYC 101. Principal childhood behavioral abnormalities. A review of causes, assessment and diagnostic methods, and treatment, intervention and prevention approaches.

PSYC 451. History of Psychology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: PSYC 101 and senior standing. Traces the history of ideas about mind and behavior as they relate to the theory and practice of psychology.

PSYC 491. Topics in Psychology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Maximum total of 6 credits in topics courses. Prerequisite: PSYC 101. An in-depth study of selected topics and issues in psychology. See the Schedule of Classes for specific topics to be offered.

PSYC 492. Independent Study. 1-3 Hours.

Semester course; variable hours. 1, 2 or 3 credits per semester. Maximum of 6 credits for all independent study courses. PSYC 492, PSYC 493 or PSYC 494 may be repeated for a total of 6 credits but a maximum of 12 credits total for all three courses. Prerequisite: PSYC 101. Open only to students of junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. Independent study is defined as student-conceived and initiated readings or research project which is supervised by a psychology faculty member. An oral examination or written, comprehensive paper is required at the end of the semester.

PSYC 493. Fieldwork: Human Services. 3 Hours.

Semester course; 3 credits. PSYC 492, PSYC 493 and PSYC 494 may be repeated for a total of 6 credits but a maximum of 12 credits total for all three courses is allowed. Prerequisite: permission of instructor. Students are placed in an agency, which will provide supervised work experience in various aspects of helping other people. The setting might be a government or private community agency, or a corporation, depending on the student's goals. The student works eight hours per week at the placement site, attends several group discussion sessions during the semester and completes written assignments. This course is designed to enhance the psychology major's career pursuits for either graduate-level training or post-baccalaureate employment.

PSYC 494. Research Internship in Psychology. 1-3 Hours.

Semester course; variable hours. 1, 2 or 3 credits per semester. May be repeated for a maximum of 6 credits with adviser's approval. PSYC 492, PSYC 493 or PSYC 494 may be repeated for a total of 6 credits but a maximum of 12 credits total for all three courses. Prerequisites: PSYC 101 and permission of faculty research supervisor must be obtained prior to registration. PSYC 214 and PSYC 317, or permission of supervisor. Students will work on various phases of a research project (design, data collection, data analysis, manuscript writing) under a psychology faculty member's close supervision. This course is designed to enhance the psychology major's career pursuits for either graduate-level training or post-baccalaureate employment.

PSYC 497. Honors in Psychology I. 3 Hours.

Semester course; variable hours. 3 credits. Prerequisites: PSYC 317 (co-requisite with permission) and admission to the honors in psychology program. First in a three course sequence to develop, execute and defend an empirically based thesis in psychology. Students will work with a mentor to develop ideas into a tangible research project, working toward a proposal.

PSYC 498. Honors in Psychology II. 3 Hours.

Semester course; variable hours. 3 credits. Prerequisite: PSYC 497 with a grade of A. Students will refine research ideas developed in PSYC 497 into a formal proposal document with introduction, method and proposed results. Students are expected to propose the thesis to their committee members no later than the second week of this course and begin data collection thereafter.

PSYC 499. Honors in Psychology III. 3 Hours.

Semester course; variable hours. 3 credits. Prerequisite: PSYC 498 with a grade of A. Students will complete the research project developed in PSYC 497 and 498 and generate the final thesis, including introduction, method, results and discussion. Students must orally defend the thesis to their committee members by the end of this course with time for revisions to be submitted within the semester's defined grading period.

Religious Studies (RELS)**RELS 108. Human Spirituality. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. A study of the manifestations of one or more of the themes of religious studies in a diverse group of religious communities. The themes may include such wide-ranging topics as the sacred and profane, the epistemology of faith and knowledge, creation stories, human identity, the nature of the divine, the possibility of liberation or salvation, mythology, ritual, ethics, religion and art, religion and law, and religion and politics.

RELS 250. Death: Myth and Reality. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of intellectual and emotional responses to death and dying with emphasis upon their role in the development of religious thought and practice. Special attention will be paid to the death theme in literature, funeral practices and beliefs concerning the afterlife in selected world religions. Crosslisted as: ANTH 250.

RELS 280. Introduction to Catholic Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course provides an introduction to Catholicism's major doctrines, figures, historical events, philosophy and ethics from its beginnings in the first centuries of the Common Era through contemporary debates over such issues as abortion, sexuality and war. Students will learn about scripture, doctrine, theology, the sacraments, art and architectures, saints, social justice and gender, and the history and role of the Church.

RELS 291. Topics in Religious Studies. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated with different topics for a maximum of six credits. Focused study of selected ideas, institutions, movements, time periods and/or thinkers. See Schedule of Classes for specific topic to be offered each semester.

RELS 300. What is Religion?. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the origins, nature and function of religion and religious phenomena through a critical engagement with a diversity of theories of religion that have shaped the field of religious studies. Examines how academic scholars collect, assemble and interpret religions/cultures, including oral and written stories, art, architecture, symbolism, rituals, ethics and morals, and basic ideas about the nature of existence. Also considers the practical consequences, including the politics and ethics, of different theories employed by scholars in the study of religion and religious phenomena.

RELS 301. Introduction to the Hebrew Bible. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the Hebrew Bible from its beginning through the post-Exile period. Emphasis given to the literary and historical development of the text. Crosslisted as: HIST 305.

RELS 302. Introduction to the New Testament. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the New Testament with particular emphasis given to the historical development of the Canon. Crosslisted as: HIST 306.

RELS 305. Hebrew Prophets. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the literature and history of Israel as seen through the work of the writing prophets. Emphasis will be placed on the second part of the Hebrew Canon and the Book of Daniel.

RELS 306. Judaism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A general survey of the dynamics and characteristic patterns of Jewish civilization encompassing history, practices and beliefs. Crosslisted as: INTL 306.

RELS 307. Black Religion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An analysis of the role of religion in the lives of blacks with an emphasis on African religions and philosophies, the black church in America, and the roles of the various faiths, sects and cults. Crosslisted as: AFAM 307/INTL 307.

RELS 308. High and Later Middle Ages. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A detailed historical overview of developments in Western Europe from the end of the first millennium through the end of the 15th century. Crosslisted as: HIST 311.

RELS 309. Greek and Roman Religion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the range of practices, beliefs, philosophies, rituals and narratives that made up the religious life of ancient inhabitants of the greater Mediterranean world, from the Homeric and archaic periods, through the rise of Christianity in the Roman Empire. Crosslisted as: HIST 307.

RELS 310. Mediterranean Religions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the earliest evidence of religious practice and belief in the Mediterranean region and probes the ways that the ancient traditions shaped the religions that still endure today. Also investigates the effect of religion in the Mediterranean region on related issues of intercultural relations, peace and conflict, and migration.

RELS 315. The Ancient Near East. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the ancient Near Eastern civilizations from the preliterate period to the end of Kassite rule in Babylonia (c. 1160 B.C.). Crosslisted as: HIST 301.

RELS 317. Islam. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the emergence of Islam in Arabia in the seventh century and its subsequent developments, including a look at the Qur'an (the holy book), the Prophetic traditions, the concept of God, and mysticism (sufism) and law (shari'ah) and an overview of ritual practices, fundamental beliefs, theological principles and current issues in Islam and international relationship. Crosslisted as: INTL 317.

RELS 318. History of the Jewish People I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the Jewish people from the biblical period to the early modern period, including the Israelite conquest of Canaan, Judea in Hellenistic and Roman times, the Diaspora in Islam and in Europe, social and cultural trends, and Jewish settlement in the Ottoman Empire. Crosslisted as: HIST 333.

RELS 319. History of the Jewish People II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the Jewish people from the early modern to the present, including the impact of the Emancipation, the rise of the American Jewish community, the impact of modernism and growth of Reform, the beginnings and growth of Zionism, restoration in Palestine, the Holocaust, the creation of Israel, and the relations of Israel and world Jewry. Crosslisted as: HIST 334.

RELS 320. Taoism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of one of the most fundamental and influential philosophies of life in Chinese culture, focusing on the theory and practice of the basic principles of Taoism as formulated by the legendary Lao Tzu and further developed by Chuang Tzu.

RELS 321. Buddhism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A critical survey of the origins, basic beliefs, sacred text, themes, practices, history, key figures, subject matters, schools of thought and current issues in Buddhism. Crosslisted as: INTL 321.

RELS 322. Tibetan Buddhism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A basic introduction to the history, development and mythology of the Buddhism of Tibet focusing on the Indian heritage and shared basis of all Buddhist practices, a clear identification of the three vehicles found in Buddhism, and a careful consideration of the path of the Bodhisattva, the hero of Great Vehicle Buddhism. Crosslisted as: PHIL 322.

RELS 324. Indian Religious Traditions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A systematic analysis of the major theories of Indian religious and philosophical thought: Vedas, Upanishads, Gita, Charvaka, Jainism, Buddhism, the six systems of Hinduism and contemporary developments. Crosslisted as: INTL 324/PHIL 324.

RELS 326. Existentialism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHIL 101, PHIL 103, PHIL 104, PHIL 201, PHIL 211, PHIL 212, PHIL 213, PHIL 214, PHIL 221 or PHIL 222. An examination of the nature of truth, freedom, responsibility, individuality and interpersonal relations as found in some principal writings of Kierkegaard, Nietzsche, Jaspers, Sartre, Heidegger, Camus, Buber and Marcel. Crosslisted as: PHIL 326.

RELS 327. History of Christianity I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A historical and theological examination of Christianity from its origin to the early modern period, or the age of the Reformations. Emphasis is placed upon an understanding of leading events, ideas, movements and persons in their historical settings. Crosslisted as: HIST 335.

RELS 328. History of Christianity II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A historical and theological examination of Christianity from ca. 1500 to the present. Emphasis is placed upon an understanding of leading events, ideas, movements and persons in their historical settings. Crosslisted as: HIST 336.

RELS 329. The Early Middle Ages. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A topical, thematic, integrative and problems approach to the emergence of a distinctive European community during the period frequently alluded to as the "Dark Ages." Crosslisted as: HIST 310.

RELS 333. Psychology and Religious Experience. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Religious belief and experience as viewed by major psychological theorists. How psychological methodology has been used to study religious experience. Topics include personality factors and development, conversion experiences, religious experiences and mental health and human values. Crosslisted as: PSYC 333.

RELS 334. Religion in Contemporary America. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course studies the history, literature, belief patterns and unique traits of religion in the United States. The evolution of religion and religious sentiment in a modern pluralistic, democratic society, including the varieties of religious experiences in contemporary America will be reviewed.

RELS 335. The American Jewish Experience. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The religious, social and cultural structure of American Jewry from the Colonial era to the present.

RELS 336. Religions in Latin America. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An interdisciplinary survey of the major religious groups of Latin America, with a focus on the development of Catholicism, Protestantism and the traditions of the African diaspora, such as Santeria and Voduo, during the 20th century.

RELS 337. Contemporary Cults and New Religious Movements. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An overview of contemporary religious movements. Focuses on new groups that have emerged in the context of globalization. Involves understanding of what gives rise to these movements, how they are distinctive and how they develop.

RELS 338. Eastern Religions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introductory survey of Eastern religions, such as Hinduism, Buddhism, Confucianism, Taoism and Shinto, including their historical formation and foundational ideas, symbols, stories, and rituals and influence on personal and social life. Crosslisted as: INTL 338.

RELS 339. Western Religions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introductory survey of Western religions, such as Zoroastrianism, Judaism, Christianity and Islam, including their historical formation and foundational ideas, symbols, stories, and rituals and influence on personal and social life. Crosslisted as: INTL 339.

RELS 340. Global Ethics and the World's Religions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A critical survey of ethical concepts and issues in the thought and practice of major religious traditions. Comparison of ethical perspectives on selected themes and attention to cooperative efforts toward a global ethic. Crosslisted as: INTL 341.

RELS 350. World Religions' Classics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A critical reading of selected works from among the spiritual classics of Judaism, Christianity, Islam, Hinduism, Taoism and other religious traditions. Crosslisted as: INTL 360.

RELS 354. Religion and Film: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different themes for a total of six credits. Explores central themes present in all global religious traditions, such as ritual, faith, myth, suffering, redemption, the religious quest/pilgrimage, the nature of good and evil and perceptions of the sacred. Using readings from sacred texts and contemporary film critiques, the course juxtaposes ancient story and wisdom with contemporary narratives in film. Possible themes would include women and religion in world cinema, Christology in world cinema, and violence and redemption in film. See the Schedule of Classes for specific topics to be offered each semester. Crosslisted as: CINE 354/ WRLD 354.

RELS 360. Sociology of Religion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A systematic review and assessment of major sociological theories of and empirical research on religious behavior and groups. Topics include the structure of religious organizations; social correlates and functions of religion; denominationalism; religion and social class, social change and population. Crosslisted as: SOCY 360.

RELS 361. The Bible as Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Literary aspects of the Bible will be considered. Also, attention will be given to the history of the English Bible. Crosslisted as: ENGL 361.

RELS 362. Shakespeare and Religion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of the religious ideas in selected plays by William Shakespeare and their relevance to contemporary religious thought and experience. Topics include the nature of God, the meaning of life, the problem of evil, moral authority and the question of immortality as found in Shakespeare's plays.

RELS 365. Archaeology and Religion: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of six credits. Explores the archaeological record as evidence for the religious life of past and present societies with emphasis on the study of religion anthropologically. Topics may include thematic and/or geographical and/or literary approaches. See the Schedule of Classes for specific topics to be offered each semester. Crosslisted as: ANTH 365.

RELS 366. American Religious History I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of religious movements, events and ideas in North America from indigenous and colonial traditions to the U.S. Civil War, with attention to the diversity of religious expression and the relationship between church and state. Crosslisted as: HIST 363.

RELS 367. American Religious History II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of religious movements, events and ideas in the United States from the Civil War to the present, with attention to the diversity of religious expression and the relationship between church and state. Crosslisted as: HIST 364.

RELS 371. Women in Islam. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200, RELS 108, GSWS 201 or ENGL 215. Critical study of the roles and rights of women in Islam. Crosslisted as: GSWS 371.

RELS 380. Global Catholic Thought. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. A study of the contemporary Catholic Christian response to the questions, "Who is God?" and "Where/how do we experience the Sacred?" Methods of Catholic theology will be explicated and applied to the teachings of the Second Vatican Council and current responses to those teachings in such areas as sacramental worship and liturgy and moral/ethical teachings of the Church.

RELS 391. Topics in Religious Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of 6 credits. A study of a selected ideas or concepts, religious thinkers or significant movements in the field of religion. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

RELS 398. Directed Study Abroad. 1-8 Hours.

Semester course; 1-8 field experience hours. 1-8 credits. May be repeated for a maximum of eight credits. A course involving travel and/or study in a foreign country. Intended primarily for students participating in pre-arranged projects, directed study abroad and/or exchange programs. The course meets the experiential learning requirement for the religious studies major.

RELS 401. Faith and Life Sciences. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Open to students of any school or program. Explores the complex relationships between faith traditions and the life sciences. Topics include epistemology, impact of life sciences on ideas of fate and responsibility, limits of science and technology, and scientific and religious perspectives on human origins, consciousness, aggression, forgiveness, health, illness and death. Crosslisted as: LFSC 401.

RELS 407. Modern Jewish Thought. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. A study of the writings of the leading Jewish thinkers of the 19th and 20th centuries. Special reference will be made to the issues arising from the encounter of Judaism with the modern world: the nature of revelation and the authority of the Torah, the nature of God, the impact of the Holocaust, the meaning of redemption and the significance of the state of Israel.

RELS 409. Modern Islamic Thought and Global Trends. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Introduces students to the integral relationship of Islam to major events of global concern and contextualizes these events into the wider modern and postmodern developments of Islamic thought and its intellectual and ideological self-interrogation. This course will provide students with the opportunity to study both the background of modern Islamic thought and selected contemporary events. Crosslisted as: INTL 409.

RELS 412. Zen Buddhism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. A study of Zen Buddhism, including backgrounds in Indian philosophy and practice, development in China and Korea, and present-day Zen theory and practice in Japan and in Western countries. Crosslisted as: PHIL 412/INTL 412.

RELS 414. Incarceration and Spirituality: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Enrollment requires permission of the instructor. Experiential seminar held at a local correctional institution that connects students to residents as learning partners. Examines themes, topics and problems in the world religions and social justice supplementing theoretical studies with the lived experiences of inmates and university students. See the Schedule of Classes for specific topics to be offered.

RELS 425. Religion, Magic and Witchcraft. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. A survey of the nature and variety of beliefs outside of the major streams of religious thought. Among topics considered are myth, totemism, taboo and sorcery. Emphasis on understanding supernatural beliefs and practices in relation to culture and society. Crosslisted as: ANTH 425/INTL 425.

RELS 430. Philosophy of Religion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHIL 101, PHIL 103, PHIL 104, PHIL 201, PHIL 211, PHIL 212, PHIL 213, PHIL 214, PHIL 221 or PHIL 222. An introduction to the major problems and questions of religion and reason. Special reference will be made to the nature of God, the nature of man, the problem of evil, the source of good, immortality and the basis of authority. Crosslisted as: PHIL 430.

RELS 440. Mysticism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. A critical analysis of the varieties of mysticism in world religions. Arguments for and against mysticism will be emphasized. Mysticism will be related to art, psychology, science, philosophy, theology and magic. Crosslisted as: PHIL 440.

RELS 441. Islamic Mysticism: the Sufis. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Introduces students to the major Sufi masters and their works. It covers ideological and practical development of Islamic mysticism as compared to the developments within Islam itself. Crosslisted as: INTL 441.

RELS 450. Religion, Globalization and Social Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: RELS 340/INTL 341, WRLD 210 or WRLD 220; UNIV 200 or HONR 200. Explores the role religions are playing in the work of building a socially just and environmentally sustainable world community. Crosslisted as: INTL 449.

RELS 451. Religion, Racism and Social Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: RELS 340/INTL 341, WRLD 210 or WRLD 220; UNIV 200 or HONR 200. Explores the complex history and contemporary relationships between religion, racism and social justice. Crosslisted as: AFAM 451/INTL 451.

RELS 453. Western Religions, Women and Social Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: UNIV 200 or HONR 200; and RELS 108, GSWS 201 or WRLD 210. Explores the experience and portrayal of women in the three Abrahamic traditions: Judaism, Islam and Christianity. Study focuses on how these religions and their texts bear upon the social, economic, political and spiritual lives of women. Special attention is given to the impact of globalization and religious fundamentalism on women. Crosslisted as: GSWS 453/INTL 453.

RELS 458. Religion and Ecojustice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: RELS 108 or INTL/SOCY 250. Explores Eastern, Western and indigenous religious traditions' understanding of the meaning of nature, including human nature; our ethical obligations to nature, including other species; and how different traditions imagine, value and interact with nature. Considers how diverse religious communities are involved in efforts to address socio-environmental issues like the climate crisis, consumerism, environmental racism, indigenous sovereignty, protection of forests and oceans, access to healthy air, water, land and food, and the establishment of an ecological society. Crosslisted as: INTL 458.

RELS 490. Senior Capstone Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: RELS 340/INTL 341; senior standing in religious studies major with a minimum of 85 credits earned toward the degree. Senior research project; written thesis and oral presentations using established concepts, theories and research methods in religious studies. Students will select the religious groups/traditions as the focus of their research, writing and oral presentations in consultation with the course instructor.

RELS 491. Topics in Religious Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of 6 credits. Prerequisite: written permission of instructor. An in-depth study of selected ideas or concepts, religious thinkers or significant movements in the field of religion. See the Schedule of Classes for specific topics to be offered each semester.

RELS 492. Independent Study. 1-4 Hours.

Semester course; variable hours. Variable credit. Maximum of 4 credits per semester; maximum total of 6 credits for all independent study courses. Open generally to students of only junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. An independent study course to allow interested students in religious studies to do research in an area of major interest under the direction of a professor qualified in that field.

RELS 493. Religious Studies Internship. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits (40 clock hours per credit). May be repeated for a maximum of six credits, however only three credits can count toward the major. Enrollment requires permission of the internship coordinator. Student must be in good academic standing with a minimum major GPA of 2.25. Designed for the advanced student to gain workplace experience in a local, national or international organization offering opportunities in religious studies.

RELS 499. Senior Seminar. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisites: RELS 340/INTL 341; senior standing in religious studies major with a minimum of 85 credits earned toward the degree. Pre- or corequisite: RELS 490. Focuses on self-assessment, compilation of a portfolio and curriculum vitae, career and graduate school preparation, and on the lifelong application of skills and knowledge acquired in the program. Students will critically assess their experience in the religious studies program.

Russian (RUSS)**RUSS 101. Beginning Russian I. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Enrollment requires any student with previous exposure to Russian to take the placement test to determine eligibility. For students with no prior knowledge of Russian. Beginning grammar, reading, writing and oral skills.

RUSS 102. Beginning Russian II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: RUSS 101 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Continuation of beginning grammar, reading, writing and oral skills.

RUSS 201. Intermediate Russian I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: RUSS 102 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Russian. Building toward intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

RUSS 202. Intermediate Russian II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: RUSS 201 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Russian. Increasing intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

RUSS 205. Intermediate Russian Conversation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: RUSS 201. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation.

RUSS 300. Communication and Composition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: RUSS 202, RUSS 205 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Russian. Building toward intermediate-high proficiency in the three modes of communication: interpretive, interpersonal and presentational. Authentic materials enhance intercultural competence and communication skills.

RUSS 311. Conversation and Media. 3 Hours.

Semester course; 3 semester hours. 3 credits. May be repeated for up to six credits with permission of the instructor. Prerequisite: RUSS 202 or 205. Conducted in Russian. An introduction to everyday life in Russia and topics of current interest. Students will explore diverse media to develop skills in listening, speaking, reading and writing.

RUSS 330. Literature and Culture: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for up to six credits with different topics. Prerequisite: RUSS 202 or 205. Conducted in Russian. Students will examine salient themes in Russian culture as expressed in a range of classic and contemporary texts. This course develops skills in reading, writing, speaking and listening. See the Schedule of Classes for specific topic to be offered each semester.

RUSS 422. Russian Film. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits with the permission of the instructor. Prerequisite: completion of six credits of Russian at the 300-level. Conducted in Russian. While the course is designed to develop the student's conversational skills in Russian, it will also provide practice in reading, listening and writing. Discussions will center on films from the Soviet and post-Soviet periods.

RUSS 491. Topics in Russian. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated with different topics for maximum of 9 credits. An in-depth study of selected topics in Russian. See the Schedule of Classes for specific topics to be offered each semester.

Science, Technology and Society (SCTS)

SCTS 200. Science in Society: Values, Ethics and Politics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An interdisciplinary introduction to the ethical, social and political dimensions of science, technology and medicine examined through case studies and debates.

SCTS 300. Introduction to Science and Technology Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the study of science, technology and medicine from political, sociological and historical perspectives, focusing on case studies that illustrate the methods and theories used to examine the structure and behavior of the scientific community and the role of scientific knowledge in shaping public culture. Crosslisted as: GVPA 399/HIST 399.

SCTS 301. Illness Narratives. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. An overview of the history, interpretations and practices of reading and writing illness narratives — through case studies and theoretical perspectives, in fictionalized and nonfiction accounts, from the viewpoint of various actors (doctors, patients, patient families and their caregivers). Students will further examine the role of narrative knowledge in health care. Crosslisted as: ENGL 369.

SCTS 305. Contemporary Issues in STEM Fields. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Repeatable for a maximum of 3 credits. Examines contemporary topics in STEM (science, technology, engineering and mathematics) fields through the available public lecture events which take place on the VCU campus during a given semester. Lecture topics will vary from semester to semester but all will discuss recent work and broader issues related to science, technology, engineering, mathematics and medicine.

SCTS 392. Revolutions in Science I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the history of science from the ancient Greeks to 1800, focusing on the development of scientific ideas, practices and institutions in Western society. Crosslisted as: HIST 392.

SCTS 393. Revolutions in Science II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the history of science from 1800 to the present, focusing on the development of scientific ideas, practices and institutions in Western society. Crosslisted as: HIST 393.

SCTS 397. Genetics and Society: 1865 to the Present. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An investigation of the science and technology of heredity in its historical, cultural and political contexts, emphasizing the ways in which genetic theories have been applied in attempting to solve social and biological problems. Crosslisted as: HIST 397.

SCTS 398. Medicine and Public Health: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different thematic content for a maximum of six credits. Studies in selected topics in the history of medicine, medical science or public health. Includes introduction to the interdisciplinary approaches practiced in the history of medicine as well as the historical content and relevant analytical skills needed to examine the specific course theme. Crosslisted as: HIST 398.

Social Science (SOCS)

SOCS 291. Issues in Social Science. 1-3 Hours.

Semester course; variable hours. 1-3 credits per semester. Maximum total of 6 credits. An interdisciplinary course structured around social issues pertinent to today's society. See the Schedule of Classes for specific topics to be offered each semester and the semester credit for which each course will be offered.

SOCS 302. Diverse Families and Children in the United States. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Focuses on the diversity of family life in the United States. Students are encouraged to analyze and appreciate the differences that emerge from such factors as socioeconomic status, race and ethnicity (language, religion, national origin). Attention is given to the variations and commonalities in how parents teach, guide and influence children and adolescents.

SOCS 303. Marriage and Family Relationships. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or permission of instructor. Marriage and the family in contemporary society. Topics discussed will include the effects of masculine and feminine roles on marital and parent-child relationships, how role problems are resolved, sexual adjustments, financial adjustment, family planning and retirement.

SOCS 330. The Psychology and Sociology of Death. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101 or SOCY 101. An interdisciplinary study of the encounter with death, death and personality, the organizational processing of death and demographic regularities of dying. Sociologists and psychologists jointly teach the course.

SOCS 340. Human Sexuality. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A study of the variety of the forms, sources and consequences of human sexual behaviors and the attitudes, beliefs and values associated with them. The data and its analysis are directed to the significance of sex in human experience.

SOCS 350. The Construction of Culture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination, using methods from several disciplines, of the ways in which human beings construct the shared meanings that constitute culture.

SOCS 389. AIDS: Myths and Realities. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. Presents the students with the fundamentals of infectious disease, immunology and virology as they apply to HIV disease. Students will trace the psychosocial impact the HIV pandemic has had on society since the early 1980s, and will explore the future possibilities for those who are HIV infected and/or HIV affected.

SOCS 391. Topics in Social Science. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for a maximum total of 6 credits. An interdisciplinary course structured around an in-depth study of selected social issues pertinent to today's society. See the Schedule of Classes for specific topics and credits to be offered each semester.

Sociology (SOCY)

SOCY 101. Introduction to Sociology. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. An introduction to the study of human society. The basic concepts of society and culture and their relationships to each other are studied and then used to analyze the major social institutions.

SOCY 104. Sociology of Racism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The course will explore the direct and indirect ways in which racial attitudes are acquired, their effect on individuals and society, and the institutional and ideological manifestations of racism as a "faith system," as exploitation and as a form of human conflict. The central focus of interest will be on black-white relationships. Crosslisted as: AFAM 104.

SOCY 202. Foundations of Theory. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: SOCY 101. An introduction to classical theoretical traditions that have guided sociological work. Classical theorists whose writings have shaped the discipline will be studied, including Karl Marx, Max Weber, Emile Durkheim, Georg Simmel, W.E.B. Du Bois and Charlotte Perkins Gilman. This course also traces the historical development of the discipline of sociology during the 19th and early 20th centuries.

SOCY 250. Confronting Climate Crisis. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the many ways that people – including students – are confronting the climate crisis, from the local to the global. Engages with major debates in the fight to understand and address climate crisis, centering ways in which Black, migrant, Indigenous peoples and folks in the Global South are forging a path toward socially just responses. Crosslisted as: INTL 250.

SOCY 302. Contemporary Social Problems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The examination from a sociological perspective of contemporary social problems such as population growth, crime, racism, family problems, substance abuse and aging in terms of their impact on American social institutions and values.

SOCY 303. Sociology of Deviance. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. An analysis of the relationship between social structure, social control and patterns of social deviance; a survey and critique of present social theories in light of empirical research and application of the theories to selected problem areas.

SOCY 304. Sociology of Families. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. The family in its social and cultural context. Analysis of child rearing, marriage, kinship, family crises and family change in various societies around the world. Crosslisted as: ANTH 304/GSW 304.

SOCY 305. Oppression, Resilience and the Black Family. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the historical and contemporary experiences of Black families, with a central focus on the resilience and contributions of Black families in the U.S. Engages in intersectional analysis of systems of oppression and the full range of Black family structures. Centers Black liberation and Black joy. Crosslisted as: AFAM 305/GSW 305.

SOCY 307. Sociology of Food. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the role food plays in shaping cultures, societies and social inequalities by examining the modern food system, social inequalities surrounding food access and alternatives to the current system.

SOCY 310. Social Movements and Social Conflict. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. Theory and practice of social movements, community organizing and other forms of collective behavior.

SOCY 315. Sociology of Education. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. Analysis of education as a social institution in the societal context. Cross-cultural comparative perspectives on education.

SOCY 319. Adolescents in Society. 3 Hours.

Semester course; 3 lecture hours. 3 credits. In order to understand the important role adolescence plays for the individual and society at large, this course is taught as a dialogue between society and the individual. As such the class will explore adolescence in society through monographs that primarily use interview and ethnographic methodologies to understand the role of culture in self-construction.

SOCY 320. Research Methods in the Social Sciences. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: SOCY 101; and STAT 208 or STAT 210 with a minimum grade of C. Current methods of research in the social sciences. Includes a brief introduction to the use of SPSS for storage, retrieval and exploration of social science data.

SOCY 321. Sociology of Economic Inequalities. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Analysis of social mobility, class, status and power.

SOCY 322. Sociology of Race and Ethnicity. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A study of the various racial, religious and ethnic minority groups. Issues of power, pluralism and assimilation are addressed as well as the relationship between subcultures and the dominant culture.

SOCY 325. Analysis of Sociological Data. 2 Hours.

Semester course; 1 lecture and 2 laboratory hours. 2 credits. Prerequisites: POLI/SOCY 320 and STAT 210. Statistical techniques used in the analysis of data from sample surveys and censuses, including tabular, graphical and inferential procedures. SPSS software will be used in the laboratory.

SOCY 326. Rural Sociology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. An introduction to rural society, culture, social interactions and systemic change. The rural regions of the United States will be covered, but emphasis will be given to Appalachia, rural Virginia and the South.

SOCY 327. Urban Sociology. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Origin, character and significance of urban communities. Ecological and social factors are analyzed as well as changes in urban social organization and their consequences.

SOCY 330. Global Societies: Trends and Issues. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. An analysis of factors that are promoting the globalization of social, economic and political relations, and an inquiry into implications of these developments for individuals, localities, nations and the world community. The course will highlight the impact of culture and ethnicity, historical and emerging patterns of international business activity and their societal significance, divergent strategies for economic and social development in the world's regions, and the effects of population growth and environmental problems on public life within and among nations. Crosslisted as: INTL 330.

SOCY 331. Juvenile Delinquency. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. Analysis of the biological, cultural, psychological and social factors involved in juvenile delinquency and their relation to current techniques of treatment, prevention and control.

SOCY 332. Immigration and American Society. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of the social and political dynamics surrounding U.S. immigration. Possible topics include examination of why people migrate, historical changes in U.S. immigration, policies that let some people in and keep others out, and consideration of the lives of immigrants once they have settled in the country.

SOCY 333. Gender in Society. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores different theoretical approaches to gender and its intersections with other sources of inequality, including sexuality, race, class and age. Possible topics include masculinities, gender and the body, and how gender operates in various institutional settings, such as the economy and the family. Crosslisted as: GSWS 333.

SOCY 334. Sociology of Women. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or consent of instructor. This course will examine the position and status of women across societies and the social forces that maintain existing patterns and arrangements. The integration of family and work in women's lives will be emphasized. Crosslisted as: GSWS 334.

SOCY 335. Sociology of Masculinities. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the sociological theories and empirical studies of men and masculinities. Topics include the relational thinking of gender inequality, hegemonic masculinity, subordinated masculinities, inclusive masculinity, hybrid masculinity, toxic masculinity, female masculinity and male femininity, and intersectional masculinities. Addresses the effects and mechanisms of masculinities in social settings, such as the workplace, family, marriage, intimacy, pop culture, politics, migration, globalization and social movements, through empirical studies. Crosslisted as: GSWS 303.

SOCY 336. Violence Against Women. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or GSWS 201. An examination of violence against women from a global and local perspective with a primary focus on violence perpetrated against women in the U.S. Requires a minimum of 20 hours of community service. Crosslisted as: GSWS 336.

SOCY 340. Self and Society. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. An exploration of sociological theories of everyday life, including examination of the socialization process, as well as how thoughts, feelings and behaviors are guided by micro-level social forces that often remain just outside of awareness. Particular attention will be given to those qualities that make individuals uniquely human – including self-awareness, identity, emotions, empathy, language and symbols.

SOCY 341. Group Dynamics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Social and psychological principles and research related to the individual in groups. Specific topics include motivation for individuals forming and joining groups, performance and productivity of group members, group leadership and majority and minority influence. The group will be examined in relation to the larger society and as a subculture in itself. Crosslisted as: PSYC 341.

SOCY 344. Medical Sociology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the social, economic, cultural and social psychological factors in health and illness; the sociology of health and medical care organizations and settings; the sociology of health occupations; and the techniques of research in medical sociology.

SOCY 350. Environmental Sociology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An overview of the field of environmental sociology, with a specific focus on the ways in which climate change affects, and is affected by, modern society. Possible topics include environmental racism, indigenous rights and activism, cultures of waste and disposability, capitalism and ecological transformation, corporate greenwashing, global food-systems, and climate refugees.

SOCY 351. Sociology of Culture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. This course provides an overview of cultural sociology, with specific emphasis on cultural theories and understanding the ubiquity of culture and its impacts. Students will discuss how culture is both produced and consumed. Possible topics include food cultures, music cultures, taste cultures, globalization and consumption.

SOCY 353. Sociology of Sexualities. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Provides empirical and critical ways to analyze multiple forms of human sexuality, including sexual practices, identities, inequalities, desires, relationships and institutions. The course is structured according to three themes: 1) theories and methods of critical sexuality studies; 2) sexualities in social institutions; and 3) contemporary sex-related debates, trends and policies.

SOCY 354. Sociology of Social Welfare. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the field of social work through a sociological lens. Focuses on a range of social issues in the U.S. and the interplay between the two disciplines of sociology and social work. Examines how the sociological perspective strengthens social work practice and promotes social justice in the lives of individuals, families and communities.

SOCY 355. Comparative Social Justice: Forging Cultures of Resilience in South Africa and the U.S.. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This service-learning course, in partnership with Mpophomeni, SA, links students from VCU to the Richmond community and youth in South Africa in a shared conversation, as they explore social justice movements and the nature of resilience in two communities affected by a historic transition from racial segregation to inclusive democracy.

SOCY 356. Sociology of Contemplative Practices. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The goal of this class is to examine the relationship between individual contemplative practices and activities that engage major social issues in new and creative ways. In this course, students will examine a variety of contemplative practices and the potential that these practices have in helping to develop sociological understanding of intersections between individuals and society.

SOCY 357. Digital Cultures and Inequality. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines how social structures and digital spaces (social media platforms, data and information tech, gaming, etc.) function in tandem, facilitating the reinforcement of social inequalities in both physical and digital worlds. This course engages intersectional modes of sociological inquiry to grapple with how gender, race, sexuality, class, ability and location operate as overlapping categories that interact, complicate one another and (re)produce systemic power digitally and materially.

SOCY 358. Data Visualizations. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face, or hybrid). 3 credits. In this course, students will learn how to present information in an understandable, effective and visually appealing manner to explain insights in data. They will learn how to create their own data visualizations using the software, Tableau. No previous data visualization experience is required.

SOCY 360. Sociology of Religion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A systematic review and assessment of major sociological theories of and empirical research on religious behavior and groups. Topics include the structure of religious organizations; social correlates and functions of religion; denominationalism; religion and social class, social change and population. Crosslisted as: RELS 360.

SOCY 370. Media and Society. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A survey of the organization and social impact of the major types of mass media. Potential topics include the media as socializing agents; the effect of media messages on cultural patterns and social values; the impact of technology on social behavior; the role of "audiences" in interpreting media content; political and economic influences on the media industry; and the media as an instrument of social change. The structure and functions of the media in different societies will be compared.

SOCY 380. Public Sociology. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: SOCY 101. Examines what it means to "do sociology" in public and what it means to make sociological work accessible and to involve multiple publics. Particular attention is paid to conceptualizing the term public sociology; public sociology in practice, including on college campuses; and critical digital literacy.

SOCY 391. Topics in Sociology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. Maximum 6 credits per semester; maximum total of 18 credits in all departmental topics courses that may be applied to the major. Check with department for specific prerequisites. A discussion of specialized areas of sociological interest. See the Schedule of Classes for specific topics to be offered each semester.

SOCY 401. Racial and Ethnic Health Disparities. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 202 or permission of the instructor. Explores issues surrounding the disparities in morbidity and mortality experienced by racial/ethnic minority groups, including the impact of structural racism, socioeconomic status, legal status, neighborhood conditions and access to health care. Also examines potential strategies for working toward health equity. Students are required to participate in an experiential exercise designed to enhance learning.

SOCY 402. Contemporary Theory. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: SOCY 202 with a minimum grade of C. Pre- or corequisite: SOCY 320. Enrollment is restricted to sociology majors. A study of the works of the major sociological theorists of the 20th century.

SOCY 403. Criminology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 202 or permission of instructor. Analysis of the nature, extent and distribution of crime, emphasizing theories of and research on causation, prediction and prevention.

SOCY 406. Sociology Senior Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: SOCY 202 and SOCY 320, both with a minimum grade of C; and at least 21 credit hours in sociology. Course must be taken in the student's last 30 hours at VCU. Pre- or corequisite: SOCY 402. Senior capstone class; provides students the opportunity to synthesize, integrate and apply their sociological knowledge and skills.

SOCY 410. Aging and the Life Course. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the study of aging and the life course. Focus will be on research specific to older adulthood in order to foster an understanding of aging and old age as a characteristic of both individuals and societies. Requires a minimum of 20 hours of community service if taken as a service-learning course.

SOCY 420. Environmental Racism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the sociological study of environmental racism and the rise of the environmental justice paradigm through the scholarly lenses of environmental sociology, political sociology, critical race theory and environmental justice studies. Key environmental histories, social theories and case studies of environmental racism as well as the broader problem of environmental inequality will be explored.

SOCY 421. Advanced Research. 1-6 Hours.

Methods Semester course; variable hours. Variable credit. May be repeated for a total of 6 credits. Prerequisites: POLI 320/SOCY 320 and SOCY 325. A laboratory course providing training in the application of social research methods under laboratory and field situations to problems of mutual interest to community policy makers and professionals in the disciplines of sociology, social psychology and anthropology. This course is designed to enhance the skills of students in applied social research. With direct supervision by the instructor, individuals or small groups of students will address themselves to the tasks of defining, designing and executing research projects.

SOCY 425. Digital Sociology. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. An exploration of the sociological foundations of digital technologies including apps, platforms and social media. Focus will be on the ways in which people's use of digital technologies configures their sense of self and their embodiment of social relations, as well as the role of digital media in the creation or reproduction of social institutions and structures.

SOCY 426. Population Dynamics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The study of trends in fertility, mortality, population growth, distribution, migration and composition. The mutual influences of these factors and social organization.

SOCY 430. Politics, Power and Ideology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 202 or permission of instructor. Sociological analysis of political organization and behavior. Such subjects as distribution and uses of power, creation and management of group conflict, development and diffusion of political ideologies, and problems of bureaucracy and mass society will be considered.

SOCY 434. Sociology of Sport. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Sport will be viewed as a major social institution within many societies. The class will study the relationship between sport and society – both in terms of sport reflecting the ideology and culture of society and sport as an active agent of change in society. Race, gender and social class will be examined within the context of sport.

SOCY 435. Sociology of Consumption. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examination and analysis of consumption in modern society, including food, fashion, advertising and opportunities for consumer activism in a globalized world.

SOCY 436. Sociology of Work and Labor Markets. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 202 or permission of instructor. The study of industrial plants and business organizations as social systems.

SOCY 440. Advanced Social Psychology. 3 Hours.

Semester course; 3 credits. Prerequisites: SOCY 202 and SOCY 340 or permission of instructor. The study of how human groups create the environment that, in turn, influences their individual behavior. The symbolic interactionist perspective will be thoroughly explored for its contribution to the study of persons, objects and meaning.

SOCY 441. Sociology of Emotions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 202. Exploration of the sociological forces that shape the way we define our emotions, how we communicate through emotions – both explicitly and implicitly – and how our emotions are guided by sociocultural norms. Attention will also be paid to the regulation of human emotions in terms of culture, gender, occupation and interpersonal relationships.

SOCY 446. Sociology of Mental Disorder. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of selected social, economic, cultural and social psychological factors in mental health and illness. Such problems as defining mental illness; social factors in the distribution, diagnosis, etiology and treatment of mental disorders; mental illness as a social role; and research methods used in the sociology of mental illness will be considered.

SOCY 450. Understanding Capitalism. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A critical appraisal of modern capitalist society. Classical and contemporary sociological theory, focusing on comparative-historical methodologies, including historical materialism and critical political economy.

SOCY 452. Religions, Sexualities and Global Inequalities. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Offers advanced analyses of how religions, sexualities and inequalities shape local and global societies. Focusing on the sociologies of religion, women, LGBTQIA+ and transnationalism, students will explore their theoretical interactions and intersections and discuss the practical examples of religious and sexual inequalities, as well as the global inequalities produced by world religions and gender/sexual politics.

SOCY 476. Economic Sociology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 202. An examination of labor force participation in terms of the individual worker's experience, the work setting, the nature of occupations and labor force composition.

SOCY 491. Topics in Sociology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 202. Maximum 6 credits per semester; maximum total of 18 credits in all departmental topics courses that may be applied to the major. Check with department for specific prerequisites. A discussion of specialized areas of sociological interest. See the Schedule of Classes for specific topics to be offered each semester.

SOCY 492. Independent Study. 1-6 Hours.

Semester course; variable hours. Variable credit. Maximum of 6 credits per semester; maximum total of 12 credits for all independent study courses. Open generally only to students of junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of the instructor and department chair must be received prior to registration of the course. Cannot be used in place of existing courses.

SOCY 493. Internship. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits (50 hours per credit). May be repeated for a maximum of 3 credits. Prerequisites: SOCY 101 and SOCY 202. Enrollment is restricted to sociology majors of junior or senior standing. Applications must be approved by the internship coordinator. Provides an opportunity to apply and expand sociological knowledge through actual experience in a variety of work settings. Graded as pass/fail.

SOCY 498. Honors Research Course. 3 Hours.

Semester course; 3 credits. Prerequisites: student must be in the honors program of the department and have achieved senior status. This course will entail the planning and execution of a major research project demonstrating a thorough understanding and use of research techniques in sociological/anthropological analysis, knowledge of relevant literature, sophisticated writing and research ability under the direction of a faculty mentor.

Spanish (SPAN)**SPAN 101. Beginning Spanish I. 3 Hours.**

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment requires any student with previous exposure to Spanish to take the placement test to determine eligibility. For students with no prior knowledge of Spanish. Beginning grammar, reading, writing and oral skills.

SPAN 102. Beginning Spanish II. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: SPAN 101 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Continuation of beginning grammar, reading, writing and oral skills.

SPAN 201. Intermediate Spanish I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SPAN 102 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Spanish. Building toward intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

SPAN 202. Intermediate Spanish II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SPAN 201 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Spanish. Increasing intermediate-level cultural competence and proficiency in listening, speaking, reading and writing through authentic materials.

SPAN 205. Intermediate Spanish Conversation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SPAN 201. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation.

SPAN 300. Communication and Composition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SPAN 202, SPAN 205 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Spanish. Building toward intermediate-high proficiency in the three modes of communication: interpretive, interpersonal and presentational. Authentic materials enhance intercultural competence and communication skills.

SPAN 301. Self and Society: Effective Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SPAN 300. Conducted in Spanish. Students advance their knowledge of the Spanish language and Spanish-speaking cultures while developing their reading and writing skills. Students examine a variety of texts and media and gain strategies for interpretation and discussion, with a focus on effective writing.

SPAN 302. Literary Readings and Composition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SPAN 300. Conducted in Spanish. An introduction to literary genres, stylistics and analysis designed to increase the student's mastery of persuasive, descriptive and narrative skills, including creative writing.

SPAN 305. Oral Communication. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SPAN 202, SPAN 205, SPAN 300 or a satisfactory score on the VCU Language Placement Test within the one-year period immediately preceding the beginning of the course. Conducted in Spanish. Practice in the spoken language with emphasis on discussions relating to topics of current interest.

SPAN 307. Spanish Conversation and Film. 3 Hours.

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisite: SPAN 202, SPAN 205 or SPAN 300. Designed to develop the student's conversational skills, oral comprehension ability and knowledge of contemporary culture through discussion of selected Spanish and Latin American films. Emphasis is also placed on vocabulary development and writing practice.

SPAN 311. Spanish Through the Media. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SPAN 202, SPAN 205 or SPAN 300. Further development of listening, reading, writing, speaking and cultural skills through a focus on mass media in Latin America and Spain. Spanish language and current events will be taught through direct contact with newspapers, journals, television and radio programming, and online media. Students will view programs outside of class, participate actively in class discussions, create presentations and conduct research.

SPAN 320. Civilization of Spain I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: SPAN 300; SPAN 305 or 307 or 311; corequisite: SPAN 301. Conducted in Spanish. A treatment of salient manifestations of Spanish culture and civilization from its origins to the present.

SPAN 321. Latin American Civilization I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: SPAN 300; SPAN 305 or 307 or 311; corequisite: SPAN 301. Conducted in Spanish. A treatment of salient manifestations of Latin American culture and civilization from pre-Columbian times to the present.

SPAN 322. Hispanic Immigrants in the U.S.. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: SPAN 300; and SPAN 305, SPAN 307 or SPAN 311. Corequisite: SPAN 301. Conducted in Spanish. Analysis, research and discussion of the life and history of Hispanics in the U.S. Topics such as identity, assimilation, immigration laws, education, jobs, housing, health, religion and politics will be covered. Students will apply their course learning through 20 hours of community service for Hispanics.

SPAN 330. Survey of Spanish Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SPAN 300; SPAN 305 or 307 or 311; corequisite: SPAN 301. Conducted in Spanish. A survey of Spanish literature up to the present.

SPAN 331. Survey of Latin American Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SPAN 300; SPAN 305 or 307 or 311; corequisite: SPAN 301. Conducted in Spanish. An introduction to major authors and trends up to the present. Crosslisted as: INTL 331.

SPAN 332. Latino Writers in the U.S.. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: SPAN 300; SPAN 305 or 307 or 311; corequisite: SPAN 301. Conducted in Spanish. Explores Latino cultural identity and the Latino contribution to U.S. cultural life through a variety of works in the different literary genres produced by Latino writers, both immigrants and those raised in the U.S.

SPAN 402. Language Issues in the Spanish-speaking World. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. Conducted in Spanish. Through a variety of topics this course explores the links between language and human behavior as exemplified by language phenomena in the Spanish-speaking world. Topics will be drawn mainly from sociolinguistics, language and culture, and education and applied linguistics. See the Schedule of Classes for the specific topic to be offered each semester. Crosslisted as: LING 402.

SPAN 403. History of the Spanish Language. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. Conducted in Spanish. A study of the evolution of Spanish from Latin through the Middle Ages to the Modern era. Historical phonology, etymology, morphology, orthography, semantics and syntax of standard Castilian. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 414. Commercial Spanish. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. Conducted in Spanish. This course will develop the student's ability to use the Spanish language as a means of oral and written communication in the business world. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 420. Civilization of Spain II. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. This course explores the cultural diversity and differences of Spain. Topics focus on a particular interdisciplinary theme, such as the formation of cities, ethnicity and on a particular area of Spain. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 421. Civilization of Latin America II. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. This course explores the cultural diversity of Latin America and the social and political forces behind cultural change. Topics will focus on a specific interdisciplinary theme, such as urban life, the politics of identity and on a specific area of Latin America. See the Schedule of Classes for the specific topic to be offered each semester. Crosslisted as: INTL 421.

SPAN 422. Spanish and Latin American Cinema. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different themes, up to a total of six credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. Conducted in Spanish. Spanish and/or Latin American cinema from the 1940s to the present, including the works of important directors, such as Bunuel, Saura, Almodovar, Emilio Fernandez, Glauber Rocha, Solanas or Gutierrez-Alea. The formal and aesthetic issues of cinematic texts and the historical, cultural and social contexts of their production. See the Schedule of Classes for the specific theme to be offered each semester.

SPAN 423. 20th-century Latin American Revolutions: Mexico and Cuba. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. A study of the Mexican revolution (1910-17) and the Cuban revolution (1959-present), as well as their aftermaths. Notions of political theory, such as revolutionary violence, the people and a classless society, will be discussed, as well as the ways in which art is used to both foster revolutionary ideals and criticize the shortcomings or paradoxical effects of the original emancipatory project. The ways in which European and American intellectuals were fascinated by "third-world revolutions" are also included.

SPAN 430. Literary Genres. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. Conducted in Spanish. An in-depth look at the development and expression of varieties of literature in Spanish. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 431. Literary Periods. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. Conducted in Spanish. An in-depth synchronic look at movements and their context in literature in Spanish. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 432. Hispanic Culture Through Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. Conducted in Spanish. An in-depth analysis of Hispanic texts dealing with cultural topics such as love relationships, death, family, religion, politics, gender and ethnicity, as well as their relationships to cultural values, behaviors, ideologies, beliefs and the histories of Spain and Spanish America.

SPAN 433. Don Quixote. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. Conducted in Spanish. An in-depth analysis of Miguel de Cervantes's masterpiece. Focuses on questions of the literary, linguistic and cultural complexity of "Don Quixote." Examines the work in the social and historical context of Early Modern Spain.

SPAN 485. Spanish Study Abroad. 1-12 Hours.

Semester course; 1-12 lecture hours. 1-12 credits. May be repeated for a maximum of 12 credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. This course offers all students the opportunity to improve their oral and written proficiency in Spanish, to enhance their awareness of cultural diversity and to become independent learners of Spanish language and the cultures of its speakers.

SPAN 491. Topics in Spanish. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a maximum of nine credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. An in-depth study of selected topics in Spanish. See the Schedule of Classes for specific topics to be offered each semester.

SPAN 492. Independent Study. 1-3 Hours.

Semester course; 1-3 independent study hours. 1-3 credits. Maximum of three credits per semester; may be repeated for total of six credits. Prerequisites: SPAN 301; and SPAN 320, SPAN 321, SPAN 322, SPAN 330, SPAN 331 or SPAN 332. A course designed to give students an opportunity to become involved in independent study in a literary or linguistic area or subject in which they have an interest.

Spanish/English Translation and Interpretation (SETI)**SETI 400. Spanish-English Comparative Grammar. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Prerequisites: SPAN 301; SPAN 320, 321 or 322; and SPAN 330, 331 or 332; or a score of "advanced" on the Avant STAMP assessment test. Conducted in Spanish and English. Advanced comparison of English and Spanish grammar with emphasis on the more complex forms of both languages.

SETI 410. Introduction to Spanish-English Translation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: SPAN 301; SPAN 320, 321 or 322; and SPAN 330, 331 or 332; or SETI 400; or a score of "advanced" on the Avant STAMP assessment test. Integrates the basic theory and practical aspects of translation from a perspective of applied linguistics. Practice given in both written and oral translation of diverse text types.

SETI 411. Intermediate Translation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SETI 410. Course conducted in Spanish and English. Exposes students to more advanced translation skills, introducing a more focused vocabulary for the legal, medical, business and educational fields that regularly use translation. Introduces students to professional associations and journals of the industry, including those dedicated to literary translation. Analyzes pros and cons of computer-assisted translations.

SETI 420. Introduction to Spanish-English Interpretation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: SPAN 301; SPAN 320, 321 or 322; and SPAN 330, 331 or 332; or SETI 400; or a score of "advanced" on the Avant STAMP assessment test. Course conducted in Spanish and English. Covers theory and practical aspects of interpretation, including the three modes of interpretation: simultaneous, consecutive and sight translation.

SETI 421. Intermediate Interpretation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SETI 420. Conducted in Spanish and English. Exposes students to more advanced interpreting skills in all three modes of interpretation – simultaneous, consecutive and sight translation – introducing a more focused vocabulary for the legal, medical, business and educational fields that regularly use interpreters.

SETI 422. Legal Interpretation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SETI 420 or permission of instructor. Conducted in Spanish and English. Students with interpreter and/or translator certification or a combined Avant STAMP Assessment test score of 1300 are encouraged to seek permission of the instructor to register for this course. Exposes students to the ethics, regulations and advanced vocabulary used in legal interpreting, with a focus on the state examination for certification in the court system.

SETI 423. Medical Interpretation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SETI 420 or permission of instructor. Conducted in Spanish and English. Students with interpreter and/or translator training or a composite Avant STAMP Assessment test score of "advanced low" are encouraged to seek permission of the instructor to register for this course. Exposes students to the ethics, regulations and advanced vocabulary used in medical interpreting. Explores the range of accreditation bodies and history of national and international certification in the medical interpreter profession, with the goal of grooming students for careers in this field.

SETI 491. Topics in Spanish-English Translation and Interpretation. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a maximum of nine credits. Prerequisites: SETI 410 and SETI 420. A study of selected topics in Spanish-English translation. Conducted in Spanish and English.

SETI 493. SETI Internship. 3 Hours.

Semester course; 120 clock hours in local, national or international internship placement where Spanish-English language interpretation or translation is required. 3 credits. Prerequisites: SETI 410 and SETI 420. Under the supervision of both a faculty member and a field supervisor, students will apply their translation and/or interpretation skills in an approved work situation. Each internship will be specifically designed in accordance with the student's linguistic level and the placement site requirements.

Statistical Sciences

STAT 206. Data Analysis and Statistics for Elementary Education. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to students majoring in liberal studies for early and elementary education who have received a passing score on the PRAXIS I exam. Understanding probability, describing data both graphically and numerically, regression/correlation, common distributions and interpretation, item analysis for tests, interpreting test scores and educational studies, experimental design and limitations, comparing results using t-tests. This course relies heavily on using a graphing calculator as a data-analysis tool. Students may receive credit toward graduation for only one of STAT 206, STAT 208, STAT 210, STAT 212, STAT 312 or SCMA 301.

STAT 208. Statistical Thinking. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course, or a minimum grade of C in MATH 131, MATH 139, MATH 141, MATH 151, MATH 200 or MATH 201. An exploration of the use of statistics in the world around us through in-depth case studies. Emphasis is on understanding statistical studies, charts, tables and graphs frequently seen in various media sources. Some lectures involve activities centered on case studies. Students may receive credit toward graduation for only one of STAT 206, STAT 208, STAT 210, STAT 212, STAT 312 or SCMA 301.

STAT 210. Basic Practice of Statistics. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course, or MATH 131, MATH 139, MATH 141, MATH 151, MATH 200 or MATH 201. Designed for students who will likely take another quantitative reasoning course for which statistics may be a prerequisite. Not open to mathematical sciences or computer science majors. Topics include examining distributions, examining relationships, producing data, sampling distributions and probability, introduction to inference. Students may receive credit toward graduation for only one of STAT 206, STAT 208, STAT 210, STAT 212, STAT 312 or SCMA 301.

STAT 212. Concepts of Statistics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course, or MATH 151, MATH 200 or MATH 201. Introductory statistics course with an emphasis on descriptive statistics, correlation and regression, probability, normal distributions, t distributions, and statistical inference. Appropriate technology/software will be used to illustrate concepts and analyses. A core course for mathematical sciences. Students may receive credit toward graduation for only one of STAT 206, STAT 208, STAT 210, STAT 212, STAT 312 or SCMA 301.

STAT 291. Topics in Statistics. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. A study of selected topics in statistics. Specific topics may fulfill general education requirements. See the Schedule of Classes for specific topics and prerequisites.

STAT 305. Intermediate Statistics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: STAT 212 or its equivalent. A study of intermediate-level statistical inference procedures, including categorical data analysis, analysis of variance, multiple regression and nonparametric procedures. Students may receive credit toward graduation for only one of STAT 305 or STAT 314.

STAT 309. Introduction to Probability Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 307 and either MATH 211 or MATH 300. A study of the mathematical theory of probability, including finite and infinite sample spaces, random variables, discrete and continuous distributions, mathematical expectation, functions of random variables and sampling distributions.

STAT 310. Introduction to Statistical Inference. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: STAT 212 and STAT 309, or permission of instructor. Framework for statistical inference. Point and interval estimation of population parameters. Hypothesis testing concepts, power functions, Neyman-Pearson lemma and likelihood ratio tests. Elementary decision theory concepts.

STAT 314. Applications of Statistics. 4 Hours.

Semester course; 4 lecture hours. 4 credits. Prerequisite: STAT 210 or 212. A study of the concepts and application of statistical methods including: estimation and hypothesis testing for two sample problems; one factor analysis of variance and multiple comparisons; randomized block designs and analysis; inferences on categorical data, including chi-square test for independence for contingency tables; simple linear regression and correlation; multiple linear regression. Special topics include distribution-free (nonparametric) methods in various statistical problems, two factor analysis of variance and the use of a statistical software package for data analysis. Students may receive credit toward graduation for only one of STAT 305 or STAT 314.

STAT 321. Introduction to Statistical Computing for Data Science. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: STAT 212 or its equivalent. The application of computers and computing software to statistical concepts using R, SAS and other quantitative software. Topics include data storage and retrieval, data modification and file handling, standard statistical analyses, graphical representations, practical presentation of results.

STAT 391. Topics in Statistics. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Prerequisite: because of the changing subject matter to be treated in this course, permission of the instructor is required. A study of selected topics in statistics. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

STAT 403. Introduction to Stochastic Processes. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 307 and STAT 309. Introduction to the theory of stochastic processes and their applications. In-depth studies of random variables, conditional probability and conditional expectation. Topics include Markov chains, random walks, Poisson processes, birth and death processes and applications to classical problems (e.g., gambler's ruin, physics, etc.).

STAT 421. Applied Statistical Computing Using R. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 310 and either STAT 305 or STAT 314, or their equivalents. Completion of STAT 321 is strongly recommended. Introduction to object-oriented programming in the R environment for use with statistical analyses. Topics include basic algorithms in R and applications involving random number generation, parametric and non-parametric data analysis and inference, linear models, simulation, and advanced data manipulation.

STAT 422. Structured Problem Solving Using Statistics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: STAT 314, PSYC 214 or SCMA 302, or permission of instructor. Focuses on using analytic frameworks and applying statistics to solve problems in a real-world environment. Topics include discussion of analytical frameworks, problem restatement, divergent/convergent thinking, causal flow diagramming, the matrix method, decision tree analysis, review of sampling, confidence intervals, regression, ANOVA, chi squared tests, as well as applications of these concepts to solve case studies.

STAT 423. Nonparametric Statistics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: STAT 305 or STAT 314; and STAT 321. Introduction to statistical estimation and inference methods that require relatively mild assumptions about the underlying population distribution. Topics include classical nonparametric hypothesis testing methods, permutation tests, bootstrap methods and density estimation.

STAT 425. Multivariate Statistics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 307, MATH 310, STAT 309, and either STAT 305 or STAT 314. Completion of STAT 421 is strongly recommended. Introduction to multivariate statistical analysis methods. Topics include multivariate probability distributions and their properties, conditional and marginal distributions, multivariate normal distribution, Hotelling's T² distribution, multivariate analysis of variance, repeated measures, multivariate regression, principle component analysis, exploratory factor analysis, linear discriminant analysis, cluster analysis, and regression trees. Students will use modern statistical software to perform these analyses.

STAT 435. Industrial Statistics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: STAT 305 or STAT 314. Introduction to statistical methods for quality control and process improvement. Topics include special versus common causes of variation, statistical thinking in industrial settings, Shewhart control charts, capability analysis, components of variation, design of experiments and response surface methods. Incorporates use of statistical software.

STAT 441. Applied Statistics for Engineers and Scientists. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201 or equivalent. An introduction to applied statistics intended primarily for students in engineering. The fundamental ideas about the collection and display of information, descriptive statistics and exploratory data analysis, elementary probability theory, frequency distributions, and sampling are covered. Other topics include tests of hypotheses and confidence intervals for one and two sample problems; ANOVA; principles of one-factor experimental designs including randomized complete block designs, fixed and random effects and multiple comparisons; correlation and linear regression analysis; control charts; contingency tables and goodness-of-fit. Statistical software is used extensively in this course, so a working knowledge of computers is necessary. Students may receive degree credit for only one of BIOS 543, STAT 441, STAT 541, STAT 543 or STAT 641.

STAT 443. Regression. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: STAT 305 and STAT 321, or permission of instructor. Completion of MATH 310 is strongly recommended. Introduction to the concepts and methods of linear regression, logistic regression, and other nonlinear regression models. Topics include model development and assumptions, estimation of model parameters, statistical inferences about the regression model, selection of an appropriate model, and diagnostics regarding multicollinearity and influence points. Applications involve the use of a statistical software package.

STAT 447. Introduction to Statistical Data Science. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: STAT 305 or STAT 314; and STAT 321. Familiarity with a computer programming language is strongly recommended. Introduces students to statistical concepts and tools of data science for processing, presenting and analyzing data. Topics include data visualization, data wrangling, simulation studies, statistical inference techniques and implementations, and other content that reflects the current needs of data scientists. The course takes an applied approach to provide a broad treatment of these topics from a statistical perspective. Students will be engaged in real data analysis using R and Python, progressing through data processing, exploratory techniques, statistical modeling, and interpreting and communicating analysis results.

STAT 475. Time Series. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: STAT 321 and either STAT 305 or STAT 314. Completion of STAT 421 is strongly recommended. Introduction to the modeling of univariate time series data. Topics include simple and exponential moving averages, Brown's double exponential smoothing, Holt-Winters model, autocorrelation, partial autocorrelation, autoregressive integrated moving average models, seasonal autoregressive moving average models, harmonic analysis and time series regression. Students will use modern statistical software to perform these analyses.

Statistical Sciences and Operations Research (SSOR)**SSOR 480. Consulting Using Advanced Analytics. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Prerequisites: UNIV 200 or HONR 200; either OPER 427 and OPER 428, or STAT 321 and either STAT 305 or STAT 314. Enrollment is restricted to senior mathematical sciences majors with concentrations in general mathematical sciences, statistics or operations research. Capstone course designed to help students apply analysis techniques and attain proficiency in professional communication, both written and oral, in the context of statistics and operations research. Focuses on applying statistical and analytical concepts to real-world scenarios, working with messy data and communicating conclusions to audiences with varying degrees of mathematical expertise.

SSOR 485. Career Planning and Professional Development for Statistics and Operations Research. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Enrollment is restricted to junior or senior mathematical sciences majors in the general mathematical sciences, statistics or operations research concentrations. Designed to help students in statistics and operations research concentrations explore and evaluate career plans and prepare for entrance into graduate school or the workforce. Focuses on résumé preparation, interviewing skills, personal statements and evaluating ethical dilemmas.

SSOR 492. Independent Study. 2-4 Hours.

Semester course; variable hours. 2-4 credits. Maximum 4 credits per semester; maximum total of 6 credits. Generally open only to students of junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration in the course. The student must submit a proposal for investigating some area or problem not contained in the regular curriculum. The results of the student's study will be presented in a report.

SSOR 493. Internship. 3 Hours.

Semester course; the equivalent of at least 15 work hours per week for a 15-week semester. 3 credits. Enrollment restricted to mathematical sciences/statistics and mathematical sciences/operations research majors only with junior or senior standing. Admission by permission from the department chair. Through placement in a position in business, industry, government or the university, the student will serve as an intern in order to obtain a broader knowledge of statistics or operations research techniques and their applications.

University Studies (UNVS)**UNVS 291. Interdisciplinary Topics. 1-4 Hours.**

Semester course; variable hours. 1-4 credits per semester. Maximum total of 8 credits in all university studies courses. An interdisciplinary course designed to give the student an overview of a topic not associated with a particular discipline.

World Studies (WRLD)**WRLD 203. Cultural Texts and Contexts: _____. 3 Hours.**

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Through the analysis and interpretation of literary, cinematic and other cultural texts, this course explores the ways cultural and national identities have been shaped, imagined and contested in various regions of the world. While responding to the readings and films as artistic manifestations or social documents, students will also become familiar with the aesthetic, political and social contexts in which the works were and are produced. See the Schedule of Classes for specific topics to be offered each semester.

WRLD 210. International Social Justice Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An overview of the issues, themes, disciplines, and areas of research and teaching that comprise international social justice studies in a variety of global contexts.

WRLD 220. Human Rights and Literature. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores how literature and other forms of aesthetic expression address the concept of human rights. Particular attention will be given to works that bear witness to and resist human rights violations. In addition, students will examine the role of literature, the arts and media more broadly in illuminating tensions between the theory and practice of human rights in different cultural and social contexts.

WRLD 230. Introduction to World Cinema. 3 Hours.

Semester course; 5 lecture/screening hours (delivered online, face-to-face or hybrid). 3 credits. An overview of the main theoretical frameworks, critical concepts and debates devoted to non-Hollywood world cinemas, with special emphasis on the rethinking of national cinema and the problematizing of identity in an increasingly transnational era. Broad interdisciplinary readings in film theory, film history and cultural studies will be supplemented by case studies of particular cinemas and filmmakers, so as to convey an appreciation of the main international movements in the history of cinema.

WRLD 291. Topics in World Languages and Cultures. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated with different content for a maximum of 6 credits. A study of a specialized topic in world cultures and languages. See the Schedule of Classes for specific topics to be offered each semester.

WRLD 294. Foundations in Experiential Research. 1-2 Hours.

Semester course; 1-2 research hours. 1-2 credits. Prerequisites: UNIV 200 or HONR 200; minimum of 9 credit hours earned in a specified field within the School of World Studies. Enrollment requires permission of the faculty supervisor. Introduces students to directed study of research processes undertaken in a specified field. Guides students through various phases of a research project (design, data collection, data analysis, manuscript writing) in conjunction with a School of World Studies faculty member. Provides students the opportunity to pursue research activity from the onset of their academic careers. Designed to prepare students for a progression of research engagement. Graded as pass/fail.

WRLD 302. Communicating Across Cultures. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Designed to increase understanding of the foundational concepts of communication and intercultural dialogue. Examines (among others) such concepts as individualism, collectivism, ethnocentrism, xenophobia, uncertainty avoidance, nonverbal communication and stereotyping.

WRLD 311. Civilization of the Mediterranean. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Exploration of the Mediterranean from pre-history to modernity, with an emphasis on cross-cultural engagement. Aims at exploring the interaction and cross-cultural fertilization between societies and cultures of the lands of the Middle Sea: North Africa, Middle East and southern Europe.

WRLD 325. The Humanities in International Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200. Examines a wide range of humanistic texts (such as fiction, poetry, visual arts and philosophical discussions) from around the world and considers the question of what it means to be human in an international or global context. Explores how texts mediate cultures across time and space, what is gained and what is lost in transit and translation, and how ideas of identity and difference are transferred and redefined across disparate historical, cultural and national boundaries.

WRLD 330. Global Film Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An overview of film studies with special attention given to the elements of cinematographic language and filmic analysis from both a technical and aesthetic standpoint. Applies these elements to the study of curated films from around the world. Also introduces critical paradigms of the major film theories and debates informing the periodization of film history.

WRLD 335. Language and Society: Sociolinguistics in _____. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. May be repeated with different topics for a maximum of six credits. An introduction to topics in sociolinguistics, including language variation, language attitudes, language planning, language contact and multilingualism, language and gender, language and identity, and more. Crosslisted as: ANTH 335.

WRLD 351. Exploring Languages Through Culture: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will give students the opportunity to learn about a topic through the exploration of cultural texts such as literature and film in French, German or Spanish in translation. The topics and focus will vary depending on the course instructor. This course will include a foreign language component, which means that students with sufficient language ability (202 or equivalent) will have the opportunity to take the course for foreign language credit through the completion of designated assignments in the target language. See the Schedule of Classes for specific topics to be offered each semester. Crosslisted as: FRLG 351.

WRLD 354. Religion and Film: _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different themes for a total of six credits. Explores central themes present in all global religious traditions, such as ritual, faith, myth, suffering, redemption, the religious quest/pilgrimage, the nature of good and evil and perceptions of the sacred. Using readings from sacred texts and contemporary film critiques, the course juxtaposes ancient story and wisdom with contemporary narratives in film. Possible themes would include women and religion in world cinema, Christology in world cinema, and violence and redemption in film. See the Schedule of Classes for specific topics to be offered each semester. Crosslisted as: CINE 354/RELS 354.

WRLD 359. International Media Coverage: The Middle East. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 101 or MASC 151 with a minimum grade of C. This interdisciplinary course explores the media's role in covering cultural, political, religious and other issues in the Middle East. Students will examine the role and impact of the media in both the United States and Middle East in shaping global and regional public opinion. Using webcam and online technology, VCU students will discuss cross-cultural perspectives with students from the other U.S. universities and universities in the Middle East. Crosslisted as: MASC 359.

WRLD 391. Topics in World Languages and Cultures. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated with different content for a maximum of 6 credits. An in-depth study of a specialized topic in world cultures and languages. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

WRLD 394. Research Assistantship. 1-3 Hours.

Semester course; 1-3 research hours. 1-3 credits (40 clock hours/credit). Prerequisites: UNIV 200 or HONR 200; minimum of 18 credits, including 12 upper-level, earned within a specified discipline in the School of World Studies. Enrollment requires permission of the faculty mentor. Engages students in research processes undertaken in their field. Intended for advanced students capable of undertaking more complicated projects, but not yet prepared for 400-level independent study or internship. Students will work on various phases of a research project (design, data collection, data analysis, manuscript writing) under a School of World Studies faculty mentor's close supervision. Designed to enhance the student's career pursuits for either graduate-level training or post-baccalaureate employment. Meets the experiential learning requirement for the School of World Studies. Graded as pass/fail.

WRLD 422. World Cinema Cultures. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different themes for a maximum of six credits. Tracing the development of cinematic traditions across national and international contexts, this course focuses on the thematic selections and stylistic techniques particular to cinematographic cultures. See the Schedule of Classes for the specific theme to be offered each semester.

WRLD 430. Film and the City. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Focuses on cinematic representations of cities worldwide, so as to probe the increasingly cross-cultural dynamics of urban landscapes. Films discussed will span the entire history of cinema across genres and national traditions.

WRLD 490. Seminar in World Cultures and Languages. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Restricted to seniors in world cultures and languages with at least 85 credit hours earned toward the degree. Research and analysis of a selected topic in world cultures and languages in a seminar setting.

WRLD 491. Topics in World Languages and Cultures. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated with different content for a maximum of 6 credits. An intensive and comprehensive examination of specialized areas of interest in world cultures and languages. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

WRLD 493. World Cultures Internship. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits (40 clock hours per credit). May be repeated for a maximum of six credits, however only three credits can count toward the major concentration. Student must be in good academic standing with a minimum major GPA of 2.25. Designed for the advanced student to gain workplace experience in internationally oriented public and private organizations and agencies.

WRLD 495. World ePass Portfolio. 0 Hours.

Semester course; variable independent study hours (delivered online). 0 credits. Corequisite: WRLD 490, INTL 490, ANTH 490 or RELS 490. Enrollment is restricted to students with senior standing (90 credits earned) majoring in anthropology, international studies, foreign language or religious studies in the School of World Studies. Students create a personalized online portfolio, highlighting academic and experiential learning achievements and articulate post-graduation goals.

WRLD 499. Senior Capstone Seminar. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: completion of 6 credits of 400-level courses in the major and senior standing. Open only to students enrolled as majors in the School of World Studies, including anthropology, religious studies, and world cultures and languages. Capstone seminar summarizing and synthesizing studies in World Studies programs. Preparation for entry into career search. Organization and polishing of written works representing skills acquired in programs. Assembly of individual portfolio as means of assessment and career tool.

School of the Arts

Advanced Media Production Technology (AMPT)

AMPT 401. Listen and Capture. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Foundational studio course in audio production that covers acoustics, audio physics and history, and equipment and technologies used in recording and editing.

AMPT 402. Editorial Storytelling. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Introductory studio course on motion visual editing techniques, exploring non-linear editing software, film editing history, color techniques, and basic visual effects including animation.

AMPT 403. Emerging Digital Cinema. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course that explores how traditional film and video production has been transformed by new technologies, including DSLR and high resolution RED cameras, teleprompting, green screen techniques.

AMPT 404. Script. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course on screen writing and story development, exploring traditional linear and non-linear plot development.

AMPT 422. Audio for Gaming. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course that focuses on proper recording and formatting of music and sound effects within the context of video game production.

AMPT 423. Motion Graphics. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course that focuses on visual effects including titles, preparing clips for a video editor, and generating computer based animation.

AMPT 424. Music Production Techniques. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course that explores music production for modern styles of popular and alternative acoustic music, particularly virtual instruments, loops and vocal production techniques.

AMPT 425. Light. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course that examines lighting requirements for digital media, exploring lighting design and techniques in the context of video production.

AMPT 426. Foley and Sound Design. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course that explores adding sound created by actors and audio engineers to picture, focusing on the use of both traditional techniques and current digital audio workstation software.

AMPT 491. Topics in Advanced Media Production Technology. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a maximum of six credits. Explores a variety of media production issues that focus on the uses of specific software, technologies and processes. See the Schedule of Classes for details on the specific topics covered each semester.

AMPT 495. Sound Manipulation. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: AMPT 401. Studio course that focuses on the live audio recording process, covering sound design, foley techniques, and use and maintenance of relevant sound equipment.

AMPT 496. Finishing the Story. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: AMPT 402. Studio course that expands on the concepts previously covered in prerequisite course for students concentrating in video post-production, further exploring the technology of high-definition and digital cinema.

AMPT 497. Mastering Digital Cinema. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: AMPT 403. Studio course that builds on concepts explored in prerequisite course for students in the production concentration, further exploring how traditional film and video production has been transformed by new technologies.

Applied Lessons (APPL)

APPL 200. Applied Lessons. 1 Hour.

Semester course; half-hour weekly private lesson plus daily practice. 1 credit. May be repeated for a total of 8 credits. Previous experience and ability to read music required. Additional fee for course required. Private applied lessons for musical instruments. Consult the music department for appropriate section.

APPL 310. Applied Lessons. 2 Hours.

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. May be repeated for a total of 8 credits. For music majors only. Permission of chair required. Applied lessons for principal performing medium. Consult the music department for appropriate section.

APPL 311. Applied Lessons. 2 Hours.

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. For music majors only. Corequisite: APPM 299 (except jazz studies majors). Applied lessons for principal performing medium proficiency Level I. Jury required. Consult adviser for appropriate course and section.

APPL 312. Applied Lessons. 2 Hours.

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. For music majors only. Prerequisite: APPL 311 with a minimum grade of C. Corequisite: APPM 299 (except jazz studies majors). Applied lessons for principal performing medium proficiency Level II. Jury required. Consult adviser for appropriate course and section.

APPL 313. Applied Lessons. 2 Hours.

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. For music majors only. Prerequisite: APPL 312 with a minimum grade of C. Corequisite: APPM 299 (except jazz studies majors). Applied lessons for principal performing medium proficiency Level III. Jury required. Consult adviser for appropriate course and section.

APPL 314. Applied Lessons. 2 Hours.

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. For music majors only. Prerequisite: APPL 313 with a minimum grade of C. Corequisite: APPM 299 (except jazz studies majors). Applied lessons for principal performing medium proficiency Level IV. Jury required. Consult adviser for appropriate course and section.

APPL 320. Applied Lessons Secondary Instrument. 1 Hour.

Semester course; half-hour weekly private lesson plus daily practice. 1 credit. May be repeated for a total of 4 credits. Open to music majors only. Private applied lessons for secondary instrument requirement. Consult music department for appropriate section.

APPL 321. Applied Lessons Secondary Instrument. 2 Hours.

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. Open to music majors only. Corequisite: APPM 299. Applied lessons for secondary performing medium proficiency Level I. Jury required. Consult adviser for appropriate course and section.

APPL 322. Applied Lessons Secondary Instrument. 2 Hours.

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. Open to music majors only. Prerequisite: APPL 321 with a minimum grade of C. Corequisite: APPM 299. Applied lessons for secondary performing medium proficiency Level II. Jury required. Consult adviser for appropriate course and section.

APPL 323. Applied Lessons Secondary Instrument. 2 Hours.

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. Open to music majors only. Prerequisite: APPL 322 with a minimum grade of C. Corequisite: APPM 299. Applied lessons for secondary performing medium proficiency Level III. Jury required. Consult adviser for appropriate course and section.

APPL 324. Applied Lessons Secondary Instrument. 2 Hours.

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. Open to music majors only. Prerequisite: APPL 323 with a minimum grade of C. Corequisite: APPM 299. Applied lessons for secondary performing medium proficiency Level IV. Jury required. Must earn a minimum grade of C. Consult adviser for appropriate course and section.

APPL 330. Secondary Applied Instrument Lessons for Music Education. 1 Hour.

Semester course; 1 laboratory hour (half-hour weekly applied lesson plus daily practice). 1 credit. May be repeated for a total of 4 credits. Enrollment is restricted to music education concentration students. Applied lesson for secondary instrument requirement. Must receive permission from director of music education for specific instrument(s) of study. Consult music department Schedule of Classes for appropriate section.

APPL 415. Applied Lessons. 2 Hours.

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. Enrollment is restricted to music majors. Prerequisite: APPL 314 with a minimum grade of C. Corequisite: APPM 299 or APPM 399. Applied lessons for principal performing medium proficiency Level V. Jury required. Consult adviser for appropriate course and section.

APPL 416. Applied Lessons and Junior Recital. 2 Hours.

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. Enrollment is restricted to music majors. Prerequisite: APPL 415 with a minimum grade of C. Corequisite: APPM 299 or APPM 399. Applied lessons for principal performing medium proficiency Level VI. Recital required. Consult adviser for appropriate course and section.

APPL 417. Applied Lessons. 2 Hours.

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. Enrollment is restricted to music majors. Prerequisite: APPL 416 with a minimum grade of C. Corequisite: APPM 299 or APPM 399. Applied lessons for principal performing medium proficiency Level VII. Jury required. Consult adviser for appropriate course and section.

APPL 418. Applied Lessons and Senior Recital. 2 Hours.

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. Enrollment is restricted to music majors. Prerequisite: APPL 417 with a minimum grade of C. Corequisite: APPM 299 or APPM 399. Applied lessons for principal performing medium proficiency Level VIII. Recital required. Must earn a minimum grade of C. Consult adviser for appropriate course and section.

Applied Music (APPM)**APPM 126. Keyboard Fundamentals. 1 Hour.**

Semester course; 2 laboratory hours. 1 credit. Reading, technical study, chording, playing by ear and improvisation in classical and non-classical styles. This course is for beginners.

APPM 161. Lyric Diction I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to VCU music majors and music minors. A study of stage diction with practical experience in singing and phonetic transcription using the International Phonetic Alphabet. Languages studied will include English and Italian.

APPM 162. Lyric Diction II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: APPM 161. Enrollment is restricted to VCU music majors and music minors. A study of stage diction with practical experience in singing and phonetic transcription using the International Phonetic Alphabet. Languages studied include French and German.

APPM 173. Keyboard Skills I. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Open only to music majors. Initial placement in course sequence determined by proficiency audition. Acquisition of keyboard performance skills with emphasis on sight reading, keyboard harmony and improvisation.

APPM 174. Keyboard Skills II. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisite: APPM 173. Open only to music majors. Initial placement in course sequence determined by proficiency audition. Acquisition of keyboard performance skills with emphasis on sight reading, keyboard harmony and improvisation.

APPM 199. Recital/Convocation Attendance. 0 Hours.

Semester course; no credit. Course may be repeated without limit. Music majors only. Attendance at weekly departmental convocations and a minimum of 10 additional concerts or recitals each semester.

APPM 251. Jazz Improvisation I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 147. A study of basic compositional techniques that can be used in creating a musically effective improvised solo in the jazz medium.

APPM 252. Jazz Improvisation II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: APPM 251. Advanced melodic, harmonic and rhythmic improvisational techniques as applied to contemporary jazz compositions.

APPM 272. Jazz Piano for the Non-keyboard Player. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisites: APPM 174 and MHIS 147. Acquisition of jazz keyboard performance skills with emphasis on reading, harmonization and improvisation.

APPM 273. Keyboard Skills III. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisite: APPM 174. Open only to music majors. Initial placement in course sequence determined by proficiency audition. Acquisition of keyboard performance skills with emphasis on sight reading, keyboard harmony and improvisation.

APPM 291. Topics in Applied Music. 1-3 Hours.

Semester course; 1-3 laboratory hours. 1-3 credits. May be repeated for a maximum of six credits. Enrollment requires permission of the instructor. Flexible semester courses in selected aspects of music performance. See the Schedule of Classes for specific topics to be offered.

APPM 299. Master Class. 0 Hours.

Semester course; no credit. Course may be repeated without limit. Participation in weekly master classes in student's applied major area.

APPM 309. Applied Composition. 1 Hour.

Semester course; one-hour weekly private lesson. 1 credit. May be repeated for a total of 4 credits. Prerequisite: MHIS 245. For music majors only. A structured approach to composing music from exercises and studies to complex large forms.

APPM 310. Applied Jazz Composition. 1 Hour.

Semester course; one-hour weekly private lesson. 1 credit. May be repeated for a total of 4 credits. Prerequisite: MHIS 245. For music majors only. A structured approach to composing music in the jazz idiom, including small and large ensemble formats.

APPM 350. Vocal Coaching. 1,2 Hour.

Semester course; one-half- or one-hour weekly private lessons plus daily practice. 1 or 2 credits. May be repeated for a total of 12 credits. Restricted to music majors. Corequisite: applied voice. Detailed exploration of historical musical style; diction skills for Italian, French, German, Spanish and English; audition techniques; and dramatic interpretation.

APPM 355. Orchestra. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Provides an opportunity to rehearse and perform works from the symphonic repertoire while improving ensemble skills.

APPM 356. Symphonic Wind Ensemble. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Ensemble performs a variety of contemporary wind ensemble repertoire as well as standards. Ensemble performs multiple times throughout the semester and at off-campus events. In addition to rehearsals, weekly one-hour sectionals are required.

APPM 357. University Band. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to all students who play wind or percussion instruments. The class does not require an audition for participation. Ensemble preparation intended for a single performance each semester.

APPM 358. Commonwealth Singers. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Rehearsals focus on the development of individual and group vocal technique, musicianship and communication relevant to repertoire prepared.

APPM 359. Choral Arts Society. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. A large, nonauditioned chorale open to all university students with choral experience. Ensemble will prepare and perform a variety of choral literature each semester.

APPM 360. Large Jazz Ensemble. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. May be repeated for a total of eight credits. Enrollment is restricted to music majors or by permission; audition required. Ensemble performs a range of contemporary and historical styles and performs multiple times throughout the semester. In addition to rehearsals, weekly one-hour sectionals are required.

APPM 361. Small Jazz Ensemble. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Jazz ensembles of typically five to nine players rehearse and prepare existing repertoire and student compositions. Independent problem-solving and ensemble-playing skills developed through weekly rehearsals and coaching.

APPM 362. Accompanying: Piano. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 2 credits. For piano majors only. The development of skills in piano accompaniment of vocal and instrumental performance. Coaching and guidance will include harmonic voicing, sound coloring, balance issues, pedaling and score reduction.

APPM 363. Flute Choir. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission. Conducted ensemble rehearses and prepares repertoire.

APPM 364. Guitar Ensemble. 1 Hour.

Semester course; 2.5 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to guitar music majors or by permission; audition required. Biweekly rehearsals prepare this ensemble of 20-25 guitarists for performances of repertoire from the Renaissance to newly composed and arranged works.

APPM 365. Advanced Aural Skills I. 2 Hours.

Semester course; 2 laboratory hours. 2 credits. Prerequisites: MHIS 245. Open to music majors only. Advanced development of skills in melodic and rhythmic dictation, harmonic identification and sight singing.

APPM 366. Aural Skills VI. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisites: MHIS 246. Open to music majors only. Advanced development of skills in melodic and rhythmic dictation, harmonic identification and sight singing.

APPM 367. Piano Ensemble. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Small chamber ensemble in which piano shares leading or equal role rehearses and prepares repertoire. Groups will rehearse weekly and receive at least three or four coaching sessions per semester.

APPM 368. Woodwind Ensemble. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Chamber ensembles of two to 13 players, involving woodwinds and often other instruments. Coached by various music faculty on a weekly basis.

APPM 369. Percussion Ensemble. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Small ensembles of three to six players rehearse primarily non-conducted repertoire for semester performances. Weekly rehearsals with coaching from instructor designed to address musicianship, chamber ensemble skills, rehearsal technique and familiarity with contemporary performance practices.

APPM 370. Percussion Auxiliary. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. May be repeated for a maximum of eight credits. Enrollment is restricted to percussion majors or by permission of instructor; audition required. Students in this course will participate in large ensembles as required by personnel needs. Weekly rehearsals are designed to improve musicianship, ensemble skills, rehearsal technique and familiarity with contemporary percussion performance practices.

APPM 371. String Chamber Music. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. String chamber involving two to five players rehearse and prepare repertoire. Independent problem-solving and ensemble-playing skills are developed through weekly rehearsals and coaching.

APPM 372. Brass Ensemble. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Chamber ensembles of three to five players, involving various combinations of brass instruments. Coached by various music faculty on a weekly basis.

APPM 373. Advanced Keyboard Skills I. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. For piano majors only. Emphasis is on harmonization with correct style and voice-leading, reading figured bass and lead sheets, improvisation and reducing scores at the keyboard.

APPM 374. Advanced Keyboard Skills II. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisites: APPM 373 and MHIS 146. Enrollment restricted to piano majors. Emphasis is on harmonization with correct style and voice-leading, reading figured bass and lead sheets, improvisation and reducing scores at the keyboard.

APPM 377. Vocal Chamber Ensemble. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 3 credits. Open to music majors or by permission; audition required. Variable sized non-conducted ensembles receive weekly coaching in preparation for performances. Ensembles will seek to build proficiency in musicianship skills, reading ability, performance practices and interpretative technique in a variety of styles.

APPM 378. Vox Concordia. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Repeatable to fulfill degree requirements. Enrollment is restricted to music majors or by permission of the instructor; an audition is required. Ensemble rehearses and prepares repertoire for performance. Vox Concordia is open to university students who sing soprano, mezzo-soprano or alto and have previous choral experience.

APPM 381. Conducting. 2 Hours.

Semester course; 1 lecture and 2 laboratory hours. 2 credits. Prerequisite: MHIS 245. Development of fundamental gestural skills for conducting instrumental and choral ensembles including simple and compound meters, multimetric music and aleatoric music. Introduces basic score reading, aural analysis skills and terminology.

APPM 385. Opera Theatre. 2 Hours.

Semester course; 1 lecture and 4 studio hours. 2 credits. May be repeated for a total of 16 credits. Permission of instructor required. Explores aspects of opera through study, written research and fully staged public performances of operatic scenes and/or one-act operas.

APPM 386. Opera Ensemble. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 5 credits. Enrollment is restricted to music majors; selected by audition. Explores aspects of operatic chorus singing, acting craft, period and stage movement, stage makeup and technical theatre through fully staged performances.

APPM 395. Opera Orchestra. 1 Hour.

Semester course; 2.5 laboratory hours. 1 credit. May be repeated for a total of 5 credits. Corequisite: APPM 355. Enrollment is restricted to music majors. Through an intense series of rehearsals and performances of fully staged works from the operatic repertoire, students experience the art of accompanying singers, improve ensemble and listening skills, and develop their sense of balance and their understanding of operatic styles.

APPM 396. Jazz Orchestra II. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. May be repeated for a total of eight credits. Enrollment is restricted to music majors or by permission; audition required. Ensemble performs a range of contemporary and historical styles and performs multiple times throughout the semester. In addition to rehearsals, weekly one-hour sectionals are required.

APPM 399. Jazz Master Class. 0 Hours.

Semester course; 1 laboratory hour. 0 credits. Course may be repeated without limit. Weekly classes of mixed instrumentation prepare the student with the performance skills for entry into the jazz field. Instructor and peer critique, transcription and analysis, exposure to improvisatory issues.

APPM 463. Pedagogy. 2 Hours.

Semester course; 2 lecture hours. 2 credits. A study of the musical, physiological and psychological aspects of teaching instruments or voice.

APPM 464. Piano Pedagogy Practicum. 2 Hours.

Semester course; 1 lecture and 1 laboratory hour. 2 credits. Prerequisites: MHIS 304 and APPM 463 (piano). An advanced study of piano pedagogy with a supervised teaching component.

APPM 491. Topics in Applied Music. 1-3 Hours.

Semester course; 1-3 laboratory hours. 1-3 credits. May be repeated for a maximum of six credits. Enrollment requires permission of the instructor. Flexible semester courses in selected aspects of music performance. See the Schedule of Classes for specific topics to be offered.

APPM 492. Senior Project: Portfolio Review. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisites: APPL 416 for performance majors or APPL 314 for B.A. degree students. Enrollment restricted to students with senior standing and a minimum of 18 credits in 300- or 400-level courses. A capstone experience integrating resume preparation and professional development within the field of music. Documentation of creative activities and achievements accumulated during music studies is compiled for a portfolio review. Graded as Pass/Fail.

APPM 493. Music Internship. 1-4 Hours.

Semester course; Variable hours. 1-4 credits. May be repeated for a maximum of 4 credits. Prerequisites: open to music majors with junior standing, 3.0 GPA in major course work and minimum of 2.5 overall GPA, plus consent of coordinator and department chair. Provides full- or part-time professional field experience with approved organizations/ individuals. Areas for the internship include (but are not limited to) music publication and production, arts administration and promotion, arts management, entertainment law, presentations and research, instrument repair, recording techniques, composition and arranging, and/or performance opportunities. Graded as S/U.

Art Education (ARTE)**ARTE 222. Rethinking Popular, Visual and Media Culture. 3 Hours.**

Semester course; 3 lecture hours (delivered online). 3 credits. Learning to rethink the consumption and production of popular, visual and media texts. This course provokes investigations of cultural texts (visual art, digital media, performance and sites of popular culture) and their relationship to the sociocultural constructions of race, ethnicity, gender, sexuality, ability, class, etc., as well as the intersections of privilege and oppression in contemporary life.

ARTE 250. Computer Technology in Art Education. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. For art education majors only. The use of computer as a tool for creating electronic imagery, as a filtering mechanism for traditional media and to develop teaching materials for the pre-K through 12th-grade classroom. The course includes an introduction to presentation technology, digital imaging and Web page design. Ethical and copyright issues related to new technologies will be addressed.

ARTE 301. Art for Elementary Teachers. 3 Hours.

Continuous courses; 1 lecture, 1 seminar and 2 studio hours. 3-3 credits. Prerequisite: completion of ARTE 301 to enroll in ARTE 302. The nature of art and its function in the lives of individuals and society is considered in addition to materials and methods for guiding the visual expression of children.

ARTE 310. Foundations of Art Education. 3 Hours.

Semester course; 3 lecture hours. 3 credits. For art education majors only or by approval of the department chair. An examination of art education within the curricular structure of educational programs and the developmental growth of children. Students will explore the historical, philosophical and sociological foundations of art in education, including art education's development and current roles.

ARTE 311. Art Education Curriculum and Instructional Procedures. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: ARTE 310. For art education majors only. A study of the principles of learning, instruction and curriculum in art education programs. Students will develop teaching competencies through micro-teaching experiences, analysis of instructional methods and writing units of study.

ARTE 380. Justice and Equity in the Visual Arts and Education. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Through lectures and discussion, students will engage with the history and current state of education and the arts. The course addresses intersectional approaches to studying the arts; contemporary and historical structures; and concepts that affect artists, art-making and education.

ARTE 401. Art Education Elementary Materials and Practicum. 4 Hours.

Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisites: UNIV 200 or HONR 200, admission to the art teacher preparation program and completion of ARTE 311. For art education majors only or by the approval of the department chair. A preparatory experience with observation and participation in art programs in elementary grades prior to student teaching. This course explores art materials, techniques and teaching methods suitable for this level; and analyzes evaluation strategies appropriate for art.

ARTE 402. Art Education Secondary Materials and Practicum. 4 Hours.

Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisites: admission to the art teacher preparation program and completion of ARTE 311. For art education majors only or by approval of department chair. A preparatory experience with observation and participation in art programs in middle school, secondary school and nontraditional settings prior to student teaching. This course explores art materials and techniques suitable for these levels, examines developmental performance levels and analyzes evaluation methods appropriate for art. Writing intensive.

ARTE 404. Clinical Internship Seminar. 1 Hour.

Semester course; 1 seminar hour. 1 credit. Corequisites: TEDU 485 and 486. For art education majors only. Capstone experience. A seminar concurrent with clinical internship (student teaching) that gives students an opportunity to discuss and evaluate their progress in teaching assignments and other related activities.

ARTE 405. Methods and Field Experience in Art Education. 4 Hours.

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisite: ARTE 311. Corequisite: ARTE 406. Enrollment is restricted to art education majors who have been admitted to the art teacher preparation program or by approval of department chair. A preparatory experience with observation and participation in art programs in elementary school, middle school and/or secondary school settings prior to student teaching. This course explores teaching techniques suitable for these levels, examines developmental performance levels and analyzes evaluation methods appropriate for art. Writing intensive.

ARTE 407. Photography in Art Education. 3 Hours.

Semester course; 1 lecture and 2 studio hours. 3 credits. A general introduction to the technical, theoretical and historical issues related to photography. Taught as a seminar and workshop teaching both digital and traditional camera functions, photographic terms, concepts, history, technique and alternative processes applicable to K-12 education.

ARTE 408. Two-dimensional Art Experiences. 3 Hours.

Semester course; 1 seminar and 4 studio hours. 3 credits. Open to art education majors only. Students will explore the two-dimensional traditional and emerging media that are relevant to teaching. The focus will be contemporary methods and conceptual approaches to visual meaning-making.

ARTE 409. Three-dimensional Art Experiences. 3 Hours.

Semester course; 1 seminar and 4 studio hours. 3 credits. Open to art education majors only. Students will explore the three-dimensional traditional and emerging media that are relevant to teaching. The focus will be contemporary methods and conceptual approaches to visual meaning-making.

ARTE 450. Art for the Exceptional Student. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: ARTE 311. For art education majors only. A study of the unique characteristics of exceptional students as related to involvement in the arts. The course examines disabled, aged, gifted, talented and other exceptional learners, and may include practicum and field experiences.

ARTE 491. Special Topics. 3 Hours.

Semester course; variable hours. Variable credit. May be repeated for a maximum of 9 credits with different content. A seminar and/or workshop offered on a variety of art education issues not included in the regular curriculum. See the Schedule of Classes for specific topics to be offered each semester.

ARTE 492. Independent Study. 1-6 Hours.

Semester course; variable hours. 1-6 credits per semester. May be repeated for a maximum total of 6 credits. Prerequisites: consent of department chair and instructor. Offered to art education majors only. This course will be limited to those few students who have demonstrated an exceptional level of ability and intense commitment to a particular area.

ARTE 493. Internship. 1-6 Hours.

Semester course; variable hours. 1-6 credits. May be repeated for a maximum total of 6 credits. Consent of department chair required. Offered to art education majors only. This service-learning course is designed to encourage students to seek internships with organizations that lead to research in art education and deepen engagement with diverse communities. Students must secure departmental approval for internships the semester prior to registration. International internships must register with the Education Abroad office.

ARTE 494. International Field Experience. 1-6 Hours.

Semester course; variable hours. 1-6 credits. Education Abroad application and consent of instructor required. Open to all students. This course is designed to facilitate student interactions with arts organizations in international settings that lead to research in art education and deepen engagement with diverse communities.

Art Foundation (ARTF)

ARTF 115. Art History Survey. 3 Hours.

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisite: completion of ARTF 115 to enroll in ARTF 116. A survey of the history and development of the visual arts within the contexts of history, geography, politics, religion, economics and the broad social and personal aspects of human culture. Offered at VCU Qatar.

ARTF 116. Art History Survey. 3 Hours.

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisite: completion of ARTF 115 to enroll in ARTF 116. A survey of the history and development of the visual arts within the contexts of history, geography, politics, religion, economics and the broad social and personal aspects of human culture. Offered at VCU Qatar.

ARTF 121. Introduction to Drawing. 2 Hours.

Continuous courses; 1 lecture and 3 studio hours. 2-2 credits. Prerequisite: completion of ARTF 121 to enroll in ARTF 122. Not for art majors. An introduction to the fundamentals of freehand drawing with an emphasis on representational drawing skills, perception and traditional drawing materials. Does not fulfill Art Foundation Program requirements.

ARTF 131. Drawing Studio. 3 Hours.

Semester course; 6 studio hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to first-year fine arts and design majors in the School of the Arts. Drawing A to Z, from pencil to perspective, from sumi ink to skywriting. An intensive drawing studio covering the historic principles of drawing and their place in contemporary practice. Provides an in-depth investigation of line, perspective, the figure, gesture, space, atmosphere, erasure, etc. Through the repeated physical activity of drawing, students will refine their intellectual powers of observation and visualization.

ARTF 132. Surface Research. 3 Hours.

Semester course; 6 studio hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to first-year fine arts and design majors in the School of the Arts. A studio-based course designed to cultivate a student's ability to create and understand two-dimensional imagery. Will include basic principles of design, color and visual organization in traditional, digital and lens-based media. Course content will explore the context of imagery in the larger culture and the potential of art and design.

ARTF 133. Space Research. 3 Hours.

Semester course; 6 studio hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to first-year fine arts and design majors in the School of the Arts. A comprehensive investigation of three-dimensional phenomena in fine art and design. Will cultivate a student's ability to think, perceive, visualize, design and build in three dimensions. Issues of understanding and envisioning space, objects, scale and the relationship of the body to the built environment are subjects of the course. Students will acquire a broad skill set of fabrication techniques and an inquiry into the possibility of 21st-century materials.

ARTF 134. Time Studio. 3 Hours.

Semester course; 6 studio hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to first-year fine arts and design majors in the School of the Arts. Brings together tenets of contemporary practice that have extended the fields of fine art and design. Time-based media such as film, video and sound are included in this mix. The historically underrepresented impulses of theatrically and performance will be explored. Students will use video as a primary tool, but will address larger issues of ephemerality, duration and the possibilities of the moving image.

ARTF 138. Project Seminar. 1-2 Hours.

Semester course; 1-2 seminar hours (delivered online, face-to-face or hybrid). 1-2 credits. May be repeated up to a maximum of four credits. Enrollment is restricted to first-year fine arts and design majors in the School of the Arts. A seminar on a selected issue, topic or skill in the fields of fine art and design.

ARTF 139. Project Studio. 1-2 Hours.

Semester course; 2-4 studio hours (delivered online, face-to-face or hybrid). 1-2 credits. May be repeated up to a maximum of four credits. Enrollment is restricted to first-year fine arts and design majors in the School of the Arts. A studio on a selected issue, topic or skill in the fields of fine art and design.

ARTF 150. Pre-Art Foundation Studio. 4 Hours.

Semester course; 6 studio and 2 lecture hours. 4 credits. For students in the Pre-Art Foundation Program in the School of the Arts. Offered to Pre-Art Foundation designees only. A beginning studio course emphasizing the fundamental issues of art and design, such as meaning, context, content and parameters, structure, materials, means of construction, form, space, and light. As the primary studio offering in the Pre-Art Foundation year, this course stresses the development of values that will become a basis for students' actions as professional artists and designers. Introduces students to the values, habits, traditions and expectations of studio culture. Addresses the processes and methods involved in the identification, development and realization of ideas and concepts. Does not fulfill Art Foundation Program requirements.

ARTF 160. Pre-Art Foundation Drawing. 4 Hours.

Semester course; 6 studio and 2 lecture hours. 4 credits. For students in the Pre-Art Foundation Program in the School of the Arts. Offered to Pre-Art Foundation designees only. A beginning drawing course offering intense exposure to the basic skills of figure and perspective drawing. Traditional drawing media, the fundamentals of anatomy and the fundamentals of linear perspective are covered. Does not fulfill Art Foundation Program requirements.

ARTF 191. Topics in Foundation Studies. 1-4 Hours.

Short course; variable hours. 5 weeks. 1-4 credits. May not be repeated. Prerequisites: permission of the program director and instructor. A seminar or studio on a selected issue, topic or skill in the field of foundation studies.

Art History (ARTH)**ARTH 103. Survey of Art I. 3 Hours.**

Semester course; 3 lecture hours (delivered online and face-to-face). 3 credits. Introductory survey of art from the prehistoric era through the 13th century, including examples from selected regions of Europe, Asia, Africa and the Americas. Illustrated lectures demonstrate visual analysis and other art historical methods while also identifying key monuments and artists' work in relationship to historical contexts.

ARTH 104. Survey of Art II. 3 Hours.

Semester course; 3 lecture hours (delivered online and face-to-face). 3 credits. Introductory survey of art from the 14th century through 21st century, including examples from selected regions of Europe, Asia, Africa and the Americas. Illustrated lectures demonstrate visual analysis and other art historical methods while also identifying key monuments and artists' work in relationship to historical contexts.

ARTH 201. Banned! Art and Controversy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. What could make a work of art so controversial that it divides public opinion, is banned from public view or even gets destroyed? This course examines the reasons why visual art can be such a provocative and polarizing creative endeavor. By examining case studies from various historical and geographical contexts, students will explore the ways in which artistic controversy intersects key humanistic concerns, including questions of aesthetics and economic value; politics and cultural heritage; sacredness and religion; and gender and sexuality. This course will promote critical looking and thinking by introducing students to a variety of criteria used to evaluate art and by challenging them to consider diverse, often contradictory, interpretations of art.

ARTH 207. Global Art History. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Art will be presented as an integral aspect of each culture from the areas of China, Japan, Africa, Oceania, Native America, and pre-Columbian Central and South America. Aesthetic appreciation will be enhanced through a presentation of various philosophies, customs and values. Illustrated lectures and analytical practices will be supported by the student visiting local museums and galleries to examine selected works of art.

ARTH 245. Survey of Asian Art. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introductory survey of South Asian, Himalayan, Southeast Asian and East Asian art. Illustrated lectures provide a survey of Asian art and architecture.

ARTH 260. Islamic Art Survey. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 103, ARTF 105 or ARTF 115; and ARTH 104, ARTF 106 or ARTF 116. Provides a survey of Islamic art and architecture from the seventh century to the present.

ARTH 261. Islamic Art Survey. 3 Hours.

Semester course; 3 lecture hours. 3, 3 credits. Prerequisites: ARTH 103 or ARTF 105 or 115 and ARTH 104 or ARTF 106 or 116. First semester: seventh century to 13th century. Second semester: 14th century to the present. Illustrated lectures provide a survey of Islamic art and architecture. Students will visit local museums and galleries to examine selected works of art.

ARTH 270. History of the Motion Picture I. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. The history of development of the motion picture from the early 1800s to the mid-20th century, with both technical and aesthetic consideration. Students engage in analysis and discussion after viewing selected films.

ARTH 271. History of the Motion Picture II. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. The history of development of the motion picture from post-WWII to the present, with both technical and aesthetic consideration. Students engage in analysis and discussion after viewing selected films.

ARTH 291. Special Topics. 1-3 Hours.

Semester course; 1-3 variable hours. 1-3 credits. May be repeated with different topics for a maximum of 9 credits. An in-depth study of a selected topic in art history not included in the curriculum. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 292. Writing for Art History. 4 Hours.

Semester course; 2 lecture and 2 research hours. 4 credits. Prerequisite: UNIV 200 or HONR 200 with a minimum grade of C. Enrollment is restricted to art history majors. Students hone their writing skills in a variety of contexts relevant to the field of art history through writing assignments that emphasize argumentation, creativity and research, writing for a specific audience, responsible use of sources, paragraph and sentence mechanics, and developing an individual voice as an author. Students will produce an extended research project that culminates in a formal presentation and research paper.

ARTH 293. Professional Practices for Art History. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: UNIV 200 with a minimum grade of C. Enrollment is restricted to art history majors. This course introduces students to a variety of career pathways within art history and includes practical advice about career preparation in the field. Through a combination of lecture and guest-speaker workshops, students learn about careers in academia, museums, libraries, publishing, arts administration and art conservation, among others. By the end of the course, students will create a portfolio of professional documents and give a short presentation about their future career goals.

ARTH 300. Prehistoric and Ancient Art and Architecture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the artistic expressions of the major prehistoric and ancient cultures of Europe, the Near East, Egypt and the Aegean.

ARTH 302. Introduction to Museums. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of contemporary theories, issues and practices in the museum environment. Topics include museum identity and function, administration, museum ethics, collections maintenance and management, curatorial and exhibition issues, and education and public interaction.

ARTH 303. History of Art Museums. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Course surveys the history of museums, from their origins in early modern Europe to the present day. This course explores the development of museums not just as preservers of culture, but also as active agents in shaping the perception of and access to cultural objects.

ARTH 304. Art of Ancient African Cultures and Kingdoms. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An in-depth examination of the visual arts of ancient African cultures and kingdoms from prehistoric times to the 18th century and analysis of the historical, cultural and economic forces that shaped them.

ARTH 305. Classical Art and Architecture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the development of Greek, Etruscan and Roman art and architecture from their beginnings to the early 4th century CE.

ARTH 309. Introduction to Islamic Art. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARTH 103 or ARTH 104. The course introduces the social, political and cultural developments and changes of art, material culture and the built environment of the early centuries of Islam, starting with its founding in the 7th century until the early modern period (ca. 1700s). The regions covered in this course span West, Central and South Asia, North Africa and southern Spain. The course foregrounds a number of important monuments, artworks and urban structures in these regions and considers major visual trends, varying patterns of use, urban transformations, intersections of belief systems, cross-cultural encounters and changing societal values attributed to visual culture and architecture by members of the region's diverse social, political and cultural milieus. Although focused on the history of Islamic art before the 19th century, the course includes a consideration of relevant modern and contemporary examples of visual culture and architecture that engage with historical traditions.

ARTH 310. Medieval Art and Architecture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Survey of European medieval art and architecture between approximately 300 and 1400 CE.

ARTH 311. Early Islamic Art in a Global Context. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARTH 260. Explores the early evolution of Islamic visual culture. Emphasizes artistic contact and exchange with non-Islamic civilizations in Europe, Asia and Africa up through the Crusader period.

ARTH 312. Islamic Art in a Global Context 1200 to 1600 CE. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARTH 260. Explores the artistic dynamics of the Islamic world beginning with the Mongol expansion and the Spanish Reconquista through the flourishing of the Safavid, Mughal and Ottoman empires.

ARTH 315. Renaissance Art and Architecture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of the Renaissance in Italy and Northern Europe. Painting, sculpture and architecture of the 14th, 15th and 16th centuries.

ARTH 320. Baroque and Rococo Art and Architecture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The art and architecture of Italy and northern Europe between 1600 and 1750.

ARTH 321. Islamic Art in a Global Context 1600 to 1800 CE. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARTH 260. Explores Islamic and global artistic developments as facets of geopolitical shifts, cross-cultural interactions and changing aesthetic tastes.

ARTH 324. 18th-century Art in Europe. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Study of European art between 1688-1789.

ARTH 325. 19th-century Art in Europe. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Study of European art between 1770 and 1900.

ARTH 333. Modern Architecture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Thematic survey of 19th- and 20th-century architecture. Provides a foundational introduction to the sequence of styles and design principles as well as key materials and techniques. Considers the relationship between form and function and the expression of cultural meaning through architecture.

ARTH 335. Pre-Columbian Art and Architecture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the major artistic traditions of ancient America (i.e., Maya, Aztec and Inca). The course concentrates on Meso-America and the Andean Region.

ARTH 338. Colonial Art and Architecture of Latin America. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the major artistic traditions in Latin America from the 16th to the end of the 18th century.

ARTH 339. Modern and Contemporary Art and Architecture of Latin America. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of 19th- and 20th-century art in Latin America focusing on the major movements and artists of Mexico, the Caribbean, Central and South America.

ARTH 342. African-American Art. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the art forms produced by Americans of African origin from the 17th century to the present with an emphasis on contemporary trends in black art. Crosslisted as: AFAM 342.

ARTH 344. American Art History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Survey of American art from early encounters between Native Americans and Europeans to discourses of multiculturalism in recent decades. Course explores themes of nationhood, race, gender, sexuality, class and ethnicity in art of the United States.

ARTH 347. Studies in Asian Art. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of nine credits. Explores the development of Asian artistic traditions in a particular geographic region or specified period. Topics may be an art form or medium, a geographical area, a theme, a function, or a context. May focus on artistic contact and cultural interconnection within a global context. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 348. Art of the African Diaspora. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Course uses visual culture as means to explore the history and impact of the global spread of African peoples from slavery until the present day. Course examines a range of artistic practices from the visual culture of street festivals and Afro-Caribbean religions to the work of studio-trained artists of international repute.

ARTH 349. Body Adornment, Masks and Masking in Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An in-depth examination of the body in Africa with regard to its ontological, biological and cultural significance; its embellishment for aesthetic and other purposes; and its partial or total concealment (through masking) to mediate between the spiritual and physical world.

ARTH 351. Oceanic Art and Architecture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Study of the indigenous arts of Oceania from prehistoric times to the present.

ARTH 357. Women, Art and Society. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A re-examination of a variety of issues concerning women, art and society: the position assigned women within the history of art as it relates to historical place and the aesthetic values of the canon, the gendering of style, patronage, audience, and gaze. Through a survey of images of and by women, as well as through an analysis of art historical and critical texts, this course addresses the question: "How are the processes of sexual differentiation played out across the representations of art and art history?" Crosslisted as: GSWS 457.

ARTH 358. African Art and Architecture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of African art and architecture from prehistoric times to the present. Special emphasis is placed on form, content, function and meaning, as well as the impact of African art on modern and African-American art. Crosslisted as: AFAM 358.

ARTH 359. Studies in Aesthetics, Theory and Criticism of Art. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of nine credits. An in-depth examination of selected topics. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 361. The Human Condition: An Arts Perspective. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Considers both the commonality of the human condition and differentiation among sociological and cultural experiences represented in selected artworks in the permanent collection of the Virginia Museum of Fine Arts.

ARTH 365. Modern Art. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An in-depth examination of art, theory and criticism from 1900-50.

ARTH 366. Contemporary Art. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An in-depth examination of art, theory and criticism from 1950 to the present.

ARTH 367. German Expressionism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Course examines "expressionism" as a generative concept that produced – and continues to produce – ways of organizing and understanding the words and pictures that circulated in the rapidly changing, socially and culturally turbulent Germany of the early 20th century.

ARTH 368. Pop Art. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Course examines pop art from its beginnings in 1950s England through its heyday in 1960s New York and Los Angeles. Course explores the movement's wider effects in a variety of international contexts through analysis of early critical reception as well as contemporary theories of mass media, consumption and representation.

ARTH 369. Studies in Museum Methods. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. An in-depth examination of selected topics. Topics include museum administration, museum ethics, collections maintenance and management, curatorial and exhibition issues, and education. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 370. History of Animated Film. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The history of animation as an art form, from early experimental to popular culture to independent animation. Design, structure and technique are considered.

ARTH 372. History of Photography. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the history of photography from its invention in the early 19th century to the present. Provides a foundational introduction to processes and materials from analog to digital. Surveys principal artists and movements and examines the nature and cultural meanings of photographic representation through lecture and discussion.

ARTH 374. Studies in Film. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. An in-depth examination of selected topics in film. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 390. Art Historical Methods. 4 Hours.

Semester course; 2 lecture and 2 research hours. 4 credits. Prerequisite: ARTH 292 with a minimum grade of C. Enrollment is restricted to art history majors. Course provides students with an overview of the history of art history through a chronological survey of key methods of analysis that have defined the discipline from its beginnings to the present. Students develop critical thinking and writing skills specific to art history through written assignments and discussion of readings. Students will produce an extended research project that culminates in a formal presentation and research paper.

ARTH 391. Special Topics. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a maximum of nine credits. An in-depth study of a selected topic in art history not included in the curriculum. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 439. Studies in 20th-century Art. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ARTH 292 with a minimum grade of C or permission of instructor. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 440. Modern and Contemporary Art and Architecture of Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARTH 292 with a minimum grade of C or permission of instructor. A study of the impact on African art and architecture of Colonialism, urbanization and modernization. Special emphasis is placed on the search for a new identity by contemporary African artists. Crosslisted as: AFAM 440.

ARTH 444. Studies in the Art of the United States. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ARTH 292 with a minimum grade of C or permission of instructor. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 449. Studies in Asian Art. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ARTH 292 with a minimum grade of C or permission of instructor. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 452. Studies in Pre-Columbian Art and Architecture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ARTH 292 with a minimum grade of C or permission of instructor. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 454. Studies in African Art. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ARTH 292 with a minimum grade of C or permission of instructor. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 465. Islamic Art in a Global Context 1800 to 1900 CE. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 260 and ARTH 292, both with a minimum grade of C, or permission of instructor. Examines the art and architecture of the Islamic world during the age of European colonialism.

ARTH 466. Modern and Contemporary Art in the Middle East. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 260 and ARTH 292, both with a minimum grade of C, or permission of instructor. Focuses on art and architecture in the Middle East in the 20th and 21st centuries. Issues considered include the lives and work of selected artists, architects and designers; artistic media and themes; collecting; and the art market.

ARTH 489. Topics in Advanced Art History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of nine credits. Prerequisite: ARTH 292 with a minimum grade of C or permission of instructor. An in-depth study of a selected topic in art history not included in the curriculum. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 490. Senior Seminar in Art History. 4 Hours.

Semester course; 2 lecture and 2 research hours. 4 credits. Prerequisite: ARTH 390 with a minimum grade of C. Enrollment is restricted to art history majors. Course provides an in-depth study of a specific art historical topic, movement or theme in a seminar format. Students will produce an extended research project that culminates in a formal presentation and research paper. See the Schedule of Classes for specific topics to be offered each year.

ARTH 493. Museum Internship. 3-6 Hours.

Semester course; 9 to 18 studio hours. 3 to 6 credits. May be repeated with different topics for a maximum of 12 credits. Prerequisites: ARTH 302 and 390, both with a minimum grade of C. Restricted to art history majors only. Fieldwork in a local or regional museum. Topics include museum administration, museum ethics, collections maintenance and management, curatorial and exhibition issues, and education.

ARTH 497. Directed Research Project. 3 Hours.

Semester course; 3 credits. May be repeated for a maximum of 6 credits. Prerequisite: ARTH 390 with a minimum grade of C. Advanced individual work on a subject to be formulated in writing by the student and the instructor.

Arts (ARTS)**ARTS 250. Working Your Arts Degree. 1 Hour.**

Semester course; 1 seminar hour (delivered online). 1 credit. Enrollment is restricted to students in the School of the Arts. This is a decision-making course for individuals focusing on the process of education and career and professional planning. Through exploration of various educational, career and professional options students will identify paths suitable to their strengths and interests and emerge from the course with a plan for their continuing education, their profession or both.

ARTS 291. Special Topics. 0.5-4 Hours.

Semester course; variable hours. .5-4 credits. May be repeated with different topics for a maximum of 6 credits. Prerequisite: approval of School of the Arts dean. Open only to School of the Arts students. Topical course offering a variety of subjects not available through an individual department. See the Schedule of Classes for specific topics to be offered.

ARTS 370. Topics in Art. 3 Hours.

Semester courses; 3 lecture or 9 studio hours (or combinations thereof). 3, 3 credits. An in-depth study of a selected topic in art. See the Schedule of Classes for specific topics to be offered each semester.

ARTS 371. Topics in Art. 3 Hours.

Semester courses; 3 lecture or 9 studio hours (or combinations thereof). 3, 3 credits. An in-depth study of a selected topic in art. See the Schedule of Classes for specific topics to be offered each semester.

ARTS 391. Special Topics. 1-4 Hours.

Semester course; variable hours. 1-4 credits. May be repeated with different topics for a maximum of 6 credits. Prerequisite: approval of School of the Arts dean. Open only to School of the Arts students. Topical course offering a variety of subjects not available through an individual department. See the Schedule of Classes for specific topics to be offered.

ARTS 392. Independent Study. 1-6 Hours.

Semester course; variable hours. 1-6 credits. May be repeated for a maximum of 9 credits. Offered to School of the Arts majors only. This course is for students pursuing advanced scholarly or studio projects not addressed by the existing curriculum.

ARTS 430. Guided Study Afield. 1-9 Hours.

1-9 credits. Prerequisite: permission of instructor required. Designed to enhance the student's knowledge by providing first-hand experience with the most significant contribution of aesthetic import within the geographic areas traveled.

ARTS 460. Synesthesia: Exploring Process Across Disciplines. 2 Hours.

Semester course; 4 studio hours. 2 credits. Enrollment is restricted to students in the School of the Arts and English majors or with permission of the instructor. Intended for those with an active creative practice in visual, performing or literary arts, this course will investigate and reveal commonalities in the creative process for choreographers, visual artists and writers. Ideas to be explored include the ways in which creative work embodies its own essence and meaning as well as the ways in which that essence and meaning are experienced by creators and viewers. Students will be exposed to a wide range of thinking on the creative process through readings, films and lectures. Students will engage in cognitive and embodied exercises across disciplines and complete creative assignments that bridge disciplines. Students will workshop their creative endeavors together. Graded as pass/fail.

ARTS 491. Special Topics. 1-4 Hours.

Semester course; variable hours. 1-4 credits. May be repeated with different topics for a maximum of 6 credits. Prerequisite: approval of School of the Arts dean. Open only to School of the Arts students. Topical course offering a variety of subjects not available through an individual department. See the Schedule of Classes for specific topics to be offered.

ARTS 492. Independent Study. 1-6 Hours.

Semester course; variable hours. 1-6 credits. May be repeated for a maximum of 9 credits. Offered to School of the Arts majors only. This course is for students pursuing advanced scholarly or studio projects not addressed by the existing curriculum.

ARTS 493. Internship. 1-6 Hours.

Semester course; variable hours. 1-6 credits. (30-40 work hours per credit.) May be repeated for a maximum of 9 credits. Prerequisites: junior standing in the School of the Arts and permission of department chair. A practicum that provides students with valuable hands-on experience. Internship details are to be worked out and agreed upon by supervising professor, department chair and internship employer. A grade of PR will be assigned on an internship that extends past the grading period.

Cinema (CINE)**CINE 100. Visual Storytelling I. 3 Hours.**

Semester course; 1 lecture and 4 studio hours. 3 credits. Enrollment is restricted to B.A. in Cinema majors. This course will build a foundation of skills in the use of camera, lighting, sound and editing for narrative film production. Pre-production planning concepts and methods will also be presented.

CINE 101. Visual Storytelling II. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisite: CINE 100. Enrollment is restricted to B.A. in Cinema majors. This course will build a foundation of skills in the use of camera, lighting, sound and editing for narrative film production. The primary focus will be on production and post-production software and processes.

CINE 110. Writing for Cinema I. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Enrollment is restricted to cinema majors. This course will examine the creative process and elements of effective narrative writing. Students will explore various formats such as narrative pieces, critical essays and basic screenplays.

CINE 111. Writing for Cinema II. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Prerequisite: CINE 110. Enrollment is restricted to cinema majors. This course will focus on the development of synopsis, treatments and intermediate screenplays. Strategies for pitching and communicating narrative ideas will be addressed.

CINE 120. Integrating Sight and Sound. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to students in the cinema program or a music program, including the music minor. This course introduces students to digital audio workstation software and its applications to produce, edit, mix and synchronize soundtracks to motion pictures. Students will receive instruction and practical experience applied to music editing, sound design, Foley and purposeful integration of sound into time-based media projects in a DAW environment.

CINE 200. Cinema Form and Concept I. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisites: CINE 101 and CINE 390. Enrollment is restricted to B.A. in Cinema majors. Concepts, issues and processes involved in feature and short-form narrative screenplay writing.

CINE 201. Cinema Form and Concept II. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisite: CINE 200. Enrollment is restricted to cinema majors. Concepts, issues and processes involved in pre-production planning for feature and short-form narrative filmmaking.

CINE 210. Synergetic Film Production. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CINE 101. Enrollment is restricted to cinema majors. This course will provide a foundation for professional communication skills, managing and leading teams, and working effectively in a positive, collaborative environment.

CINE 217. Mechanics of Screenwriting. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to students who have permission of the instructor. Introductory course focused on building an in-depth and logistical understanding of how a screenplay informs and prescribes the movie-making process. The course will cover common story structures, standard script formatting and abbreviations, script analysis for production, and creating shot-by-shot shooting lists.

CINE 300. Cinema Form and Concept III. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisite: CINE 390. Enrollment is restricted to cinema majors with junior or senior standing. Concepts, issues and processes involved in feature and short-form narrative filmmaking including pre- and post-production processes, as well as business and professional aspects of the industry, including funding and festival entry.

CINE 301. Cinema Form and Concept IV. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisite: CINE 300. Enrollment is restricted to cinema majors with junior or senior standing. Concepts, issues and processes involved in narrative filmmaking. Project-based learning on smaller-scale films emphasizes leadership roles, creative collaboration, professional communication and career exploration. Uses guided mentoring and student reflection on the creative process, and deploys hands-on learning in order to synthesize and integrate skill-sets developed in the cinema major.

CINE 354. Religion and Film: ____ 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated with different themes for a total of six credits. Explores central themes present in all global religious traditions, such as ritual, faith, myth, suffering, redemption, the religious quest/pilgrimage, the nature of good and evil and perceptions of the sacred. Using readings from sacred texts and contemporary film critiques, the course juxtaposes ancient story and wisdom with contemporary narratives in film. Possible themes would include women and religion in world cinema, Christology in world cinema, and violence and redemption in film. See the Schedule of Classes for specific topics to be offered each semester. Crosslisted as: RELS 354/ WRLD 354.

CINE 390. Digital Cinema Production Intensive I. 12 Hours.

Semester course; 40 studio hours. 12 credits. Prerequisites: CINE 100 and CINE 101, or permission of instructor. Enrollment is restricted to B.A. in Cinema majors or by permission of instructor. Production and postproduction of narrative short films using digital technology for camera, editing and sound, with an emphasis on the technical and tactical aspects of production. This course is designed for full-day participation over a six-week summer session.

CINE 392. Independent Study in Film. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of 6 credits. Prerequisites: junior standing as a major in cinema and approval of department chair and instructor. Individual instruction and supervision of a special project.

CINE 401. Advanced Cinema Production. 4 Hours.

Semester course; 2 lecture and 4 studio hours. 4 credits. Prerequisite: CINE 390 or permission of instructor. Open to junior and senior B.A. in Cinema majors. Lecture and workshop in the production, theory, business and historical context of film.

CINE 490. Digital Cinema Production Intensive II. 12 Hours.

Semester course; 40 studio hours. 12 credits. Prerequisites: CINE 200, CINE 201 and CINE 390, or permission of the instructor. Enrollment is restricted to B.A. in Cinema majors or by permission of the instructor. Advanced production of narrative short films using digital technology for camera, editing and sound; working with performers; and within developed budgets and schedules. This course is designed to be full-day participation for a six-week summer session.

CINE 491. Special Topics in Cinema. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 12 credits. An in-depth examination of selected topics. See the Schedule of Classes for specific topics to be offered each semester.

CINE 493. Film Internship. 1-3 Hours.

Semester course; 1-3 practicum hours. 1-3 credits. May be repeated up to a maximum of six credits. Enrollment is restricted to B.A. in Cinema majors. Supervised work experience related to cinema.

CINE 495. Cinema as Art. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. May be repeated for a maximum of six credits. A critical exploration of cinema as art, image, narrative and theory. Film lists, theoretical/critical texts, focal points of emphasis and themes vary, including studies of individual or linked sets of filmmakers or film movements, seen through the lens of classic and/or contemporary film theory and criticism. See the Schedule of Classes for specific topics to be offered.

CINE 496. Advanced Screenwriting Seminar. 3 Hours.

Semester course; 3 seminar hours (delivered online or face-to-face). 3 credits. A study of the narrative screenwriting process. In a workshop setting, students advance their use and understanding of the formal elements of narrative such as character, story, plot, arc, conflict, unity, development and theme.

CINE 497. Expanded Cinema: ____ 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. May be repeated with different topics for a maximum of six credits. Students advance their critical knowledge of contemporary screen culture and expand their understanding of formats, techniques and styles in narrative cinema, television and/or streaming.

Communication Arts (COAR)**COAR 200. Visual Studies: Drawing. 3 Hours.**

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: ARTF 131. A course in drawing from direct observation of specific references: visual analysis, surface light and color, structure, and context. Various painting and drawing media will be explored. Assignments will incorporate applicable references to the history of art and contemporary developments.

COAR 201. Drawing Studies: The Figure Observed. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: ARTF 131. Enrollment is restricted to communication arts majors. Students will study and explore how to draw from direct observation using the figure as the primary means to understand proportion, volume and spatial relationships. Class will include skeletal structure, basic anatomy and physical aspects of the figure. Various drawing and painting media will be explored. Specific assignments will be informed by the reference and use of the figure in the history of art and contemporary developments.

COAR 202. Drawing Studies: The Figure in Context. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: ARTF 131. Enrollment restricted to communication arts students. Drawing from direct observation using the figure as the primary means to understand proportion, volume and spatial relationships. Specific problems will include the figure as a dynamic element in different lighting, spatial and conceptual contexts. Various drawing and painting media will be explored. Assignments will incorporate applicable references to the history of art and contemporary developments.

COAR 203. Digital 3D Studio. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Enrollment is restricted to majors and minors in the Department of Communication Arts. The course focuses on the use of 3D software as a powerful drawing tool and current methodologies. Modeling, surfacing, lighting, rendering and applicability to industry and personal expression will be addressed.

COAR 210. Visual Studies: Design. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: ARTF 132 and 133. A course in which an understanding of the relationship between form and communication is developed. The student will develop an awareness and appreciation for visual imagery as a tool for the transmission of information and ideas.

COAR 211. Fundamentals of Typography. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: ARTF 132. An introduction to the study of typography as used in communication arts. Course will include the study of hand-drawn and digital letterforms and their context. Students will be introduced to professional digital methods (e.g., Illustrator).

COAR 300. Illustration: Drawing and Painting. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 202. Explores and addresses formal, conceptual and technical considerations and issues involved in the use of drawing and painting. Various drawing and painting media will be explored.

COAR 301. Drawing Studies: The Figure (Intermediate). 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for up to 6 credits. Prerequisite: COAR 201. Drawing from direct observation at the intermediate level using the figure as the primary means to understand proportion, volume and spatial relationships. Various drawing and painting media will be explored.

COAR 302. Print Media. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 202. An intermediate course in the use of printing processes and techniques to develop communicative imagery. Assignments will incorporate applicable references to the history of art and contemporary developments.

COAR 303. Color Theory and Practice. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 300. An intermediate course in the application of color theory to specific illustrative problems. A number of color theories, both historical and contemporary, will be studied and applied.

COAR 304. Illustration Media and Techniques. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 200 and 202. Explores various mixed-media techniques, including both two- and three-dimensional approaches to illustrative problems.

COAR 305. Figure in Illustration. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 202. An introduction to the visual representation of the human form as it applies to illustration.

COAR 307. The Face. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 201 and COAR 202. Employing a variety of drawing media, students will explore the nuances of the human face as a subject. This course focuses on both process and the realization of final projects.

COAR 308. Cut Scene. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course focusing on research and experimentation in specialized visual communication media utilizing consumer electronics.

COAR 311. Type and Image. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 211. An advanced course that explores graphic design with an introduction to digital methods as a means to express and communicate ideas. Assignments will incorporate applicable references to the history of art and contemporary developments.

COAR 320. Concept Drawing. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 202. Explores the use of drawing as a tool to communicate concepts. Various painting and drawing media will be explored. Assignments will incorporate applicable references to the history of art and contemporary developments.

COAR 321. Sequential Imaging. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: junior standing in communication arts. Sequential imagery as applied to books, graphic novel and film storyboarding. Various painting and drawing media will be explored. Assignments will incorporate applicable references to the history of art and contemporary developments.

COAR 325. Botanical Drawing. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 300. This course explores plant life from direct observation and analytical drawing. Students examine the major divisions and structures of plants and how to depict their unique form.

COAR 326. Imagery for Science Fiction and Fantasy. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 300 and 320. This course focuses on assignments for science fiction/fantasy subject matter and its various commercial applications.

COAR 327. Comics and Graphic Novels I. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 201 and COAR 202. This course develops skills essential for visual storytelling through comics and graphic novels.

COAR 328. Comics and Graphic Novels II. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 327. This course further develops skills essential to expanding understanding of visual storytelling through comics and graphic novels.

COAR 332. Digital Drawing. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 201 and COAR 202. An intermediate course exploring the use of computer and peripheral devices in the creation of personal work. Students will be introduced to relevant conceptual themes and professional methods and practices.

COAR 341. Scientific Illustration. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. An introductory course in the development of accurate representational imagery for recording scientific observations and ideas.

COAR 352. History of Visual Communications I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 103 and 104. An examination of the historical developments in visual communications from cave paintings to modernism.

COAR 353. History of Visual Communications II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 103 and 104. An examination of the historical developments in visual communications from modernism to the contemporary era.

COAR 391. Communication Arts Topics. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for a maximum of 12 credits. Topical lectures in design issues and visual communications.

COAR 392. Research/Individual Study. 1-6 Hours.

Semester course; 1-2 lecture and 3-6 studio hours. 1-6 credits. May be repeated for a total of 6 credits. Enrollment requires permission of instructor, approval of faculty adviser and chair. The structuring, research, execution and presentation of an independent project in visual communications under the direction of a faculty adviser. The student will be encouraged to become a self-generating problem seeker and solver with the ability to carry out self-stated goals.

COAR 401. Drawing Studies: The Figure (Advanced). 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for up to 12 credits. Prerequisite: COAR 301 or permission of instructor. Drawing from direct observation at an advanced level using the figure as the primary means to understand proportion, volume and spatial relationships. Various drawing and painting media will be explored.

COAR 407. Senior Project. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 300 and COAR 320. Enrollment restricted to students with senior status in communication arts. Focuses on the assessment and advancement of studio techniques, methods and practices. Students document and share their decision-making processes in the generation of creative projects.

COAR 420. Graphic Essay. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: UNIV 200 or HONR 200 and COAR 320. An advanced course that explores the relationship between text and image, and their potential as tools to enable us to create and communicate effectively. Assignments will incorporate applicable references to the history of art and literature.

COAR 421. Imagery for Children. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 300. An advanced course developing both fiction and nonfiction illustrations intended for the preschool and elementary school children's publishing market.

COAR 422. Editorial Illustration II. 4 Hours.

Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisites: COAR 300 and 320. An advanced course developing the student's skill at interpreting an author's manuscript. The major emphasis is given to illustrations appearing in books and magazines.

COAR 432. 3D Image and Movement. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 203. Enrollment is restricted to majors in the School of the Arts. Course addresses current technological tools to explore the relationship between image, object and movement.

COAR 433. Game Design, Theory and Practice. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 203 and COAR 321. Students will study the history, theory and design of games, gaming concepts and narrative from past to present.

COAR 435. 3D Modeling for Concept Design. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 203 and COAR 320. A focus on the use of high polygraph 3D graphics software as tools to create highly detailed computer models for concept design, movies, broadcast media and games.

COAR 436. Visual Effects I. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CINE 217 and COAR 432. Synthesizes prerequisites in 3D modeling, rigging and rendering with an introduction to fundamental skills used in the creation of visual effects. Students will learn basic compositing and the integration of computer graphics and 3D components with live-action plates.

COAR 437. Visual Effects II. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 436. Continues the instruction and practice of visual effects with advanced techniques for 3D animation and VFX development, including 3D pre-vis, match-moving, dynamics, multi-pass rendering and node-based compositing. Students will explore advanced rendering and compositing techniques for 3D computer graphics.

COAR 441. Scientific Illustration II. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 341. An advanced course in the development and creation of accurate documentation and representation of scientific information and imagery including plant taxonomy, insect morphology, and physiological and pathological processes.

COAR 450. Business of Communication Arts. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. The study of business management with an emphasis on ethics and the standards of fair practice including financial and contractual guidelines.

COAR 462. Projects in Illustration. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: senior standing in communications arts and permission of the instructor. An advanced-level course in conceptualization, execution, realization and documentation as realized through a series of projects in illustration. Students will be required to create, acquire and structure projects that will test their conceptual and technical abilities. Project work will be exhibited, documented or printed. Various drawing, painting and mixed media will be explored. Assignments will incorporate applicable references to the history of art and contemporary developments.

COAR 463. Communication Arts Honors Studio. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for up to 12 credits. Prerequisites: junior standing in communication arts, 3.0 GPA and permission of the CA faculty. An advanced course for selected students. Expectations include to work on individual and group projects at a professional level.

COAR 464. Senior Portfolio. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 300 and COAR 320. Enrollment restricted to students with senior status in communication arts. Focuses on the curation and evolution of a portfolio that aligns with the student's professional goals. Integrates effective oral, written and visual communication, critical-thinking and advanced studio and professional practices.

COAR 491. Studio Topics in Communication Arts. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for credit. Topical studio focusing on research and experimentation in specialized visual communication media.

COAR 492. Communication Arts Internship. 1-6 Hours.

Semester course; 1-6 credits. May be repeated for a maximum of 12 credits. Prerequisites: senior standing, 3.0 GPA or permission of the chair. Supervised pragmatic work experiences. Training is provided under the direction and supervision of qualified professional practitioners.

Craft and Material Studies (CRAF)**CRAF 211. Jewelry. 4 Hours.**

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: successful completion of the Art Foundation Program. Investigation of basic jewelry making processes such as construction, chasing, surface embellishment and basic stone setting. Research in contemporary and historical jewelry forms.

CRAF 221. Woodworking Techniques. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: successful completion of the Art Foundation Program. Introduction to techniques of woodworking. Includes the use of hand tools; hand and machine joinery; shaping and carving; finishing; and techniques involving jigs and fixtures. Students participate in studio work.

CRAF 240. Introduction to Ceramics. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: successful completion of the Art Foundation Program. Introduction to beginning processes of wheel throwing and hand-built construction techniques, design, aesthetics and the creative development of clay objects examining cultural, historical and personal modes of expression. Demonstrations and slide presentations are given for assignments along with handouts to assist in illustrating techniques and processes. Students will be introduced to various ceramic aesthetics in contemporary, social and historical context.

CRAF 250. Introduction to Glass Fabrication. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: successful completion of the Art Foundation Program. An introduction and investigation into the physical and associative material properties of glass. Students will explore a variety of methodologies for hot, cold and casting glass fabrication. The history and modern application of each technique will be covered through lectures, demonstrations and studio work.

CRAF 260. Introduction to Textiles. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: successful completion of the Art Foundation Program. An introduction to basic textile techniques, tools and materials. This course introduces dyeing, weaving, felt-making, embroidery, sewing and related techniques. The history and modern application of each technique will be covered through lectures, demonstrations and studio work.

CRAF 282. Sophomore Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: successful completion of the Art Foundation Program. Introduction to the fields within the Department of Craft and Material Studies, critique practices, planning for arts career and writing within the field.

CRAF 291. Introductory Topics in Craft/Material Studies. 1-3 Hours.

Semester course; 2-6 studio hours. 1-3 credits. May be repeated for a maximum of nine credits. A studio focusing on a selected issue or topic related to the field of craft. See the Schedule of Classes for specific topics to be offered each semester.

CRAF 295. Engaging With Art. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200. Enrollment is restricted to students enrolled outside of the School of the Arts. This course will introduce non-art majors to contemporary craft and art-making processes and strategies to gain a deeper understanding of the value of art within current social and cultural contexts. Students will participate in discussions and execute a variety of projects that strengthen their understanding of how to interpret works of art, utilize art terminology and engage with their art community.

CRAF 301. Advanced Metal Fabrication: Forming. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 211 with a minimum grade of C. This course introduces students to various metal forming techniques. While cultivating respect for craft, the underlying theme of the course explores form as a means of expression for both functional and nonfunctional work. It is designed to develop skill, craftsmanship and sensitivity to design in working with metal. The history and modern application of each technique will be covered through lectures, demonstrations and studio work.

CRAF 302. Advanced Metal Fabrication: Mechanisms. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 211 with a minimum grade of C. This course introduces students to various fabrication techniques, findings and mechanisms related to the production of jewelry and small-scale objects. It is designed to develop skill, craftsmanship and sensitivity to design in working with metal. The history and modern application of each technique will be covered through lectures, demonstrations and studio work.

CRAF 303. Advanced Metal Fabrication: Surface Techniques. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 211 with a minimum grade of C. This course introduces students to various surface treatments employed in the production of jewelry and metal objects. It is designed to develop skill, craftsmanship and sensitivity to design in working with metal. While cultivating respect for craft, the underlying theme of the course explores form as a means of expression for both functional and nonfunctional work. The history and modern application of each technique will be covered through lectures, demonstrations and studio work.

CRAF 304. Advanced Metal Fabrication: Casting and Stone Setting. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 211 with a minimum grade of C. This course introduces students to casting and stone setting techniques employed in the production of jewelry and metal objects. It is designed to develop skill, craftsmanship and sensitivity to design in working with metal. While cultivating respect for craft, the underlying theme of the course explores form as a means of expression for both functional and nonfunctional work. The history and modern application of each technique will be covered through lectures, demonstrations and studio work.

CRAF 320. Furniture Design. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 8 credits. Prerequisite: CRAF 221 with a minimum grade of C. The course explores the development of ideas through drawings, mock-ups and the planning and execution of a small furniture object utilizing basic and specialized woodworking techniques.

CRAF 321. Advanced Woodworking and Furniture Design. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 221 with a minimum grade of C. Advanced design and construction investigation of varied materials and machine processes.

CRAF 322. Advanced Woodworking and Furniture Design. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 221 with a minimum grade of C. Advanced design and construction investigation of varied materials and machine processes.

CRAF 341. Advanced Ceramics. 4,6 Hours.

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. Each of the courses may be repeated for up to a maximum of 12 credits. Prerequisite: CRAF 240 with a minimum grade of C. Advanced problems in the design and production of functional and nonfunctional ceramic products.

CRAF 342. Advanced Ceramics. 4,6 Hours.

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. Each of the courses may be repeated for up to a maximum of 12 credits. Prerequisite: CRAF 240 with a minimum grade of C. Advanced problems in the design and production of functional and nonfunctional ceramic products.

CRAF 344. Ceramics: Mold-Making. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: CRAF 240 with a minimum grade of C. This course is a continuation of study in ceramics with a focus on prototyping and mold-making techniques. While focused on generating original artwork, the course will cover prototype development and serialized production using a variety of mold-forming processes. The history and contemporary application of ceramic mold-making techniques will be covered through student research, demonstrations and studio work.

CRAF 346. Tableware. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: CRAF 240 with a minimum grade of C. May be repeated for a maximum of 12 credits. This course is designed to expand student understanding of how pottery operates, both as utilitarian object and object of material culture. Students will develop technical understanding and innovation within utilitarian aspects of pottery. Assignments and research will challenge students to consider the role of utilitarian pottery in contemporary culture.

CRAF 351. Intermediate Glass Fabrication/Hot. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 250 with a minimum grade of C. A deeper and broader delving into hot and cold glass fabrication techniques, with an introduction to the utilization and application of color processes will be explored.

CRAF 352. Intermediate Glass Fabrication/Kiln Forming. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 250 with a minimum grade of C. A deeper exploration of warm glass (kiln forming) processes that will involve advanced mold-making techniques.

CRAF 353. Glassworking: Lampworking. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 250 with a minimum grade of C. Provides an opportunity for further investigation, specialization and technical mastery in glass lampworking design.

CRAF 354. Intermediate Glass Fabrication. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 250 with a minimum grade of C. A deeper and broader delving into hot and cold glass fabrication techniques, with an introduction to the utilization and application a multigenerational approach to image realization will be extensively investigated.

CRAF 361. Intermediate Textiles: Tapestry/Weaving. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 260 with a minimum grade of C. An introduction to the floor loom with an emphasis on tapestry weaving. Concentrated studio work in contemporary and traditional loom techniques along with continuing individual investigation of other textile techniques.

CRAF 362. Intermediate Textiles: Pattern Weaving. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 260 with a minimum grade of C. An introduction to the floor loom with an emphasis on pattern weaving. Concentrated studio work in contemporary and traditional loom techniques along with continuing individual investigation of other textile techniques.

CRAF 363. Fabric Design I. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 260 with a minimum grade of C. Exploration of dye and pigment techniques for fabric along with pattern development and conceptual use of fabric.

CRAF 364. Fabric Design II. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 260 with a minimum grade of C. Exploration of dye and pigment techniques for fabric along with pattern development and conceptual use of fabric.

CRAF 382. Junior Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRAF 282 and UNIV 200 or HONR 200. Continued investigation of the craft field, critique practices, planning for careers through the lens of creativity and exploration, and a continuation of writing in the field.

CRAF 391. Topics in Craft/Material Studies. 1-3 Hours.

Semester course; 2-6 studio hours. 1-3 credits. May be repeated for a maximum of nine credits. A studio focusing on a selected issue or topic related to the field of craft. See the Schedule of Classes for specific topics to be offered each semester.

CRAF 447. Ceramic Technology: Claybodies and Glaze Formulation. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: CRAF 240 with a minimum grade of C. In-depth study of ceramic materials and their application in claybody and glaze formulation. Beginning with geology and mineralogy, students will gain an understanding of how ceramic materials are formed and how they work together in clay and glaze recipes. Students will learn methods for testing and altering existing glaze recipes as well as formulating their own using the unity molecular formula. Focused on high-fire materials, students will also learn to fire both electric and gas kilns in oxidation and reduction atmospheres.

CRAF 480. Senior Studio/Critique Course. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 8 credits. Prerequisites: CRAF 382; and CRAF 301, 302, 303, 304, 320, 321, 322, 341, 342, 343, 344, 351, 352, 353, 354, 361, 362, 363, 364 or 369, both with a minimum grade of C. Corequisite: CRAF 301, 302, 303, 304, 320, 321, 322, 341, 342, 343, 344, 351, 352, 353, 354, 361, 362, 363, 364 or 369. Focuses on the development of independent interests aimed at creating a cohesive series/body of work.

CRAF 481. Senior Studio/Critique Course. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: CRAF 480 with a minimum grade of C. The course will focus on the continuation of creating a cohesive series/body of work begun during CRAF 480.

CRAF 482. Senior Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRAF 382. Enrollment is restricted to senior sculpture majors. Capstone course focusing on the continued investigation of the craft field with emphasis on the student's media area(s) of focus and professional practices.

CRAF 491. Topics in Craft/Material Studies. 1-3 Hours.

Semester course; 1-3 credits. May be repeated for a maximum of 9 credits. Prerequisite: permission of instructor. A seminar or workshop on a selected issue or topic in the field of crafts. See the Schedule of Classes for specific topics to be offered each semester.

CRAF 492. Independent Study. 1-3 Hours.

Semester course; 1-3 credits. May be repeated for a maximum of 6 credits. Prerequisites: senior standing in the major and permission of the instructor. The student will pursue advanced, individually directed study on a subject to be formulated in writing by the student and instructor.

CRAF 493. Fieldwork. 3 Hours.

Semester courses; 135 clock hours. 3 credits. Prerequisites: senior standing in the major and permission of department chair. Opportunity for practical work experiences. Senior students are placed with professionals who offer supervised work or research experience appropriate to their major interests. Participation requires the approval of both the department chair and field supervisor. Students must work 135 clock hours and maintain a daily log of their experiences. Field supervisor will plan student's work and evaluate performance.

CRAF 494. Fieldwork. 6 Hours.

Semester course; 270 clock hours. 6 credits. Prerequisites: senior standing in the major and permission of department chair. Opportunity for practical work experiences. Senior students are placed with professionals who offer supervised work or research experience appropriate to their major interests. Participation requires the approval of both the department chair and field supervisor. Students must work 270 clock hours and maintain a daily log of their experiences. Field supervisor will plan student's work and evaluate performance.

Creative Practices (CREA)

CREA 201. The Creative Economy. 3 Hours.

Semester course; 3 lecture hours (offered online). 3 credits. Examines the contribution of creative ideas to the world economy with a focus on where, how and why creative ideas are produced and consumed.

CREA 202. Creative Coding. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the intersections of creative thinking and computational thinking. Students develop creative ideas with front-end and back-end digital languages, processes and tools.

CREA 240. Digital Storytelling. 3 Hours.

Semester course; 2 lecture hours and 1 studio hour. 3 credits. Examines the principles, methods and tools for the planning, development and production of visual communication, with a focus on design aesthetics and accessibility.

CREA 300. Idea Accelerator. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Exposes students to the processes and methodologies used to transform ideas and opportunities into sustainable business models. Students evaluate business case studies, engage industry professionals and investigate the commercial potential of their creative ideas.

CREA 330. Interdisciplinary Web Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces web design tools, methods and processes. Topics include customer expectations, web coding, multimedia technologies, usability and accessibility practices, and techniques for the evaluation of web design.

CREA 350. Piloting the Enterprise. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces the language of the creative enterprise, focusing on personal branding, business operation and strategic professional development.

CREA 360. User Experience Design I. 3 Hours.

Semester course; 2 lecture hours and 1 studio hour. 3 credits. Establishes the fundamental skills and tools needed to develop accessible, efficient and enlightened experiences between human and technology. Provides a thorough introduction to design and development methods, information architecture, usability, and interface design.

CREA 391. Topics in Creative Practices. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a maximum of nine credits. Explores a variety of topics related to the creative practices in arts, society and different sectors of industries, including human factors, user experience and user interface development.

CREA 393. Design Ops Internship. 1-6 Hours.

Semester course; 1-6 practicum hours. 1-6 credits (40 work hours per credit). May be repeated for a maximum of 12 credits. A practicum that provides students with experience in hands-on research and innovative problem-solving. Emphasis is on the collaborative development and commercial application of products that focus on emerging technologies. Internship details are determined by supervising professor(s) and project adviser(s). Graded as pass/fail.

CREA 450. Creative Disruption. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a total of six credits. Students develop their own creative ventures, including a product/service business model, legal considerations, financial and marketing plans and media presence (web, mobile, social). Students work with a network of mentors from the university and industry.

CREA 460. User Experience Design II. 3 Hours.

Semester course; 2 lecture hours and 1 studio hour. 3 credits. Prerequisite: CREA 360. Advanced focus on applicable skills and tools needed to develop accessible, efficient and enlightened experiences between human and technology. Covers complex interface design and design systems, development methodologies, prototyping practices, and real-world research and applications in a project format.

Dance and Choreography (DANC)

DANC 101. Modern Dance Technique I and Workshop. 3 Hours.

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum total of 12 credits on the recommendation of the chair. Prerequisites: completion of DANC 101 to enroll in DANC 102. Dance major or departmental approval. Fundamental study and training in principles of modern dance technique. Emphasis is on body alignment, spatial patterning, flexibility, strength and kinesthetic awareness. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 102. Modern Dance Technique I and Workshop. 3 Hours.

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum total of 12 credits on the recommendation of the chair. Prerequisites: completion of DANC 101 to enroll in DANC 102. Dance major or departmental approval. Fundamental study and training in principles of modern dance technique. Emphasis is on body alignment, spatial patterning, flexibility, strength and kinesthetic awareness. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 103. Survey of Dance History. 3 Hours.

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisites: completion of DANC 103 to enroll in DANC 104. Dance major or departmental approval. First semester: dance from ritual to the contemporary ballet and the foundations of the Western aesthetic as it relates to dance, and the development of the ballet. Second semester: Western concert dance from the aesthetic dance of the late 1800s to contemporary modern dance. These courses are the first two of a three-course sequence that fulfills one of the general education writing intensive requirements for dance majors.

DANC 104. Survey of Dance History. 3 Hours.

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisites: completion of DANC 103 to enroll in DANC 104. Dance major or departmental approval. First semester: dance from ritual to the contemporary ballet and the foundations of the Western aesthetic as it relates to dance, and the development of the ballet. Second semester: Western concert dance from the aesthetic dance of the late 1800s to contemporary modern dance. These courses are the first two of a three-course sequence that fulfills one of the general education writing intensive requirements for dance majors.

DANC 105. Improvisation. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. May be repeated for a maximum of four credits. An exploration of spontaneous body movement with the purpose of increasing body awareness, movement invention and movement creativity.

DANC 106. Improvisation. 2 Hours.

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. Prerequisite: completion of DANC 105 to enroll in DANC 106. An exploration of spontaneous body movement with the purpose of increasing body awareness, movement invention and movement creativity.

DANC 107. Music and Dance Forms. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Prerequisites: DANC 101 and 105, or permission of instructor. An exploration of the various traditional and nontraditional concepts of music that are used in collaboration with dance. Course includes lecture, reading, listening and movement assignments. Focus will be on the dancer's understanding and use of music through movement analysis and improvisation.

DANC 111. Ballet Technique I. 2 Hours.

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. Prerequisites: completion of DANC 111 to enroll in DANC 112. Corequisites: DANZ 111-112. Dance major or departmental approval. These courses may be repeated for a maximum total of 8 credits on the recommendation of the chair. Fundamental study of the principles of ballet technique.

DANC 112. Ballet Technique I. 2 Hours.

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. Prerequisites: completion of DANC 111 to enroll in DANC 112. Corequisites: DANZ 111-112. Dance major or departmental approval. These courses may be repeated for a maximum total of 8 credits on the recommendation of the chair. Fundamental study of the principles of ballet technique.

DANC 121. Tap Technique I. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Beginning study and training in the principles of tap technique with emphasis upon style, body alignment, spatial patterning, flexibility, strength and kinesthetic awareness to move the body in the style required for tap dancing. Crosslisted as: AFAM 121.

DANC 122. Tap Technique I. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Beginning study and training in the principles of tap technique with emphasis upon style, body alignment, spatial patterning, flexibility, strength and kinesthetic awareness to move the body in the style required for tap dancing. Crosslisted as: AFAM 122.

DANC 126. African-Caribbean Dance I. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Dance based on the movements and rhythms of Africa and the Caribbean. Crosslisted as: AFAM 126.

DANC 127. African-Caribbean Dance I. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Dance based on the movements and rhythms of Africa and the Caribbean. Crosslisted as: AFAM 127.

DANC 133. Introduction to Ballet Technique I. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. This course may be repeated for a maximum total of 4 credits on the recommendation of the chair. For nonmajors. Introductory study of the principles of ballet technique.

DANC 134. Introduction to Ballet Technique II. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Prerequisite: DANC 133 or permission of instructor. For nonmajors. This course may be repeated for a maximum total of 4 credits on the recommendation of the chair. Further introductory study of the principles of ballet technique.

DANC 141. Ballroom Dancing. 1 Hour.

Semester courses; 2 studio hours. 1, 1 credit. A study of basic ballroom dance steps and practice in their performance.

DANC 142. Ballroom Dancing. 1 Hour.

Semester courses; 2 studio hours. 1, 1 credit. A study of basic ballroom dance steps and practice in their performance.

DANC 151. Jazz Dance Technique I. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Prerequisite: DANC 102 or permission of instructor. Study and training in the principles and concepts of jazz technique. Emphasis on body alignment, flexibility, balance, rhythmic awareness and mastery of isolated movements of body parts. The course includes the exploration of the relationship between jazz music and jazz dance. Crosslisted as: AFAM 151.

DANC 152. Jazz Dance Technique I. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Prerequisite: DANC 102 or permission of instructor. Study and training in the principles and concepts of jazz technique. Emphasis on body alignment, flexibility, balance, rhythmic awareness and mastery of isolated movements of body parts. The course includes the exploration of the relationship between jazz music and jazz dance. Crosslisted as: AFAM 152.

DANC 161. Rehearsal and Performance. 1-3 Hours.

Semester course; hours to be arranged. 1-3 credits. Prerequisite: audition. May be repeated for a maximum of 4 credits. Dance rehearsals and production of work for a dance concert.

DANC 162. Rehearsal and Performance. 1-3 Hours.

Semester course; hours to be arranged. 1-3 credits. Prerequisite: audition. May be repeated for a maximum of 4 credits. Dance rehearsals and production of work for a dance concert.

DANC 171. T'ai Chi. 2 Hours.

Semester courses; 1 lecture and 2 studio hours. 2 credits. Study and practice of T'ai Chi, a Chinese exercise form, which is designed to bring one to full potential through balancing, aligning and breathing exercises. The short Yang form, based on Taoist principles, strengthens the body while allowing for deep relaxation to take place. Application of T'ai Chi to creative dance techniques is explored as a springboard for improvisation.

DANC 172. T'ai Chi. 2 Hours.

Semester courses; 1 lecture and 2 studio hours. 2 credits. Study and practice of T'ai Chi, a Chinese exercise form, which is designed to bring one to full potential through balancing, aligning and breathing exercises. The short Yang form, based on Taoist principles, strengthens the body while allowing for deep relaxation to take place. Application of T'ai Chi to creative dance techniques is explored as a springboard for improvisation.

DANC 183. Introduction to Modern Dance Technique. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. May be repeated for a maximum of 4 credits. For non-dance majors. Experiential introduction to basic movement principles, body alignment and the elements of modern dance.

DANC 184. Introduction to Modern Dance Technique. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Prerequisite: DANC 183 or by audition on first day of class. May be repeated for a maximum of 4 credits. For non-dance majors. Experiential introduction to basic movement principles, body alignment and the elements of modern dance.

DANC 191. West African Dance Techniques. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. May be repeated for up to 4 credits. This course is designed to provide the student with movement skill(s) and knowledge of traditional dances of West Africa, with an emphasis on the acquisition of basic movement sequences, as well as traditional dance techniques aligned with the songs, instruments, rhythms and foundational understanding of the cultural and historical context in which the dance derived. This course is open to students of all skill levels, from beginner to the more advanced.

DANC 201. Modern Dance Technique II and Workshop. 3 Hours.

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum of 12 credits on the recommendation of the chair. Prerequisites: dance major and DANC 102, or departmental approval; completion of DANC 201 to enroll in DANC 202. Further study and training in the principles of modern dance technique on an intermediate level with the expectation of better coordination of all elements into a sense of dance. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 202. Modern Dance Technique II and Workshop. 3 Hours.

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum of 12 credits on the recommendation of the chair. Prerequisites: dance major and DANC 102, or departmental approval; completion of DANC 201 to enroll in DANC 202. Further study and training in the principles of modern dance technique on an intermediate level with the expectation of better coordination of all elements into a sense of dance. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 204. Introduction to Composition. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. Prerequisite: DANC 183 or DANC 184. Applied study of the introduction and principles of dance composition and the dance-making process. This course emphasizes the creation and performance of solo, duet and/or trio dances. This course will incorporate group improvisations, creating and performing dance studies, discussion, critical analysis, and journal writing. Dance experience is required.

DANC 205. Composition. 3 Hours.

Continuous courses; 2 lecture and 2 studio hours. 3-3 credits. Prerequisites: dance major and DANC 105 and 107, or departmental approval; completion of DANC 205 to enroll in DANC 206. An introduction to the basic elements of choreography.

DANC 206. Composition. 3 Hours.

Continuous courses; 2 lecture and 2 studio hours. 3-3 credits. Prerequisites: dance major and DANC 105 and 107, or departmental approval; completion of DANC 205 to enroll in DANC 206. An introduction to the basic elements of choreography.

DANC 207. Studies in Music for Dance. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: dance major and DANC 107, or departmental approval. Study of the history, theory and aesthetics of music as it relates to dance. Course includes lecture, listening, reading, discussion, writing and oral presentations.

DANC 211. Ballet Technique II. 2 Hours.

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. This course may be repeated for a maximum total of 8 credits on the recommendation of the chair. Prerequisites: dance major and DANC 112, or departmental approval; completion of DANC 211 to enroll in DANC 212. Intermediate-level study, training and practice of ballet technique.

DANC 212. Ballet Technique II. 2 Hours.

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. This course may be repeated for a maximum total of 8 credits on the recommendation of the chair. Prerequisites: dance major and DANC 112, or departmental approval; completion of DANC 211 to enroll in DANC 212. Intermediate-level study, training and practice of ballet technique.

DANC 213. Beginning/Intermediate Pointe. 1 Hour.

Semester course; 2 studio hours. 1 credit. Course restricted to dance majors. Study and practice of pointe technique, including barre and center floor work using proper body alignment and safe movement mechanics.

DANC 221. Tap Technique II. 2 Hours.

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: Audition or permission of instructor. Further study and training in the principles of tap technique.

DANC 222. Tap Technique II. 2 Hours.

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: Audition or permission of instructor. Further study and training in the principles of tap technique.

DANC 230. Dance in Hollywood. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits. This course will use an interdisciplinary approach to investigate how dance on screen has been portrayed in 21st-century Hollywood films. Students will learn how to discuss dance and choreography as a cultural lens for contemporary issues. Through film viewings, readings and lectures, the role of dance will be examined in relation to how it perpetuates and challenges issues of power, race, class, gender, sexual orientation and age. Students will discuss popular perceptions of dance, dance in Hollywood and dance as a reflection of the socio-political context within the past 25 years.

DANC 251. Jazz Technique II. 2 Hours.

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisites: DANC 151, 152, or permission of instructor. An in-depth study of movement styles and qualities in jazz dance. Advanced work on integrating music and movement with focus upon chronology of jazz music and corresponding dance forms.

DANC 252. Jazz Technique II. 2 Hours.

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisites: DANC 151, 152, or permission of instructor. An in-depth study of movement styles and qualities in jazz dance. Advanced work on integrating music and movement with focus upon chronology of jazz music and corresponding dance forms.

DANC 253. Pilates. 1-2 Hours.

Semester course; 2-4 laboratory hours. 1-2 credits. Students engage in a physical practice: matwork of the Pilates system, built on the work of Joseph H. Pilates. The practice is designed to improve muscular-skeletal performance, strength, flexibility and endurance, while focusing on core stability, restoring the optimal curves of the spine, relieving tension and enhancing self-confidence. Basic muscular anatomy and kinesiology will also be integrated into instruction and cuing for greater body awareness.

DANC 254. Yoga. 1-3 Hours.

Semester course; 2-6 laboratory hours. 1-3 credits. Students engage in a physical practice based on yoga, taught from an experiential, philosophical and anatomic perspective, with an emphasis on dynamic flow that links breath and movement.

DANC 255. Hip Hop Dance. 2 Hours.

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: dance major or permission of instructor. Intermediate-level dance technique class that draws on the hip hop aesthetic to create a movement experience that emphasizes individual style, rhythmic awareness and physical prowess.

DANC 256. Hip Hop Dance. 2 Hours.

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: dance major or permission of instructor. Intermediate-level dance technique class that draws on the hip hop aesthetic to create a movement experience that emphasizes individual style, rhythmic awareness and physical prowess.

DANC 260. Dance Production Workshop. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: dance major or permission of instructor. An introduction to the basic principles of dance lighting and technical theatre through lecture, practical demonstration and discussion.

DANC 261. Rehearsal and Performance. 1-3 Hours.

Semester course; hours to be arranged. 1-3 credits. Prerequisite: audition. May be repeated for a maximum of 4 credits. Dance rehearsals and production of work for a major dance concert.

DANC 262. Rehearsal and Performance. 1-3 Hours.

Semester course; hours to be arranged. 1-3 credits. Prerequisite: audition. May be repeated for a maximum of 4 credits. Dance rehearsals and production of work for a major dance concert.

DANC 291. Topics in Dance. 1-4 Hours.

Semester course; 1-4 credits. May be repeated for a maximum of 8 credits. Prerequisite: permission of instructor. A seminar or workshop on a selected issue or topic in the field of dance. See the Schedule of Classes for specific topics to be offered each semester.

DANC 301. Modern Dance Technique III and Workshop. 3 Hours.

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum of 12 credits on the recommendation of the chair. Prerequisites: dance major and DANC 202, or departmental approval; completion of DANC 301 to enroll in DANC 302. Advanced study and training in principles of modern dance technique. Movement studies demanding greater strength and flexibility. Spatial patterns demanding increased coordination, kinesthetic awareness and aesthetic sensitivity. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 302. Modern Dance Technique III and Workshop. 3 Hours.

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum of 12 credits on the recommendation of the chair. Prerequisites: dance major and DANC 202, or departmental approval; completion of DANC 301 to enroll in DANC 302. Advanced study and training in principles of modern dance technique. Movement studies demanding greater strength and flexibility. Spatial patterns demanding increased coordination, kinesthetic awareness and aesthetic sensitivity. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 303. Choreography/Performance. 2 Hours.

Semester course; 1 lecture and 3 studio hours. 2 credits. Prerequisite: DANC 206. Enrollment is restricted to dance majors who have successfully completed the sophomore readmittance evaluation. The craft of choreography and performing techniques are explored extensively as students develop solo and group pieces while rotating in the roles of choreographer/director and performer.

DANC 304. Choreography/Performance. 3 Hours.

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisites: DANC 205 and DANC 206, and successful completion of the sophomore readmittance evaluation; and DANC 303. Enrollment is restricted to dance majors. The craft of choreography and performing techniques are explored extensively as students develop solo and group pieces while rotating in the roles of choreographer/director and performer.

DANC 305. Advanced Improvisation. 2 Hours.

Semester course; 3 studio hours. 2 credits. Prerequisite: DANC 105 or permission of instructor. Advanced exploration of spontaneous body movement with the purpose of increasing body awareness, movement invention and movement creativity. This class will utilize exercises in body imaging, patterning, energy, trust, risk-taking and creativity. The class will also investigate specific improvisational forms, including contact improvisation and environmental improvisation.

DANC 311. Ballet Technique III. 2 Hours.

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. This course may be repeated for a maximum of 12 credits on the recommendation of the chair. Prerequisites: dance major and DANC 212, or departmental approval; completion of DANC 311 to enroll in DANC 312. Advanced training, study and practice of ballet technique focusing on the refinement and performance skills.

DANC 312. Ballet Technique III. 2 Hours.

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. This course may be repeated for a maximum of 12 credits on the recommendation of the chair. Prerequisites: dance major and DANC 212, or departmental approval; completion of DANC 311 to enroll in DANC 312. Advanced training, study and practice of ballet technique focusing on the refinement and performance skills.

DANC 313. Dance in World Cultures. 3 Hours.

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: DANC 103-104 and UNIV 200 or HONR 200, or permission of instructor. This course is the third in a sequence that fulfills one of the general education writing intensive requirements for dance majors. Students learn and participate in dance styles of various world cultures as they study cultural traditions and how they are expressed in movement. No dance experience necessary. This course will include lectures, readings, research and discussion. Students will engage in the viewing and discussion of films, videos and dance concerts.

DANC 315. Contact Improvisation. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. May be repeated for a maximum total of 6 credits. Exploration of the technique of partnering and the exchange of weight in an improvisational format. Emphasis is on a shared process that explores gravity, lifting, and the give and take of body weight.

DANC 316. Contact Improvisation. 2 Hours.

Semester courses; 1 lecture and 2 studio hours. 2 credits. Prerequisites: DANC 101, 102, or permission of instructor. Exploration of the technique of partnering and the exchange of weight in an improvisational format. Emphasis is on a shared process that explores gravity, lifting, and the give and take of body weight.

DANC 317. Anatomy for the Dancer. 1 Hour.

Semester course; 2 laboratory hours (delivered online). 1 credit. Prerequisite: UNIV 200 or HONR 200. Enrollment is restricted to dance majors or by permission of the instructor. A Web-based, self-study course designed for dance students. Integrates the study of anatomy with dance terminology, skills and concepts. Covers basic knowledge of skeletal, muscular and nervous systems of the body and applies this information to principles important to dance.

DANC 318. Dance Science. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: dance major and DANC 317. A team-taught lecture and laboratory course that applies anatomical and basic kinesiological concepts to dance technique. Students will analyze and assess dance movement using scientific principles as well as study the interplay between the aesthetic qualities and biomechanics of dance technique, and the role of this study in injury prevention.

DANC 319. Screen Dance. 3 Hours.

Semester course; 2 lecture and 2 studio hours. 3 credits. Enrollment is restricted to students with experience in movement, performance and/or video/film, or with permission of the instructor. Students gain practical skills as well as basic theoretical foundation in the principles of working with video and choreography. Crosslisted as: KINE 319.

DANC 321. Partnering. 2 Hours.

Semester course; 1 lecture and 2 studio hours. 2 credits. May be repeated for a maximum total of 4 credits. Enrollment restricted to dance majors. Investigation and practice of traditional to contemporary partnering concepts supporting the fundamental through advanced development of skills necessary for a dancer and choreographer.

DANC 360. Lighting Design for Dance. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: DANC 260 or permission of instructor. Open to qualified School of the Arts majors only. A study in the art of lighting design as it evolves from the choreographer/designer collaboration. The basic techniques of drafting, use of color and composition of space related to light and movement.

DANC 361. Rehearsal and Performance. 1-3 Hours.

Semester course; hours to be arranged. 1-3 credits. Prerequisite: audition. May be repeated for a maximum of 9 credits. Dance rehearsals and production of work for a major dance concert.

DANC 362. Rehearsal and Performance. 1-3 Hours.

Semester course; hours to be arranged. 1-3 credits. Prerequisite: audition. May be repeated for a maximum of 9 credits. Dance rehearsals and production of work for a major dance concert.

DANC 365. Sound Design for Dance. 3 Hours.

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisites: DANC 107, DANC 205 and DANC 206. Enrollment is restricted to majors in the Department of Dance and Choreography or requires permission of the instructor. This course introduces diverse perspectives on sound design for live and video dance and provides an overview of sound as a form of communication and an artistic practice. Instruction will focus on how sound design conveys meaning and how sound interacts with visual experience, including dance, art installations, performance, video and film. Designing great sound scores begins by deeply listening to sounds and environments and thinking about how to expressively create drama and emotion for the audience. This is a project-based course designed to help students complete sound designs for their own work.

DANC 371. Repertory. 3 Hours.

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: audition. May be repeated for a maximum of 9 credits. Study and rehearsal of roles in choreography produced by the faculty and/or guest artists, with the objective of achieving a performance level.

DANC 372. Repertory. 3 Hours.

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: audition. May be repeated for a maximum of 9 credits. Study and rehearsal of roles in choreography produced by the faculty and/or guest artists, with the objective of achieving a performance level.

DANC 401. Modern Dance Technique IV and Workshop. 3 Hours.

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum of 18 credits on the recommendation of the department chair. Prerequisites: dance major and DANC 302, or departmental approval; completion of DANC 401 to enroll in DANC 402. Preprofessional study and training in modern dance technique. Movement studies demanding a superior level of clarity, strength and flexibility. Movement patterns demanding a high level of coordination, deep kinesthetic awareness and aesthetic sensitivity. Exploration of a wide range of performance qualities. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 402. Modern Dance Technique IV and Workshop. 3 Hours.

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum of 18 credits on the recommendation of the department chair. Prerequisites: dance major and DANC 302, or departmental approval; completion of DANC 401 to enroll in DANC 402. Preprofessional study and training in modern dance technique. Movement studies demanding a superior level of clarity, strength and flexibility. Movement patterns demanding a high level of coordination, deep kinesthetic awareness and aesthetic sensitivity. Exploration of a wide range of performance qualities. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 407. Teaching Methods for Dance. 3 Hours.

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: dance major and DANC 302. The student learns to analyze and communicate movement in a variety of teaching situations. The student will have an opportunity to observe different teaching techniques and to practically apply learned teaching concepts and theories.

DANC 408. Children's Pedagogy. 2 Hours.

Semester course; 2 lecture and 1 practicum hours. 2 credits. Enrollment is restricted to dance majors or with permission of the instructor. This course offers an examination of teaching principles and theories specific to children's dance. Primarily focusing on creative dance and Western forms of movement for toddlers through age 14, students will learn to analyze, observe and communicate teaching concepts and theories of movement while considering the physical, cognitive and developmental stages of a child's growth. This course is designed to prepare students for future employment opportunities within privately owned dance studios.

DANC 411. Ballet Technique IV. 2 Hours.

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. May be repeated for a maximum total of 12 credits. Prerequisites: dance major and placement audition or permission of the chair; completion of DANC 411 to enroll in DANC 412. Preprofessional study and practice of ballet technique focusing on the refinement of technical skills and the elements of dynamic performance in ballet.

DANC 412. Ballet Technique IV. 2 Hours.

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. May be repeated for a maximum total of 12 credits. Prerequisites: dance major and placement audition or permission of the chair; completion of DANC 411 to enroll in DANC 412. Preprofessional study and practice of ballet technique focusing on the refinement of technical skills and the elements of dynamic performance in ballet.

DANC 413. African American Presence in American Dance, Performance and Social Contexts. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: DANC 103-104 and UNIV 200 or HONR 200, or permission of instructor. This course is an option for the third course in a sequence that fulfills a writing intensive requirement for dance majors only. Examines African-American history, culture and aesthetics as they relate to dance in American social and performance contexts. Includes lectures, readings, research and video screenings.

DANC 414. Summer Dance Workshop. 1-3 Hours.

Semester courses; variable hours. 1 or 3 credits per semester. May be repeated for credit. Flexible course offerings in dance technique, improvisation, composition, rhythmic training and repertory. See the Schedule of Classes for specific topics to be offered each semester.

DANC 415. Black Performance Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: DANC 103, DANC 104 and UNIV 200. This course will focus on performance as apt method for analysis of notions/experiences of Blackness. Students will read scholarly texts which contend with the ubiquity of Black death and gratuitous violence alongside sonic, visual and written texts by significant cultural contributors — including works by Rihanna, Dapper Dan, Cardi B, Beyonce and Janet Mock — in order to examine and contend with expressions of complex personhood by people who exist under the constant threat of annihilation. The course focuses on embodied knowledge — that is, the harnessing of insight derived from lived experiences of hegemonic racial, gender, sexual and class subjection — and how such wisdom is transformed into strategies, tactics and tools that enable black people to acquire the human and material resources needed for survival. Crosslisted as: GSWS 415.

DANC 450. Professional Project. 2-9 Hours.

Semester course; 3-9 credits. May be repeated for a maximum of 12 credits. Prerequisite: dance major. An individualized program in research and/or practicum within a professionally-oriented organization, subject to approval of the department faculty.

DANC 451. Careers in Dance. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: dance major. Realistic aspects of the dance profession, as performer, teacher and researcher. The student's learning experience culminates in a final project that enhances and challenges the student in both areas of performance and choreography. The project must attain public performance status.

DANC 455. Dance Criticism. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisites: DANC 103, DANC 104 and UNIV 200. Enrollment is restricted to dance majors and minors. Students in this course will consider dance criticism from historical and contemporary perspectives, investigating issues of culture, identity and power. Students will engage with the practice of writing dance criticism as a creative act, considering both poetics and mechanics. Students will read and respond to contemporary and historical dance reviews and essays; read and respond to poetry as a practice which fuels their creativity and invention as writers grappling with the ephemerality of dance; and will write and revise reviews of performances.

DANC 460. Business of Dance. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: UNIV 200. Enrollment restricted to dance majors. Investigation of diverse business models in dance performance, creation, production and administration.

DANC 490. Senior Project. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: DANC 302 and DANC 303. Enrollment is restricted to dance majors who have completed the "creative practicum" requirement and have departmental approval. The culmination of the student's learning experience in a final project that enhances and challenges the student in both areas of performance and choreography. The project must attain public performance status.

DANC 491. Topics in Dance. 1-4 Hours.

Semester course; 1-4 credits. May be repeated for a maximum of 8 credits. Prerequisite: permission of instructor. A seminar or workshop on a selected issue or topic in the field of dance. See the Schedule of Classes for specific topics to be offered each semester.

DANC 492. Independent Study in Dance. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of six credits. Prerequisites: dance major status and approval of department chair and instructor. Individual instruction and supervision of a special project. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

Dance and Choreography Lab (DANZ)**DANZ 111. Ballet Technique I Laboratory. 1 Hour.**

Continuous courses; 2 studio hours. 1-1 credit. These courses may be repeated for a maximum of 4 credits on the recommendation of the chair. Prerequisites: completion of DANZ 111 to enroll in DANZ 112. Corequisites: DANC 111-112. Dance major or permission of instructor. Reinforcement in the study of ballet technique at the fundamental level. Emphasis focusing on alignment and in-depth practice of ballet steps. An extension of DANC 111-112 to be taken concurrently.

DANZ 112. Ballet Technique I Laboratory. 1 Hour.

Continuous courses; 2 studio hours. 1-1 credit. These courses may be repeated for a maximum of 4 credits on the recommendation of the chair. Prerequisites: completion of DANZ 111 to enroll in DANZ 112. Corequisites: DANC 111-112. Dance major or permission of instructor. Reinforcement in the study of ballet technique at the fundamental level. Emphasis focusing on alignment and in-depth practice of ballet steps. An extension of DANC 111-112 to be taken concurrently.

DANZ 211. Ballet Technique II Laboratory. 1 Hour.

Continuous courses; 2 studio hours. 1-1 credit. These courses may be repeated for a maximum of 4 credits on the recommendation of the chair. Prerequisites: dance major and DANC/DANZ 112, or departmental approval; completion of DANZ 211 to enroll in DANZ 212. A reinforcement in the study of ballet technique at the intermediate level. An extension of DANC 211-212 to be taken concurrently.

DANZ 212. Ballet Technique II Laboratory. 1 Hour.

Continuous courses; 2 studio hours. 1-1 credit. These courses may be repeated for a maximum total of 4 credits on the recommendation of the chair. Prerequisites: dance major and DANC/DANZ 112, or departmental approval; completion of DANZ 211 to enroll in DANZ 212. A reinforcement in the study of ballet technique at the intermediate level. An extension of DANC 211-212 to be taken concurrently.

DANZ 311. Ballet Technique III Laboratory. 1 Hour.

Continuous courses; 2 studio hours. 1-1 credit. May be repeated for a maximum total of 6 credits on the recommendation of the chair. Prerequisites: completion of DANZ 311 to enroll in DANZ 312. Dance major and placement audition or permission of the chair. Reinforcement in the study of ballet technique at the advanced level. May be taken concurrently with DANC 311-312.

DANZ 312. Ballet Technique III Laboratory. 1 Hour.

Continuous courses; 2 studio hours. 1-1 credit. May be repeated for a maximum total of 6 credits on the recommendation of the chair. Prerequisites: completion of DANZ 311 to enroll in DANZ 312. Dance major and placement audition or permission of the chair. Reinforcement in the study of ballet technique at the advanced level. May be taken concurrently with DANC 311-312.

DANZ 411. Ballet Technique IV Laboratory. 1 Hour.

Continuous courses; 2 studio hours. 1-1 credit. May be repeated for a maximum total of 4 credits on the recommendation of the chair. Prerequisites: completion of DANZ 411 to enroll in DANZ 412. Dance major and placement audition or permission of the chair. Reinforcement in the study of ballet technique at the preprofessional level. An extension of DANC 411-412, which can be taken concurrently.

DANZ 412. Ballet Technique IV Laboratory. 1 Hour.

Continuous courses; 2 studio hours. 1-1 credit. May be repeated for a maximum total of 4 credits on the recommendation of the chair. Prerequisites: completion of DANZ 411 to enroll in DANZ 412. Dance major and placement audition or permission of the chair. Reinforcement in the study of ballet technique at the preprofessional level. An extension of DANC 411-412, which can be taken concurrently.

Fashion Design and Merchandising (FASH)**FASH 120. Introduction to the Fashion Industry. 3 Hours.**

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising. This is a survey of the apparel industry to guide students to an understanding of the factors contributing to, forming and shaping the fashion industry. Additionally, students are introduced to the art, business and craft in developing and marketing fashion product emphasizing the role of the designer and the various stages of production.

FASH 130. The Meaning of Dress. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An exploration of the fashion system in which individuals participate in the adoption of trends and signifiers to denote political, religious and cultural beliefs or the rejection of specific ideals as reflected through dress. This class will examine how dress enables an individual to identify with a group while simultaneously reflecting individuality through various case studies.

FASH 145. Technology in Fashion Merchandising. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Enrollment is restricted to students in the fashion merchandising major or the minor in fashion merchandising. This course introduces students to contemporary technology with emphasis on computer graphics software and design principles in the fashion industry.

FASH 201. Construction Techniques. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising; non-majors may enroll with the permission of the instructor. The basic principles involved in garment construction with emphasis on professional design-room practices in sewing, pressing and finishing of garments.

FASH 203. Patternmaking I. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising; non-majors may enroll with the permission of the instructor. Introduction to the basic principles of 2D and 3D patternmaking. Students learn to develop various patterns using both drafting and draping techniques. Drafted and draped patterns will be used to cut fabric and create garments.

FASH 204. Patternmaking II. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisites: FASH 201 and FASH 203. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising; non-majors may enroll with the permission of the instructor. Development of intermediate skills and principles of 2D and 3D patternmaking. Students learn to develop various patterns using both drafting and draping techniques. Drafted and draped patterns will be used to cut fabric and create garments.

FASH 205. Fashion Drawing I. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Introduction to the fashion figure working from models and photographs. Covers flat drawing techniques and fashion design theory. Explores different media and the use of color.

FASH 206. Fashion Drawing II. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisite: FASH 205. Further development of drawing the fashion figure and expanded exploration of media and materials.

FASH 210. Visual Merchandising. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 120. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising. Theory and practical application of visual merchandising techniques in the fashion industry. Development of design concepts, fixturing, layout and presentation for retail, manufacturing and special events. Use of contemporary technology.

FASH 250. Concepts of the Fashion Industry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 120. Enrollment is restricted to students in the fashion merchandising major or the minor in fashion merchandising. The evaluation and analysis of the fashion and apparel industry with regard to the economy, global markets, and industry practices and trends.

FASH 290. Textiles for the Fashion Industry. 3 Hours.

Semester course; 2 lecture and 1 laboratory hour. 3 credits. Prerequisite: FASH 120. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising. An introduction to the study of fabrics, focusing on fibers, fabric construction and fabric names.

FASH 301. Advanced Draping I. 3 Hours.

Semester course; 1 lecture and 4 studio hours (delivered face-to-face or hybrid). 3 credits. Prerequisites: FASH 201, FASH 203 and FASH 204. Enrollment is restricted to students in the fashion design major. A course that focuses on draped methods of garment design, reflecting current fashion emphasis.

FASH 302. Advanced Tailoring II. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisites: FASH 201, FASH 203 and FASH 204. May be repeated for a maximum of six credits. This course is designed to instruct the student in the advanced skills, techniques and applications of patternmaking, garment construction and garment specifications, as well as demonstrate traditional/contemporary tailoring techniques. Students will also be introduced to evaluation guidelines for analyzing finished garments.

FASH 303. Design Theory and Illustration I. 3 Hours.

Semester course; 6 studio hours. 3 credits. Prerequisite: FASH 345. Enrollment is restricted to fashion design majors. Students will gain understanding of creative approaches to designing and illustrating garments, from concept to finished illustration.

FASH 304. Design Theory and Illustration II. 3 Hours.

Semester course; 6 studio hours. 3 credits. Prerequisite: FASH 303. Enrollment is restricted to fashion design majors. A continuation and expansion of the skills and theory in the prerequisite course. Students will refine creative approaches to designing and illustrating garments, from concept to finished illustration.

FASH 305. Advanced Tailoring I. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisites: FASH 201, FASH 203 and FASH 204. Enrollment is restricted to students majoring in the B.F.A. in Fashion with a concentration in fashion design. This course is designed to instruct the student in the advanced skills, techniques and applications of patternmaking, garment construction and garment specifications, as well as demonstrate traditional/contemporary tailoring techniques. Students will also be introduced to evaluation guidelines for analyzing finished garments.

FASH 306. Advanced Draping II. 3 Hours.

Semester course; 1 lecture and 4 studio hours (delivered face-to-face or hybrid). 3 credits. Prerequisites: FASH 201, FASH 203 and FASH 204. Enrollment is restricted to students majoring in the B.F.A. in Fashion with a concentration in fashion design. A course that focuses on draped methods of garment design, reflecting current fashion emphasis.

FASH 319. Fashion History: The Modern Era. 3 Hours.

Semester course; 3 lecture hours (delivered face-to-face or hybrid). 3 credits. Prerequisite: UNIV 200 or HONR 200. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising. An in-depth study of fashion from a historical and socio-economic point of view. Supported by a study collection with a focus on research and writing.

FASH 320. Fashion History: The Present Era. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. This course explores the history of 21st-century fashion and explores designers, trends and movements affecting fashion.

FASH 325. Fashion and Sustainability. 3 Hours.

Semester course; 3 lecture hours (delivered face-to-face or hybrid). 3 credits. Prerequisite: FASH 120. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising or with permission from the instructor. This course presents topics in sustainability and will engage and educate students on how sustainability influences fashion systems from the industry and consumer perspectives. Students experience self-directed and reflective learning that will inform other studies and prepare them for a variety of careers and to become better global citizens.

FASH 330. The Business of Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course introduces basic global economics and general design business concepts such as the free enterprise system, legal forms of business and financial considerations. It also surveys business and management practices such as planning, decision-making, communication, global ethics, marketing, human resources, finance and entrepreneurial skills needed to open a design business. Crosslisted as: IDES 330/GDES 330.

FASH 340. Merchandising Portfolio. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: FASH 145 or FASH 345; FASH 343; and FASH 380. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising who have completed a minimum of 60 credit hours (junior standing). Professional preparation for the development of a digital portfolio used in the pursuit of internships and/or career opportunities. Technology-intensive course.

FASH 341. Merchandise Planning and Control. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising who have completed a minimum of 30 credit hours (sophomore standing). Practical application of the retail mathematics used in relation to the calculations for an income statement, markup, markdown, gross margin, turnover and a six-month buying plan.

FASH 342. Retail Buying Simulation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: FASH 341 and BUSN 162. Enrollment is restricted to students in the fashion merchandising major or the minor in fashion merchandising. The practical application of retail buying in relation to the calculations for a six-month buying plan. The simulation includes the projection of sales, markdowns, inventory, gross margin, markup and turnover.

FASH 343. Fashion Forecasting. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 120. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising who have completed a minimum of 60 credit hours (junior standing). Using trend forecasting principles to identify and analyze current cultural shifts, students will research and simulate a fashion forecast.

FASH 345. Fashion Communication. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising who have completed at least 30 credit hours (sophomore standing). Students will learn to conceptualize fashion design while gaining an understanding of graphic and illustration software through the utilization of technology as a drawing and communication tool.

FASH 346. Fashion Website Development. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 145 or FASH 345. Enrollment is restricted to students in the fashion merchandising major or the minor in fashion merchandising. This course examines the fundamental concepts of fashion business website development, primarily related to fashion, branding and e-commerce. The class is a group simulation and includes planning, building, designing, executing, marketing, branding and maintaining a successful fashion e-commerce website and social media platforms.

FASH 350. Fashion Promotion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 120. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising who have completed a minimum of 60 credit hours (junior standing). An in-depth analysis of the technical and creative approaches to fashion promotion, which includes advertising, visual merchandising, publicity and events.

FASH 360. Merchandising Luxury Fashion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 120. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising who have completed a minimum of 30 credit hours (sophomore standing). This course is an exploration of the merchandising of the luxury fashion sector, which includes the forecasting, product development, branding, marketing, buying, selling and counterfeiting of luxury products. Students explore the luxury fashion industry through lectures, assignments and face-to-face exposure to suppliers, manufacturers and retailers in the luxury sector.

FASH 370. Design History: 20th and 21st Centuries. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTF 105-106. Study of the major theories and styles on communication arts, fashion and interior environments of the 20th and 21st centuries. Contemporary analysis of cultural conditions and the manner in which designers respond to those conditions. Crosslisted as: GDES 370/IDES 370.

FASH 380. Fashion Branding. 3 Hours.

Semester course; 3 lecture hours (delivered face-to-face or hybrid). 3 credits. Prerequisite: FASH 120. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising who have completed a minimum of 30 credit hours (sophomore standing). An in-depth study of the concept of fashion branding and the processes necessary to successfully develop or redevelop a fashion brand.

FASH 390. Historic and Ethnic Textiles. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 290 or IDES 446 or permission of instructor. An examination of the history of textile design and production around the world. Crosslisted as: INTL 390.

FASH 391. Fashion Workshop. 1-3 Hours.

Semester course; 1-3 workshop hours (delivered online, face-to-face or hybrid). 1-3 credits. May be repeated for a maximum total of six credits. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising. A topical workshop offered in various areas of fashion not included in the regular curriculum.

FASH 392. Exploring Textile Applications. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Corequisite: FASH 290. Enrollment is restricted to students in the fashion majors or the minor in fashion merchandising. This advanced course uses a hands-on approach to examine textiles and textile applications as they are used within the fashion industry.

FASH 401. Focused Design Applications. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisites: FASH 301, FASH 302, FASH 305 and FASH 306. May be repeated for a maximum of nine credits. Enrollment is restricted to fashion design majors. A series of upper-level design classes, with emphasis on design applications, for the advanced student. See the Schedule of Classes for specific topics to be offered each semester.

FASH 402. Cultural Issues in Studio Practice. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisites: FASH 301, FASH 302, FASH 305 and FASH 306. May be repeated for a maximum of nine credits. A series of upper-level design classes with an emphasis on culture for the advanced student. See the Schedule of Classes for specific topics to be offered each semester.

FASH 403. Design Theory and Illustration I. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. May be repeated. Prerequisite: completion of all Department of Fashion sophomore studio courses. A series of design theory and illustration topics that address current fashion and support the Department of Fashion design courses. See the Schedule of Classes for specific topics to be offered each semester.

FASH 404. Design Portfolio. 4 Hours.

Semester course; 2 lecture and 4 studio hours. 4 credits. Prerequisite: FASH 304. Advanced design theory and illustration course that teaches students to develop senior portfolios of original design work, including other tools and presentation skills with mock interviews necessary in order to obtain jobs in the field of fashion design.

FASH 405. Middle of Broad: Interdisciplinary Community-engaged Design Studio. 3 Hours.

Semester course; 6 studio hours. 3 credits. May be repeated for a maximum of six credits. Prerequisites: ARTF 131, ARTF 132, ARTF 133 and ARTF 134. Students will work in an interdisciplinary design environment on community-based design projects. The course is a designated service-learning course. Crosslisted as: IDES 405.

FASH 406. Advanced Fashion Technology. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisite: FASH 145 or FASH 345. Enrollment is restricted to students in the Department of Fashion Design and Merchandising. Students will explore various technology programs to conceptualize, design and execute a finished garment.

FASH 440. Line Development Studio. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: FASH 342; or FASH 301 and FASH 302. Enrollment is restricted to fashion majors or the minor in fashion merchandising who have completed a minimum of 90 credit hours (senior standing). The fundamentals of producing a line of apparel from the design concept to the consumer will be explored. Students will collaborate and work on teams with emphasis placed on market research, specification sheets, costing, sourcing, production and sales.

FASH 442. Fashion Event Planning. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to fashion merchandising majors with departmental approval. A practical application of the production, planning and execution of professional fashion events.

FASH 443. Fashion Management and Leadership Development. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to fashion majors or the minor in fashion merchandising who have completed a minimum of 60 credit hours (junior standing). The study of advanced leadership skills as they relate to the fashion industry. Topics include team-building, negotiations, ethics, time and stress management, and cross-cultural communications.

FASH 445. Fashion Entrepreneurship. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 342. Enrollment is restricted to fashion majors or the minor in fashion merchandising who have completed a minimum of 90 credit hours (senior standing). This course applies the objective and decision-making procedures inherent in successful entrepreneurship. Quantitative strategies are applied as students develop a model for a business plan.

FASH 450. Line Development. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment restricted to fashion majors. Students will learn the fundamentals of producing a line of apparel, accessories or home fashions from conception to consumer. Emphasis will be placed on market research, specification sheets, costing, sourcing, production and sales.

FASH 451. Importing and Exporting Fashion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 342. Enrollment is restricted to students in the fashion merchandising major or the minor in fashion merchandising. Examination of U.S. import/export theory, government regulations and global sourcing. Students will gain insight into the dynamics and cultures of the international fashion marketplace and global supply chains.

FASH 491. Studio Topics in Design. 1-3 Hours.

Semester course; 2-6 studio hours. 1-3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisites: FASH 301 and FASH 302. An in-depth study of a selected topic in fashion not included in the curriculum. See the Schedule of Classes for specific topics to be offered each semester.

FASH 492. Independent Study in the Fashion Industry. 1-3 Hours.

Semester course; 1-3 independent study hours. 1-3 credits. May be repeated for a maximum of six credits. Enrollment is restricted to fashion majors who have completed a minimum of 60 credit hours (junior standing) and with department chair approval. Independent study is limited to those students who have demonstrated intense commitment to a particular area of study within the fashion industry. This course will not substitute for a degree requirement. A contract between the supervising faculty and the student will clearly define the learning outcomes and expectations.

FASH 493. Fashion Internship. 1-6 Hours.

Semester course; 1-6 practicum hours. 1-6 credits (40 work hours per credit). May be repeated for a maximum of six credits. Enrollment is restricted to fashion majors who have completed a minimum of 60 credit hours (junior standing). A practicum in which students apply gained fashion program knowledge at a departmental approved company.

Graphic Design (GDES)**GDES 220. Design Practices. 4 Hours.**

Semester course; 1 lecture and 6 studio hours. 4 credits. This studio is an introduction to research, analysis and the interpretation of content, emphasizing how hierarchical and syntactic structures participate in the making of meaning. Students are oriented as shapers and interpreters within culture.

GDES 221. Core Studio I. 4 Hours.

Semester course; 1 lecture and 6 studio hours. 4 credits. This studio is an introduction to the generation and control of form. This involves the exploration of methods, materials and language. Students are oriented to fundamental modes of design practices.

GDES 222. Core Studio II. 4 Hours.

Semester course; 1 lecture and 6 studio hours. 4 credits. Prerequisite: GDES 221. This studio reinforces methods, materials and language used in generating and organizing form. Students examine the potential and implications of design processes and their outcomes.

GDES 231. Theory Inquiry. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. This inquiry course is an overview of theory and philosophy influencing graphic design as a situated practice. Students are exposed to design criticism and theoretical perspectives from a variety of disciplines.

GDES 301. Letterpress. 4 Hours.

Semester course; 1 lecture and 6 studio hours. 4 credits. A letterpress printing studio course designed for students interested in being introduced to and developing their visual vocabulary in letterpress and relief printing. Students will undertake critical analysis of the letterpress medium and utilize techniques to develop and produce finished editions of each assigned task.

GDES 302. Book Arts. 4 Hours.

Semester course; 1 lecture and 6 studio hours. 4 credits. An introduction to the tools, materials and craft of contemporary bookmaking. Investigation of bookbinding, handcraft and related techniques.

GDES 308. Web Design. 4 Hours.

Semester course; 1 lecture and 6 studio hours (delivered online or face-to-face). 4 credits. A course developing the design of websites. Emphasis is placed on the visual design, navigation, development, communication and authoring of websites.

GDES 321. Core Studio III. 4 Hours.

Semester course; 1 lecture and 6 studio hours. 4 credits. Prerequisite: GDES 222. This studio examines systems and structures as frameworks for design methods, processes and outcomes. Students broaden their practice relative to scale, context, conditions and effect.

GDES 322. Core Studio IV. 4 Hours.

Semester course; 1 lecture and 6 studio hours. 4 credits. Prerequisite: GDES 321. This studio expands critical discourse to investigate design's impact through distribution and engagement. Students consider how their personal voice and point of view function in a larger context.

GDES 330. The Business of Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course introduces basic global economics and general design business concepts such as the free enterprise system, legal forms of business and financial considerations. It also surveys business and management practices such as planning, decision-making, communication, global ethics, marketing, human resources, finance and entrepreneurial skills needed to open a design business. Crosslisted as: IDES 330/FASH 330.

GDES 331. Precedents Inquiry. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. This inquiry course is a pluralistic survey of precedents and historical examples of design with an emphasis on multiple perspectives and power structures. Students will encounter design histories through a source-based approach.

GDES 356. Studio Management. 4 Hours.

Semester course; 4 lecture hours. 4 credits. A study of business and management factors that relate to creative design. Topics include marketing, structure and organization; financial factors; ethical and legal aspects; and management of design, illustration and photography studios.

GDES 370. Design History: 20th and 21st Centuries. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTF 105-106. Study of the major theories and styles on communication arts, fashion and interior environments of the 20th and 21st centuries. Contemporary analysis of cultural conditions and the manner in which designers respond to those conditions. Crosslisted as: FASH 370/IDES 370.

GDES 380. Multi Studio I. 4 Hours.

Semester course; 1 lecture and 6 studio hours. 4 credits. May be repeated for a maximum total of 8 credits. This studio emphasizes critical engagement, research and speculation. Students engage in collaboration, peer learning and interdependent discovery.

GDES 391. Lecture Topics in Design. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be taken for a maximum of four credits per semester and repeated for a maximum of 12 credits. Topical lectures focused on evolving and emergent issues that affect contemporary design practice. Upper-level students outside of the graphic design major may take this course with an override.

GDES 392. Research/Individual Study. 1-4 Hours.

Semester course; 2-8 studio hours. 1-4 credits. May be repeated for a total of eight credits. Enrollment is restricted to students with permission of the instructor, approval of faculty adviser and department chair. The structuring, research, execution and presentation of an independent project in visual communications under the direction of a faculty adviser. The student will be encouraged to become a self-generating problem-seeker and -solver with the ability to carry out self-stated goals.

GDES 398. Dialogues. 1 Hour.

Semester course; 1 seminar hour (delivered online or face-to-face). 1 credit. May be repeated for a maximum total of six credits. This course engages students in peer-to-peer reflection, dialogue and debate in order to further develop an understanding of the diversity and scope of design practices. Graded as pass/fail.

GDES 401. Experimental Letterpress. 4 Hours.

Semester course; 1 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of eight credits. An advanced print studio course designed for students interested in exploring their visual vocabulary in digital and letterpress relief printing. Students will undertake critical analysis of the combined media of digital and letterpress and utilize techniques inherent within each technology to develop and produce finished editions.

GDES 403. Design Activism. 4 Hours.

Semester course; 1 lecture and 6 studio hours. 4 credits. This course explores relationships between design, activism, advocacy and organizing. Students will critically examine the politics of design practice and the artifacts and systems design practice activates. Working with internal and external collaborators, students will interpret the relevance of social and political topics, pose critical questions and provoke new relationships within the spaces they occupy.

GDES 404. Typeface Design. 4 Hours.

Semester course; 1 lecture and 6 studio hours. 4 credits. Glyph construction is explored through historical and methodological analysis as well as the creation of typographic systems. Formal mechanics of typefaces are emphasized in discussion of their function as vehicles for communication. Both the functional and expressive nature of typefaces are examined through hands-on exercises.

GDES 412. Typographic Systems. 4 Hours.

Semester course; 1 lecture and 6 studio hours. 4 credits. Advanced approaches to typographic design with focus on typography as a primary interface to information.

GDES 414. Exhibition and Environmental Graphic Design. 4 Hours.

Semester course; 1 lecture and 6 studio hours. 4 credits. Study of the presentation of information in large-scale, multi-dimensional formats. Exploration of exhibition and environmental design, including understanding the use of "wayfinding" and "wayshowing" (identification, interpretation and orientation), sensitivity to and awareness of human factors, and developing visual and experiential navigation solutions.

GDES 418. Design Center. 3-9 Hours.

Semester course; 2-6 lecture and 3-9 studio hours. 3-9 credits. May be repeated for a total of 12 credits. Enrollment requires portfolio review by faculty. A professional studio to give students practicum experience working with faculty on self-initiated and client-initiated, real-world design projects.

GDES 431. Critical Inquiry. 4 Hours.

Semester course; 3 lecture and 2 studio hours (delivered online or face-to-face). 4 credits. Prerequisite: GDES 322. This inquiry course is focused on research, critical analysis and discussion. Students assess and reflect on their emerging practice and its relation to the field.

GDES 440. Synthesis. 6 Hours.

Semester course; 12 studio hours. 6 credits. Prerequisite: GDES 431. This studio provides students the opportunity to synthesize knowledge, skill and experiences accumulated over their progression through the program. Students are required to define and execute a capstone project that demonstrates their readiness and capacity to engage responsibly and creatively in the field. The class culminates in a public exhibition.

GDES 480. Multi Studio II. 2 Hours.

Semester course; 4 studio hours. 2 credits. Prerequisites: GDES 380 and GDES 431. Utilizing principles and skills gained in the prerequisite course, students facilitate discourse, framing and articulation of creative partnerships.

GDES 481. Practicum. 2-4 Hours.

Semester course; 2-4 field experience hours. 2-4 credits. Students must be actively engaged in work for a minimum of 30 hours per credit. This course engages students in practical experiences related to the contemporary and future practice of design and research through hands-on learning under the supervision of qualified practitioners. Graded as pass/fail.

GDES 491. Studio Topics in Design. 1-6 Hours.

Semester course; 2-12 studio hours (delivered online or face-to-face). 1-6 credits. May be repeated for a maximum of 16 credits. Studio focusing on evolving and emergent topics that affect contemporary design practice. See the Schedule of Classes for specific topics to be offered.

Interior Design (IDES)

IDES 103. Introductory Studio Course. 2 Hours.

Continuous course; 1 lecture and 2 laboratory hours. 2-2 credits. This course is an introduction to the complex and multifaceted field of interior design as an applied art and as a business for non-interior design majors. Basic design elements, principles and practices, historical and related architectural background material will be reviewed.

IDES 104. Introductory Studio Course. 2 Hours.

Continuous course; 1 lecture and 2 laboratory hours. 2-2 credits. This course is an introduction to the complex and multifaceted field of interior design as an applied art and as a business for non-interior design majors. Basic design elements, principles and practices, historical and related architectural background material will be reviewed.

IDES 201. Introductory Interior Design Studio I. 4 Hours.

Semester course; 2 lecture/seminar and 6 studio hours. 4 credits. Prerequisites: all Art Foundation courses. Corequisites: IDES 211 and 231. Interior design majors only; other School of the Arts majors by approval. Introduction to identification and applications of fundamental interior design issues through applied projects. Emphasis includes developing design ideas, understanding design philosophies, design principles and elements, human factors, defining and solving problems creatively, analyzing spatial and functional requirements, applying design processes, creating an aesthetic space, and preparing a presentation as related to interior design.

IDES 202. Introductory Interior Design Studio II. 4 Hours.

Semester course; 2 lecture/seminar and 6 studio hours. 4 credits. Prerequisites: IDES 201, 211 and 231. Corequisites: IDES 212, 252 and 311. Interior design majors only; other School of the Arts majors by approval. Expands upon the interior design issues introduced in IDES 201 through their application in small scale interiors projects of increasing size and complexity. Emphasizes the further development of methods and processes for design development, understanding of basic design principles and elements, and ways of analyzing design requirements through written, oral, graphic and three-dimensional documentation.

IDES 211. Interior Graphics I. 3 Hours.

Semester course; 1 lecture and 6 studio hours (delivered online, face-to-face or hybrid). 3 credits. Corequisites: IDES 201 and 231. Enrollment is restricted to interior design majors who have completed all Art Foundation courses; other School of the Arts majors require prior approval. Introduction to manual graphic communication techniques in interior design including drafting, sketching, rendering, perspective drawing, presentation formats and model-making for professional graphic presentations.

IDES 212. Interior Graphics II. 3 Hours.

Semester course; 1 lecture and 6 studio hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: IDES 201, 211 and 231. Corequisites: IDES 202, 252 and 311. Enrollment is restricted to interior design majors who have completed all Art Foundation courses; other School of the Arts majors require prior approval. Laptop computer required. Introduction to computer graphic communication language and techniques in interior design drafting, rendering, perspective drawing, presentation formats and 3-D imaging for professional graphic presentations.

IDES 231. Fundamentals of Interior Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: all Art Foundation courses. Required of all incoming interior design majors. Open to interior design majors and home fashion merchandising majors only. Interior design majors are required to enroll concurrently in IDES 201 and 211. Introduction to the theories, methods and processes of interior design. Facilitates the transition of skills and knowledge from the Art Foundation Program to specific interior design applications and focuses on analysis and evaluation of interior environments as a support and supplement to the studio experience.

IDES 241. Physical and Social Behavior. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: IDES 231. Theories of behavioral and social aspects of interior design. Study of how people interpret, evaluate and act in the built environment. Social, cultural and economic factors are included.

IDES 251. Historic Environments: Ancient Through 19th Century. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: ARTH 103 and ARTH 104. Study of the major paradigms, theories and styles of the built environment (interior design, furniture and architecture) from antiquity to the late-19th century. Contemporary analysis of cultural conditions and the manner in which designers and architects respond to those conditions.

IDES 252. Historic Environments: 20th-21st Centuries. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: ARTH 103 and ARTH 104. Study of the major paradigms, theories and styles of architecture, interior environments and furniture from the beginnings of modernism to the present day. Contemporary analysis of cultural conditions and the manner in which designers and architects respond to those conditions.

IDES 261. What is Good Design? A Survey of 20th- and 21st-century Design. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course poses the question, "What is good design?" Students will consider the ways that designers have responded to major shifts in technology, politics and the environment from the early 20th century to today. The purpose of this course is to promote a greater awareness of the larger cultural context within which value and meaning are discovered in design, as well as provide a competent knowledge of the architecture, interiors, furnishings, decorative arts, graphic design, fashion and industrial design of the past and present.

IDES 291. Topics in Interior Design. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a maximum of three credits. A focus on topics related to interior design such as sustainability, acoustics, lighting, design thinking. See Schedule of Classes for specific topics to be offered.

IDES 301. Interior Design Studio I. 4 Hours.

Semester course; 2 lecture/seminar and 6 studio hours. 4 credits. Prerequisites: IDES 202; UNIV 200 or HONR 200; and successful completion of the interior design sophomore portfolio review. Corequisites: IDES 312, IDES 321 and IDES 323. Enrollment is restricted to interior design majors. Laptop computer required. Discussion and application of design philosophies, theories and creative design strategies at the intermediate level. Emphasis includes: research, survey and analysis, design processes, spatial and functional analysis, design elements and principles, human factors, creative problem-solving, code requirements, selection of interior components, and preparation of a presentation.

IDES 302. Interior Design Studio II. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: IDES 301. Corequisite: IDES 431. Continued discussion and application of design philosophies, theories and creative design strategies at the intermediate level and the study of construction documents on the computer as related to the design of interior environments and applied to a studio project. Emphasis includes research, survey and analysis, design processes, spatial and functional analysis, code requirements, and selection of interior components.

IDES 311. Advanced Interior Graphics I. 3 Hours.

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisites: IDES 201, 211 and 231. Corequisites: IDES 202, 212 and 252. Interior design majors only. Laptop computer required. Advanced manual and computer graphic communication techniques in interior design including drafting, sketching, rendering, perspective drawing, presentation formats and model-making for professional graphic presentations. Computer graphic techniques including software such as AutoCAD, Adobe Photoshop, Adobe Illustrator and Dreamweaver.

IDES 312. Advanced Interior Graphics II. 3 Hours.

Semester course; 1 lecture and 6 studio hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: IDES 311. Enrollment is restricted to interior design majors. Laptop computer required. Advanced computer graphic communication techniques in interior design including drafting, rendering, perspective drawing, presentation formats and 3-D imaging for professional graphic presentations.

IDES 321. Interior Materials and Textiles. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Interior design and home fashion merchandising students only. Investigation, selection and practical application of materials and textiles in interior environments.

IDES 322. Color in Interior Environments. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: all Art Foundation Program studio courses and IDES 231 or comparable experience by approval. Interior design and School of the Arts majors only. Advanced study of color and its impact on interior spaces; theory and practical applications.

IDES 323. Light and Color in Interior Environments. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Corequisites: IDES 301 and 312. Enrollment is restricted to students who have successfully completed the interior design sophomore portfolio review; other School of the Arts majors require prior approval. The study of illumination and color and their impact on people in interior spaces; theory and practical applications.

IDES 324. Furniture Design. 3 Hours.

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisite: successful completion of the interior design sophomore portfolio review or permission of instructor. Interior design, crafts, sculpture and theater design majors only. Advanced study of furniture design and custom millwork as related to the design of interior environments. Original student designs are developed through the study of structure and materials.

IDES 330. The Business of Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course introduces basic global economics and general design business concepts such as the free enterprise system, legal forms of business and financial considerations. It also surveys business and management practices such as planning, decision-making, communication, global ethics, marketing, human resources, finance and entrepreneurial skills needed to open a design business. Crosslisted as: FASH 330/GDES 330.

IDES 370. Design History: 20th and 21st Centuries. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTF 105-106. Study of the major theories and styles on communication arts, fashion and interior environments of the 20th and 21st centuries. Contemporary analysis of cultural conditions and the manner in which designers respond to those conditions. Crosslisted as: FASH 370/GDES 370.

IDES 391. Topics in Interior Design. 1-4 Hours.

Semester course; 1-4 studio or lecture hours. 1-4 credits. May be repeated for a maximum of 8 credits. Prerequisite: permission of the instructor. A study of a topical issue in interior design. See the Schedule of Classes for specific topics to be offered each semester.

IDES 400. Senior Interior Design Studio I. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: IDES 302. Corequisite: IDES 441. Continued discussion and application of design philosophies, theories and creative design strategies at the advanced level. Emphasis includes design elements and principles, human factors, creative problem-solving, preparation of a presentation, and opportunities for submitting to design competitions.

IDES 401. Senior Interior Design Studio II. 4 Hours.

Semester course; 2 lecture/seminar and 6 studio hours. 4 credits. Prerequisites: IDES 400 and 441. Corequisite: IDES 442. Interior design majors only. Department-approved senior interior design project. Advanced design experience of student's choice of an interior environment of complex scope and scale to meet the needs of specific clients and prepare students for the practice of the profession. The project addresses issues of design of the 21st century and integrates all aspects of the curriculum.

IDES 405. Middle of Broad: Interdisciplinary Community-engaged Design Studio. 3 Hours.

Semester course; 6 studio hours. 3 credits. May be repeated for a maximum of six credits. Prerequisites: ARTF 131, ARTF 132, ARTF 133 and ARTF 134. Students will work in an interdisciplinary design environment on community-based design projects. The course is a designated service-learning course. Crosslisted as: FASH 405.

IDES 421. Construction Documents. 3 Hours.

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisites: all Art Foundation Program studio courses and IDES 201, 202, 231, 212, 312 and concurrent enrollment in IDES 301, 302, 303, 304 or 401. Interior design majors only. Laptop computer required. Study of construction documents on the computer as related to the design of interior environments.

IDES 422. Building Systems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: IDES 301. Enrollment is restricted to interior design majors. Contemporary theories and techniques in the design of buildings as related to interior design, small structural considerations, HVAC, acoustics, plumbing and the attributes of materials.

IDES 431. ID Business Practices. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: IDES 201 and IDES 231. Interior design majors only. Writing intensive. Advanced study of the interior design profession as related to professional and business practices including: responsibilities, services, ethics, business and project management, and marketing.

IDES 441. Senior Design Seminar I. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: IDES 302. Corequisite: IDES 400. Interior design majors only. Discussions of current design theories, issues and concerns of the built environment, future studies and the global community as applied to senior studio.

IDES 442. Senior Design Seminar II. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisites: IDES 400 and 441. Corequisite: IDES 401. Interior design majors only. Continued discussions of current design theories, issues and concerns about the built environment, futures studies and the global community as applied to senior studio.

IDES 491. Topics in Interior Design. 1-4 Hours.

Semester course; 1-4 lecture hours (delivered online, face-to-face or hybrid). 1-4 credits. May be repeated for a maximum of eight credits. Enrollment requires permission of the instructor. An in-depth study of a topical issue in interior design. See the Schedule of Classes for specific topics to be offered each semester.

IDES 492. Independent Study in Interior Design. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated for maximum of six credits. Prerequisite: junior or senior standing as a major in interior design. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

IDES 493. Interior Design Internship. 3 Hours.

Semester course; 3 credits. Prerequisite: IDES 431. Interior design majors only. Provides supervised practical work experiences that are coordinated with professional interior designers in the field. Formal arrangements must be made and approved by coordinator or department chair.

Kinetic Imaging (KINE)**KINE 233. Media Arts Survey. 3 Hours.**

Semester course; 3 lecture hours (delivered face-to-face or hybrid). 3 credits. A historical overview of contemporary media art to include experimental animation, video art, sound art, the Internet and other technology-based art movements.

KINE 243. Video Practices. 4 Hours.

Semester course; 2 lecture and 4 studio hours. 4 credits. An introduction to video art as a creative medium, including traditional and nontraditional approaches. This course will also cover basic video production and editing.

KINE 245. Animation Practices. 4 Hours.

Semester course; 2 lecture and 4 studio hours. 4 credits. An introduction to the art and practice of animation as a sequential medium. This course will cover the principles of animation, a survey of historical techniques and relevant production methods. There will be an emphasis on viewing and responding to animated work.

KINE 247. Sound Art. 4 Hours.

Semester course; 2 lecture and 4 studio hours. 4 credits. An introduction to the art and practice of sound as a creative medium within contemporary art and experimental music. Traditional and nontraditional approaches will be explored.

KINE 291. Special Topics. 1-4 Hours.

Semester course; 1-4 variable hours. 1-4 credits. May be repeated for a maximum of eight credits. Various topics of special interest will be offered on a changing basis.

KINE 319. Screen Dance. 3 Hours.

Semester course; 2 lecture and 2 studio hours. 3 credits. Enrollment is restricted to students with experience in movement, performance and/or video/film, or with permission of the instructor. Students gain practical skills as well as basic theoretical foundation in the principles of working with video and choreography. Crosslisted as: DANC 319.

KINE 343. Video Concepts. 4 Hours.

Semester course; 2 lecture and 4 studio hours (delivered face-to-face or hybrid). 4 credits. Prerequisite: KINE 243. Focuses on developing a genuine artistic voice with an emphasis on video content and how various visual techniques can be used to express concept, mood, narrative and individual truth. This course will also cover advanced production and editing.

KINE 345. Animation Concepts. 4 Hours.

Semester course; 2 lecture and 4 studio hours. 4 credits. Prerequisite: KINE 245. With a focus on developing a genuine artistic voice, this course will strengthen and expand upon the animation and technical skills learned in the prerequisite course. Topics covered include an in-depth exploration of the principles of animation and timing, intermediate digital skills, narrative and experimental structures in animation. There will be an emphasis on the development and processing of ideas through readings and research.

KINE 346. Survey of Sound Design. 3 Hours.

Semester course; 3 lecture hours (delivered face-to-face or hybrid). 3 credits. A survey of sound design as a creative medium. This course investigates the various histories of sound design and scoring trends, as well as the traditions and advancements in cinema, theatre, dance and the fine arts. By introducing students to the ways in which sound has served to support areas of performing and fine arts, while also exerting its influence and power through the strength of major figures in their respective fields, this class considers the role that sound design and scoring plays as technologies and ideas of the stage change.

KINE 347. Sound Design. 4 Hours.

Semester course; 2 lecture and 4 studio hours. 4 credits. A continuation of the creative and conceptual approaches to working with sound and sound technologies, with a focus on sound design, including the art of Foley and soundtracks for audio-visual projects, such as video, animation, gaming, installation, performance, etc.

KINE 348. 3D Computer Art. 4 Hours.

Semester course; 2 lecture and 4 studio hours (delivered face-to-face or hybrid). 4 credits. A comprehensive introduction to the use of the computer for modeling, rendering and animating three-dimensional objects and environments.

KINE 354. Creative Code and Electronics. 4 Hours.

Semester course; 2 lecture and 4 studio hours. 4 credits. An introduction to the concepts and techniques found within programming languages and electronics as applied to digital art making. Basic coding for creative practice from visuals to sound and interactivity will be examined as well as circuitry and hardware components for DIY projects.

KINE 357. Critical Issues in the Media. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: UNIV 200 or HONR 200. Topics, theory and genre affecting media and time-based mediums are explored through critical discourse, readings, screenings and lectures.

KINE 375. Concept and Development Studio. 4 Hours.

Semester course; 8 studio hours (delivered face-to-face or hybrid). 4 credits. A cross-disciplinary studio that explores methods for advancing individual and collaborative or group projects from an initial concept to a finished product over a prolonged period of time. There will also be an emphasis on a variety of professional practices specific to media arts.

KINE 392. Research/Individual Study. 1-4 Hours.

Semester course; 1-2 lecture and 3-6 studio hours. 1-4 credits. May be repeated for a total of 8 credits. Enrollment requires permission of instructor, approval of faculty adviser and chair. The structuring, research, execution and presentation of an independent project in visual communications under the direction of a faculty adviser. The student will be encouraged to become a self-generating problem-seeker and -solver with the ability to carry out self-stated goals.

KINE 405. Animation Studio. 1 Hour.

Semester course; 2 studio hours. 1 credit. Prerequisites: KINE 245 and ARTH 370. May be repeated for a maximum of two credits. For Animation minor students only. Students will demonstrate animation concept development, pre-production and production skills through the production of a short animation. Students will apply technical, aesthetic, and conceptual skills acquired in the minor. It is not a class for learning new techniques, but for applying researched and learned conceptual and production skills.

KINE 443. Topics in Video Art. 4 Hours.

Semester course; 2 lecture and 4 studio hours (delivered face-to-face or hybrid). 4 credits. May be repeated for a maximum of eight credits. Prerequisite: KINE 243. An advanced course in video art that varies in topic and approach from semester to semester. This course will also cover advanced production and editing.

KINE 445. Topics in Animation. 4 Hours.

Semester course; 2 lecture and 4 studio hours (delivered face-to-face or hybrid). 4 credits. May be repeated for a maximum of eight credits. Prerequisite: KINE 245. An advanced course in animation that varies in topic and approach from semester to semester. This course will also cover advanced analog and digital experimental animation techniques. With an emphasis on animation as an expanded, research-based practice, students will be introduced to animation as fine art, animation on and off the screen, and in an installation and performance context.

KINE 447. Topics in Sound. 4 Hours.

Semester course; 2 lecture and 4 studio hours (delivered face-to-face or hybrid). 4 credits. May be repeated for a maximum of eight credits. Prerequisite: KINE 247 or KINE 347. An advanced course in sound art and sound design that varies in topic and approach from semester to semester. This course will also cover advanced analog and digital techniques.

KINE 448. 3D Computer Animation. 4 Hours.

Semester course; 2 lecture and 4 studio hours (delivered face-to-face or hybrid). 4 credits. May be repeated for a maximum of eight credits. Prerequisite: KINE 348. Advanced study of three-dimensional computer animation, exploring a variety of aesthetic and conceptual applications of the technology.

KINE 454. Live Coding. 4 Hours.

Semester course; 2 lecture and 4 studio hours. 4 credits. Prerequisite: KINE 354. This course introduces live coding as a performance practice that involves real-time computer programming to create interdisciplinary work including visuals, sound, choreography and more. Students will explore a range of tools and environments for coding and examine other art forms that inform this methodology.

KINE 455. Motion Graphics. 4 Hours.

Semester course; 2 lecture and 4 studio hours. 4 credits. Prerequisite: KINE 345. Students will study the creation of moving graphic elements as an extension of animation and video art. The development of motion graphics in commercial and broadcast studios will be examined. Students will engage in innovative development of motion graphics using current digital technology combined with experimental techniques.

KINE 457. Socially Engaged Media. 4 Hours.

Semester course; 2 lecture and 4 studio hours (delivered face-to-face or hybrid). 4 credits. A multimedia studio course involving the creation of diverse artworks in a social, political and public context. Students engage in weekly projects, both independent and collaborative, along with presentations, discussions and ongoing blog entries.

KINE 458. Virtual Interactive Worlds. 4 Hours.

Semester course; 2 lecture and 4 studio hours (delivered face-to-face or hybrid). 4 credits. May be repeated for a maximum of eight credits. Prerequisite: KINE 348 or permission of instructor. A transdisciplinary course exploring critical game concepts, virtual environment aesthetics, interactivity and extended reality in a team project setting.

KINE 460. Wearable Technologies. 4 Hours.

Semester course; 2 lecture and 4 studio hours. 4 credits. Prerequisite: KINE 354. An exploration of digital technologies on and interfacing with the body. Skills from physical computing and maker culture will be utilized to create innovative wearable designs. Topics include sensing, haptics, biofeedback and 3D printing.

KINE 474. Research and Production I. 4 Hours.

Semester course; 8 studio hours (delivered face-to-face or hybrid). 4 credits. Critical analysis and development of a culminating project with emphasis on research, experimentation and conceptual development.

KINE 475. Research and Production II. 4 Hours.

Semester course; 8 studio hours (delivered face-to-face or hybrid). 4 credits. Prerequisite: KINE 474. Critical analysis and development of a culminating project with emphasis on implementation, execution and presentation.

KINE 491. Studio Topics. 1-4 Hours.

Semester course; 1-4 lecture and 2-8 studio hours (1 lecture and 2 studio hours per credit; delivered face-to-face or hybrid). 1-4 credits. May be repeated for a total of 12 credits. Topical studio focusing on research and experimentation in specialized visual communication media.

KINE 492. Internship. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated for a maximum of 6 credits. Prerequisite: permission of the chair. Open to kinetic imaging majors only. Creative learning experiences in the professional realm under the direction and supervision of qualified practitioners.

Music (MUSC)

MUSC 110. Music Notation Software. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: MHIS 145. Enrollment is restricted to VCU music majors and minors. This course focuses on principles and techniques of music notation using computer software.

MUSC 200. Introduction to Composition. 2 Hours.

Semester course; 1 lecture and 1 laboratory hour. 2 credits. Prerequisites: MHIS 146, MUSC 110 and APPM 174. Enrollment is restricted to VCU music majors and minors. This course is designed to provide students with an introduction to the compositional process as well as the basics of instrumentation and orchestration. In collaboration with the instructor, students are guided through exercises and lessons designed to hone their compositional craft.

MUSC 210. Digital Music Production. 3 Hours.

Semester course; 2 lecture and 1 laboratory hours. 3 credits. This course will cover contemporary music production techniques applied to music creation using digital audio workstations. Students will learn about virtual instruments, loops, recording and manipulating audio and MIDI, signal processing, plug-ins, and mixing in a DAW environment. It is highly recommended that students have a basic understanding of music principles and concepts similar to those presented in MHIS 115; however, MHIS 115 is not a prerequisite for this class.

MUSC 220. Orchestration. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 146. Enrollment is restricted to VCU music majors and minors or by permission of the instructor. This course focuses on the techniques of combining different instruments for effect and mood. Students will learn the characteristics of various instruments and apply that knowledge to create a full score orchestration.

MUSC 300. MIDI Orchestration. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MUSC 210 and MUSC 220. Enrollment is restricted to music majors and music minors or by permission of the instructor. This course focuses on advanced techniques in creating realistic orchestral mockups with high-quality industry-standard virtual instruments. Course work includes creating mockups of classical scores and modern film scores, as well as scores of the student's own composition and/or choice. Particular emphasis is placed on technical considerations as they apply to MIDI programming, sample selection and mixing.

MUSC 310. Dramatic Scoring. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MUSC 300. Enrollment is restricted to students in a VCU music major program, music minor or the sound design minor. Students will analyze film scores to better understand their construction and application in movie scenes, and will apply that analysis in composing music in the style of scores for specific movie genres.

MUSC 340. Film and Media Scoring. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MUSC 310. Enrollment is restricted to students in a music major program, or music minor. Project-based course designed to provide students the opportunity to compose and realize a varied array of music for motion pictures including film, television and ads. Aesthetics and psychology of mood music, sound-film synchronization, timing techniques and scoring procedures will be covered, and practical methods of scoring will be demonstrated. Analysis and performance of student projects is included.

MUSC 406. Orchestration. 3 Hours.

Semester course; 3 lecture hours. 3 credits. No degree credit for graduate composition majors. Prerequisite: MHIS 245. Application of idiomatic scoring devices for orchestral instruments and voices in both large and small combinations.

MUSC 410. Directed Study in Media Scoring. 3 Hours.

Semester course; 1 lecture hour and 2 studio hours. 3 credits. Prerequisite: MUSC 340. Enrollment is restricted to music majors and minors. In this course, students will focus on developing and compiling their portfolios. They will be advised on the scoring process while collaborating with filmmakers and producers, creating music for media projects. Instructor's feedback and peer critique will assist students to shape their demo reel.

Music Education (MUED)

MUED 230. Psychology of Music. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Survey course of the literature in psychology of music with applications to music teaching, learning and performing, as well as its therapeutic uses in clinical and educational settings.

MUED 260. Introduction to Music Therapy. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Provide a historical, theoretical and clinical basis for defining and understanding music therapy. As a survey course to give historical background to the development of the profession, as well as basic understanding of techniques and populations now served by music therapists.

MUED 274. Functional Keyboarding for the Music Classroom. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisite: APPM 273. Enrollment is restricted to VCU music education majors. The focus of this course is the development of essential keyboard competencies needed to effectively teach and guide individual musical growth of students in elementary and secondary choral music classrooms. Emphasis will be placed on developing the competencies and skills needed to employ effective pedagogical techniques for choral teaching in beginning and intermediate instruction in the public schools. Students will be asked to demonstrate teaching skills that use keyboard support to effectively teach the Virginia Standards of Learning in music.

MUED 301. Methods and Techniques: Guitar. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. For music education majors only. Achievement of basic performance competencies and teaching knowledge on the guitar including chording, single-string technique, plectrum and finger styles.

MUED 302. Methods and Techniques: Voice. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. For music education majors only. Achievement of performance competencies in voice including vocal production, diction and solo and group performance.

MUED 303. Methods and Techniques: Woodwinds. 1 Hour.

Continuous courses; 2 laboratory hours. 1-1 credit. Prerequisite: completion of MUED 303 to enroll in MUED 304. For music education majors only. Achievement of performance competencies and teaching knowledge on flute, clarinet, oboe, bassoon and saxophone.

MUED 304. Methods and Techniques: Woodwinds. 1 Hour.

Continuous courses; 2 laboratory hours. 1-1 credit. Prerequisite: completion of MUED 303 to enroll in MUED 304. For music education majors only. Achievement of performance competencies and teaching knowledge on flute, clarinet, oboe, bassoon and saxophone.

MUED 305. Methods and Techniques: Brass. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. For music education majors only. Achievement of performance competencies and teaching knowledge on trumpet, baritone, tuba, trombone and French horn.

MUED 306. Methods and Techniques: Strings. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. For music education majors only. Achievement of performance competencies and teaching knowledge on violin, viola, cello or bass.

MUED 307. Methods and Techniques: Percussion. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. For music education majors only. Achievement of performance competencies and teaching knowledge on snare drum. Introduction to basic techniques of other percussion instruments.

MUED 350. Music and Social Justice. 3 Hours.

Semester course; 1.5 lecture and 1.5 field experience hours. 3 credits. This course will introduce students to social justice issues in a local context with a focus on expanding and deepening their knowledge and skills to effect change through active engagement in the community. The course will comprise a 75-minute weekly lecture on VCU's campus and performances in conjunction with the RVA Street Singers. This course will promote an understanding and critical analysis of factors which impact those experiencing homelessness. Guest lecturers will present on such topics as diverse populations, mental health, chronic illness, food insecurity, housing instability and other social justice issues. The rehearsals with RVA Street Singers will promote skillful physical activities, musical development, mental engagement and aesthetic sensitivity to benefit personal well-being. Students from various disciplines across the university will exchange skill sets, work together to develop their cultural sensitivity with specific insights to the homeless population, interact with and provide support for the RVA Street Singers, and come to understand the effect of community singing in a highly diverse adult population.

MUED 380. Introduction to Music Education. 2 Hours.

Semester course; 1 lecture and 2 laboratory hours. 2 credits. Enrollment is restricted to students admitted to music education candidacy by the Department of Music. An introduction to the profession of music education. Emphasis on the study of the historical development of music education in the U.S. along with current thinking, trends, practices and approaches in the profession, and the formation of a personal philosophy of music education. Substantial practicum experience is a fundamental aspect of this course.

MUED 381. Methods and Practicum in Elementary Music Education. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MUED 380. Study of current methods and materials of music education at the elementary level. Orff, Dalcroze, Kodaly, Gordon and other current music education approaches for the young child will be discussed, observed and demonstrated. An intensive directed practicum is a fundamental aspect of this course.

MUED 382. Secondary Methods, Materials and Instruction Techniques. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: APPM 381, MUED 381, or permission of the instructor and a passing score on the Virginia Communication and Literacy Assessment. Corequisite: MUED 386. Enrollment is restricted to music education majors. Development of the varied skills required to successfully plan, teach and select materials to nurture the individual growth of each student within the secondary music ensemble. Emphasis will be placed on understanding, evaluating and selecting curricular resources; methodologies for teaching state and national standards in music; inclusive teaching practices; effective rehearsal strategies; and literature developmentally appropriate for the musical growth of students. A minimum 30-hour practicum placement in a high school is a fundamental aspect of this course.

MUED 384. Marching Band Techniques. 2 Hours.

Semester course; 1 lecture and 1 laboratory hour. 2 credits. Prerequisite: MUED 380. Discussion of marching band techniques that address the different components of preparation, rehearsal and presentation of events. The application of topics and discussions are presented with marching band choreography using computer software simulation.

MUED 385. Music Education Technology and Arranging. 2 Hours.

Semester course; 1 lecture and 1 laboratory hour. 2 credits. Prerequisite: MUED 380. Basic understanding of current technology in the field of music education. Specific skills developed for arranging school-aged ensembles with CAI, sequencing, productivity software and basic sound reinforcement will be the primary focus.

MUED 386. Organization and Administration of a Secondary School Music Program. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisites: APPM 381 and MUED 381, or permission of instructor and a passing score on the VCLA. Corequisite: MUED 382. Enrollment is restricted to music education majors. The course provides preservice teachers with the opportunity to develop the skills required to successfully lead and administer a secondary school music program. Emphasis will be placed on understanding program structure, program development, student assessment, classroom management, professional expectations of a teacher in the secondary setting, inclusive practices that welcome all students into secondary music.

MUED 483. Special Workshop in Music Education. 0.5-3 Hours.

Semester course; 0.5-3 credits. Flexible semester courses on selected aspects of music education. See the Schedule of Classes for specific topics to be offered each semester.

MUED 485. Music Education Student Teaching I: Elementary. 6 Hours.

Semester course; 6 field experience hours. 6 credits. Prerequisites: MUED 382, APPL 416 and a passing score on the Praxis II Music Content Knowledge. Corequisite: MUED 486. Enrollment is restricted to students with a 3.0 overall GPA. The culminating field experience for music education students. An eight-week directed internship at the elementary general music education level. This course and its corequisite provide sequential experience and responsibilities for planning and instruction of music education for children in the P-12 setting.

MUED 486. Music Education Student Teaching II: Secondary. 6 Hours.

Semester course; 6 field experience hours. 6 credits. Prerequisites: MUED 382, APPL 416 and a passing score on the Praxis II Music Content Knowledge. Corequisite: MUED 485. Enrollment is restricted to students with a 3.0 overall GPA. The culminating field experience for music education students. An eight-week directed internship at the secondary instrumental or choral music education level. This course and its corequisite provide sequential experience and responsibilities for planning and instruction of music education for children in the P-12 setting.

Music History, Literature and Theory (MHIS)**MHIS 115. Fundamental Musicianship. 2 Hours.**

Semester course; 2 lecture hours (delivered online). 2 credits. Enrollment is restricted to music majors, music minors and students pursuing a concentration or minor in musical theatre. Study of fundamental written music notation, tone (harmonic series, timbre, instruments in the orchestra) and structure. Aural skill development parallels theoretical studies for integrated learning of notation and sound.

MHIS 120. Music in Culture. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Enrollment is restricted to students majoring or minoring in music. This class focuses on studying music within its own cultural context, and will explore the countless ways that music can sound, look and be meaningful. Much of the music in the world looks and sounds very different from music typically studied in U.S. university programs. This music often involves different instruments, scales, rhythms, ways of participating and ways of thinking.

MHIS 145. Theory and Aural Skills I. 4 Hours.

Semester course; 2 lecture and 3 laboratory hours. 4 credits. Open to music majors and minors only. The application of music theory, aural skills and keyboard knowledge are combined in the study of harmonic and melodic structure. Activity begins with rudiments and progresses to diatonic harmony. Emphasis is placed upon the development of aural skills as applied to the presented material.

MHIS 146. Theory and Aural Skills II. 4 Hours.

Semester course; 2 lecture and 3 laboratory hours. 4 credits. Prerequisite: MHIS 145. Open to music majors and minors only. The application of music theory, aural skills and keyboard knowledge are combined in the study of harmonic and melodic structure. Activity begins with harmonic voicing and progresses to secondary harmony as applied to phrase structure in music. Emphasis is placed upon the development of aural skills as applied to the presented material.

MHIS 147. Jazz Theory and Aural Skills. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 145. Theoretical and aural recognition of established melodic, harmonic and rhythmic traditions within jazz so as to apply successfully to creative performance-practice and composition-arranging pursuits.

MHIS 243. Music Appreciation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Not open to music majors. Designed to encourage understanding of music from selected periods. Development of active cognitive listening skills through guided listening to selected recorded music.

MHIS 244. Experiencing Music. 3 Hours.

Semester course; 1 lecture and 2 laboratory hours. 3 credits. Designed for the purpose of developing familiarity with the elements of music that are part of a successful performance and listening experience. Weekly attendance at both VCU and external events is part of the criteria to develop students' awareness of the creative process in shaping a musical performance.

MHIS 245. Theory and Aural Skills III. 4 Hours.

Semester course; 2 lecture and 3 laboratory hours. 4 credits. Prerequisites: MHIS 146. Open to music majors. The application of music theory, aural skills and keyboard knowledge are combined in the study of harmonic and melodic structure. Second year studies continue with chromatic harmony and modulations. Emphasis is placed upon the development of aural skills as applied to the presented material.

MHIS 246. Theory and Aural Skills IV. 4 Hours.

Semester course; 2 lecture and 3 laboratory hours. 4 credits. Prerequisites: MHIS 245. Open to music majors. The application of music theory, aural skills and keyboard knowledge are combined in the study of harmonic and melodic structure. Final semester of study continues with chromatic harmony and concludes with modern techniques as applied to form in music. Elements of popular styles and jazz are incorporated as appropriate. Emphasis is placed upon the development of aural skills as applied to the presented material.

MHIS 251. American Popular Music. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits. A music history course studying the origins of today's popular music. Attention will be given to comprehensive study of the timeline of popular music starting in the late-19th century and ending with present-day popular music. Emphasis will be placed on understanding social and cultural impacts on popular music in America and vice versa. Additional emphasis will focus on the ability to tie in historical elements while discussing and reflecting on current popular music trends and popular music's influence around the world. The primary objectives for students in this class are to gain comprehensive knowledge of American popular music from the 19th century to the present, distinguish related musical styles that influenced the development of American popular music and be able to properly recognize American popular musical styles aurally.

MHIS 252. Soundscapes. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits. This class will serve as an introduction to music from around the world. Students will learn to identify musical genres and their instruments. In addition to covering the musical characteristics of each geographical area students will take an ethnomusicological approach and explore the social, political and cultural context within which each genre is played.

MHIS 256. Musicianship Practicum. 2 Hours.

Semester course; 1 lecture and 1 laboratory hour. 2 credits. Prerequisites: APPM 174 or APPM 374; and MHIS 245. Application of musical analysis, composition, keyboard and ear training in holistic and integrated assignments and projects. Group assignments will lead to development of self-directed project.

MHIS 291. Topics in Music. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for a maximum of six credits. Flexible semester courses in selected aspects of music theory, literature or history. See the Schedule of Classes for specific topics to be offered.

MHIS 303. Piano Literature Through 1828. 2 Hours.

Semester course; 2 lecture hours. 2 credits. A survey of stringed keyboard literature. Historical, formal and stylistic considerations of the various periods and composers of keyboard music from 1600-1828 (Baroque and Classical eras). Listening and reading assignments included.

MHIS 304. Piano Literature Since 1828. 2 Hours.

Semester course; 2 lecture hours. 2 credits. A survey of stringed keyboard literature. Historical, formal and stylistic considerations of the various periods and composers of keyboard music from 1828 to the present (Romantic, 20th century, Modern eras). Listening and reading assignments included.

MHIS 305. Form and Analysis I. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: MHIS 245. An analytical study of musical forms and salient features of melody, harmony, rhythm and timbre of late Baroque, Classical, early and late Romantic compositions.

MHIS 306. Form and Analysis II. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: MHIS 245. Study of traditional and new approaches to form in the music of the 20th century. Examination of post-tonal harmony as a determinant of form, formal aspects of motivicism, contour, rhythm, register, timbre and texture.

MHIS 307. The Physics of Sound and Music. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: A 100- or 200-level physics course or equivalent and the ability to read music or sing or play a musical instrument, or permission of instructor. Basics of the physics of waves and sound. Fourier synthesis, tone quality, human ear and voice, musical temperament and pitch, physics of musical instruments, electronic synthesizers, sound recording and reproduction, room and auditorium acoustics. Not applicable toward the physics major. Crosslisted as: PHYS 307.

MHIS 311. Jazz Arranging I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MHIS 147 and MHIS 245. A study of the basic harmonic, melodic, notational and orchestrational techniques needed to draft a successful jazz arrangement. Students will write arrangements for quartet and quintet, and the final project will be to write an arrangement for an eight-piece jazz ensemble.

MHIS 312. Jazz Arranging II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 311. Advanced harmonic, melodic and orchestrational techniques applied to writing for the small jazz ensemble, vocal group and large jazz orchestra.

MHIS 321. Classical Music Survey I. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: UNIV 200 or HONR 200. A study of classical music from antiquity through the Classical Era. Students will learn correlations between musical works, composers and the cultures/societies in which the works were composed. Students will read about, listen to, review and write about a diverse and inclusive variety of works by a similarly diverse and inclusive pool of compositional and performing artists, including under-represented artists of African descent and figures in the LGBTQ+ community. Students will learn a diverse array of musical terminology including, but not limited to, genres, terms, forms and directives, and will discover ways to apply such terminology in their current music-making activities.

MHIS 322. Classical Music Survey II. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: UNIV 200 or HONR 200. A study of classical music from the Romantic Era through present day. Students will learn correlations between musical works, composers and the cultures/societies in which the works were composed. Students will read about, listen to, review and write about a diverse and inclusive variety of works by a similarly diverse and inclusive pool of compositional and performing artists, including under-represented artists of African descent and figures in the LGBTQ+ community. Students will learn a diverse array of musical terminology including, but not limited to, genres, terms, forms and directives, and will discover ways to apply such terminology in their current music-making activities.

MHIS 324. Jazz History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 120. Study of jazz in a historical context from pre-jazz roots to contemporary styles.

MHIS 350. Studies in the Music of the African Continent and Diaspora. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 6 credits. Prerequisite: MHIS 243 or MHIS/AFAM 250. An in-depth examination of selected topics and issues in African-derived musical and cultural traditions. See the Schedule of Classes for specific topics to be offered each semester. Crosslisted as: AFAM 350/INTL 370.

MHIS 373. Beethoven and Brahms Symphonies. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: MHIS 305. An overview of all symphonies will be the basis for an in-depth analysis of selected movements.

MHIS 380. Survey of the Music Industry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Topics include copyright, business organization, music production, management, recording, freelancing, grants, taxation and careers allied with music.

MHIS 392. Independent Study. 1-6 Hours.

Semester courses; variable hours. 1-6 credits per semester. Maximum total of 6 credits. Determination of the amount of credit and permission of the instructor and department chair must be obtained prior to registration for the course. Open generally only to students of junior and senior standing who have individual interests in areas not otherwise available to the student.

MHIS 405. Jazz Form and Analysis I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 312. Arranging and performance-practice techniques across selected jazz styles.

MHIS 422. The History of the Symphony. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 321 or 322. Historical and analytical study of selected symphonies from the 17th, 18th, 19th and 20th centuries.

MHIS 424. History of American Musical Theatre. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 321 or 322. Historical and analytical study of selected musical theatre productions from the 19th, 20th and 21st centuries.

MHIS 465. History of the Art Song. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Enrollment is restricted to music majors and music minors. A survey of western classical art song repertoire from 1760-1950 with emphasis on German lieder, French melodies (diacritical accent), and Spanish, British and American songs. A diverse array of composers from the following style periods will be studied: Rococo, Classical, Romantic, Post-Romantic, Impressionism, atonality and serialism, and other 20th-century styles.

MHIS 476. Duke Ellington. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. An overview of the music of Duke Ellington. Lectures and presentations on Ellington recordings, writings and sources of his influences will serve as content for overview.

MHIS 491. Topics in Music. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for a maximum of nine credits. Flexible semester courses in selected aspects of music theory, literature or history. See the Schedule of Classes for specific topics to be offered each semester.

MHIS 492. Independent Study. 1-6 Hours.

Semester courses; variable hours. 1-6 credits per semester. Maximum total of 6 credits. Determination of the amount of credit and permission of the instructor and department chair must be obtained prior to registration for the course. Open generally only to students of junior and senior standing who have individual interests in areas not otherwise available to the student.

Painting and Printmaking (PAPR)

PAPR 201. Painting From Observation. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisites: ARTF 131, ARTF 132, ARTF 133 and ARTF 134. Introduction to the materials of oil and/or acrylic paint through a practice of painting from observation. Students will practice fundamental concepts in the medium and gain understanding of the context of contemporary and historic painting.

PAPR 206. Drawing for Nonmajors. 3 Hours.

Semester course; 6 studio hours. 3 credits. Enrollment is restricted to non-art majors; students may not be enrolled in the School of the Arts. An introduction to the tools and methods of drawing. Emphasis will be placed on drawing from observation with a focus on compositional organization and the use of traditional drawing materials.

PAPR 210. Painting for Non-majors. 3 Hours.

Semester course; 1 lecture and 6 studio hours. 3 credits. Open to non-art majors only. The course will offer an opportunity for students to work with some of the ideas and materials of painting through lecture and studio involvement.

PAPR 211. Print Media I. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisites: ARTF 131, ARTF 132, ARTF 133 and ARTF 134. Designed for students beginning to explore the development of their visual vocabulary utilizing the multiple. This course is meant to be taken as part of a year-long module including etching, lithography, screen printing and digital imaging.

PAPR 212. Print Techniques: Etching. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisites: ARTF 131, ARTF 132, ARTF 133 and ARTF 134. Enrollment is restricted to students in School of the Arts. A seven-week course that engages students with one of the earliest means for creating a multiple – the incised plate. A variety of procedures for crafting the copper plate such as etching, drypoint and aquatint will be introduced. The ability to print and discern a quality impression will be developed. What connects printmaking's various techniques is the initial production of a matrix from which the image is transferred to another surface and potentially reproduced multiple times. This course is one of a four-part series of printmaking studio courses designed for students beginning to explore the development of their visual vocabulary utilizing the multiple.

PAPR 213. Print Techniques: Screenprint. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisites: ARTF 131, ARTF 132, ARTF 133 and ARTF 134. Enrollment is restricted to students in the School of the Arts. A seven-week course that is structured to provide an understanding of the history, techniques, materials and contemporary practice of screenprinting in a fine arts context. Both analog and digital techniques for creating stencils on screens will be introduced. The ability to recognize technical quality and analyze content in a printed image will be fostered through group discussions and individual tutorials. Safe studio practices will be emphasized. This course is one of a four-part series of printmaking studio courses designed for students beginning to explore the development of their visual vocabulary by utilizing the multiple.

PAPR 215. Printmaking for Nonmajors. 3 Hours.

Semester course; 6 studio hours. 3 credits. Enrollment is restricted to non-art majors; students may not be enrolled in the School of the Arts. The course will offer an opportunity for students to work with some of the ideas and materials of printmaking through lecture, studio practice, technical demonstrations and individual and group critiques.

PAPR 231. Drawing from Observation. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisites: ARTF 131, ARTF 132, ARTF 133 and ARTF 134. This course continues the development of students' proficiencies in drawing through an emphasis on representation, illusion and mimesis. Students will gain an understanding of fundamental concepts in drawing, including figure/ground relationships, planes and volumes, and formal and expressive approaches to mark-making.

PAPR 290. Concepts and Issues. 2 Hours.

Semester course; 2 lecture hours. 2 credits. A lecture course that familiarizes students with contemporary artworks, as well as modern and postmodern concepts. Students will be introduced to contemporary issues in art through the presentation of slides, films and visiting speakers. Visits to outside events and lectures will be required.

PAPR 292. Concepts and Issues II. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: PAPR 290 or SCPT 290. A lecture course that builds on the prerequisite and covers contemporary art from recent decades. Students will be introduced to issues in contemporary art, including recent debates in the field. Crosslisted as: SCPT 292.

PAPR 301. Painting Strategies. 4 Hours.

Semester course; 6 studio hours. 4 credits. Prerequisite: PAPR 201. Enrollment is restricted to students in the School of the Arts. This course will explore contemporary ideas in painting through studio practice, critique, lecture, reading and discussion. Students will be exposed to relevant contemporary theory and will pursue issues such as abstraction, installation, site specificity and process, as well as systemic and conceptual approaches to painting.

PAPR 304. Paint Practice and Theory. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: PAPR 301. This course utilizes the group critique as its principle teaching methodology and explores critical issues in the field of painting. Each student will pursue a studio practice, complete assigned reading and participate in discussion.

PAPR 306. Print Techniques: Lithography. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisites: ARTF 131, ARTF 132, ARTF 133 and ARTF 134. Enrollment is restricted to students in the School of the Arts. A seven-week course that is structured to provide an understanding of basic techniques for printing from polyester and aluminum plates. Instruction will be provided on plate preparation, drawing materials, chemical stabilization of the drawn plate, press set-up, proofing, paper selection, and printing and signing an edition. The ability to recognize technical quality and analyze content in a printed image will be fostered through group discussions. Safe studio practices will be emphasized. This course is one of a four-part series of printmaking studio courses designed for students beginning to explore the development of their visual vocabulary utilizing the multiple.

PAPR 307. Print Techniques: Digital. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisites: ARTF 131, ARTF 132, ARTF 133 and ARTF 134. Enrollment is restricted to students in the School of the Arts. A seven-week course that investigates the history of digital printing and imparts an understanding of what it means to have a digital studio practice. While expanding the notion of print's history of dissemination to the virtual, students will develop a working knowledge of image-editing software, image acquisition methods, digital file maintenance and color management. This course is one of a four-part series of printmaking studio courses designed for students beginning to explore the development of their visual vocabulary utilizing the multiple.

PAPR 308. Programming for Artists. 4 Hours.

Semester course; 6 studio hours. 4 credits. Prerequisites: ARTF 131, ARTF 132, ARTF 133 and ARTF 134. Enrollment is restricted to students in the School of the Arts. Explores computer programming and computational thinking using processing language, enabling artists to create their own software rather than being the user of someone else's tool/idea. Students will learn the basic foundations of the computer programming environment through lectures, projects, critiques and quizzes.

PAPR 309. Electronic Strategies. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. A digital media course designed to acclimatize students with the use of computers in the context of fine art. As opposed to common perceptions of "computer art," students will learn to use the computer as they would any other tool – to articulate their ideas and add to their artistic practice. Through in-class exercises and homework assignments emphasizing problem-solving, students will learn to express their ideas through this emerging medium.

PAPR 311. Print Media II. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisites: ARTF 131, ARTF 132, ARTF 133 and ARTF 134. Further studies for students exploring the development of their visual vocabulary utilizing the multiple. This course is meant to be taken as part of a year-long module including etching, lithography, screen printing and digital imaging.

PAPR 314. Print Practice and Theory. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of eight credits. Prerequisites: PAPR 212 or PAPR 213; and PAPR 306 or PAPR 307. This course utilizes the group critique as its principle teaching methodology. It builds advanced printmaking skill and is a seminar on critical issues in the field. Each student will pursue a studio practice, complete assigned reading and participate in discussion.

PAPR 315. Printmaking, Intermediate (Etching). 4 Hours.

Semester course; 6 studio hours. 4 credits. May be repeated for a maximum of eight credits. Prerequisite: PAPR 212 or permission of instructor. Investigation of etching printmaking, drypoint, engraving, aquatint, soft grounds and related techniques.

PAPR 317. Printmaking, Intermediate (Lithography). 4 Hours.

Semester course; 6 studio hours. 4 credits. May be repeated for a maximum of eight credits. Prerequisite: PAPR 306 or permission of instructor. Investigation of techniques and technical printing problems in lithographic printing process from stones and plates.

PAPR 319. Printmaking, Intermediate (Screenprinting). 4 Hours.

Semester course; 6 studio hours. 4 credits. May be repeated for a maximum of eight credits. Prerequisite: PAPR 213 or permission of instructor. An investigation of cut, hand-drawn and photographic stencil techniques and printing on a variety of surfaces.

PAPR 326. Color. 4 Hours.

Semester course; 6 studio hours. 4 credits. Prerequisite: PAPR 201. Enrollment is restricted to students in the School of the Arts. A course examining the concepts governing the use of color. Historical and contemporary concepts and methods of application will be explored.

PAPR 330. Figure Painting. 4 Hours.

Semester course; 6 studio hours. 4 credits. Prerequisite: PAPR 201. Enrollment is restricted to students in the School of the Arts. Designed to allow advanced painting students to focus on figurative work in painting. Historical and contemporary figurative painters will be examined in the context of developing each student's individual approach to form and content.

PAPR 331. Experiments in Drawing. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: PAPR 231. Lecture, studio practice and historical context. Students will practice exploratory notions of drawing and be provided with relevant examples of contemporary approaches to drawing.

PAPR 390. Junior Seminar. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: PAPR 290. Enrollment is restricted to painting and printmaking majors or requires permission of the instructor. This course introduces students to the basic concepts and skills necessary to participate as a professional in the field of contemporary art.

PAPR 392. Independent Study in Painting and Printmaking. 1-4 Hours.

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of six credits. Prerequisites: junior standing as a major in painting and printmaking and approval of department chair and instructor. Individual instruction and supervision of a special project. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

PAPR 401. Painting Investigations. 4 Hours.

Semester course; 6 studio hours. 4 credits. Prerequisite: PAPR 304. May be repeated for a maximum of eight credits. Enrollment is restricted to students in the School of the Arts. With the emphasis on the exploration of an individual direction, this course continues the development of a student's technical and conceptual proficiencies in the context of contemporary painting practices.

PAPR 402. Senior Degree Project. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: PAPR 304 or PAPR 314. In this course the student will pursue an independent studio practice toward the development of a personal and informed body of advanced work.

PAPR 408. Senior Degree Project II. 4 Hours.

Semester course; 6 studio hours. 4 credits. Prerequisite: PAPR 402. Enrollment is restricted to painting and printmaking majors. This course builds on the prerequisite course to allow students to continue their independent studio practice toward the development of a personal and informed body of advanced work.

PAPR 409. Large Format Digital Printing. 4 Hours.

Semester course; 6 studio hours. 4 credits. Prerequisites: ARTF 131, ARTF 132, ARTF 133 and ARTF 134. Enrollment is restricted to students in the School of the Arts. Engages students in the use of digital tools in printmaking. Students will investigate developments in digital culture in relation to print's history and future. Creative applications of digital tools, with an emphasis on the digital print, form the heart of this course.

PAPR 415. Printmaking, Advanced (Etching). 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 20 credits. Prerequisites: 4 credits of intermediate printmaking or permission of instructor. Specialization in one medium with emphasis upon technical research and aesthetic suitability of the design to the particular medium used.

PAPR 417. Printmaking, Advanced (Lithography). 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 20 credits. Prerequisites: 4 credits of intermediate printmaking or permission of instructor. Further investigation of techniques and technical printing problems in the lithographic printing process from stones and plates.

PAPR 419. Printmaking, Advanced (Screenprinting). 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 20 credits. Prerequisites: 4 credits of intermediate printmaking or permission of instructor. Further exploration of cut, hand-drawn and photographic stencil techniques and printing on a variety of surfaces.

PAPR 421. Drawing, Advanced. 4 Hours.

Semester course; 6 studio hours. 4 credits. Prerequisite: PAPR 331. Enrollment is restricted to students in the School of the Arts. A studio for drawing with individual criticism. Special attention is given to contemporary concepts.

PAPR 423. Experimental Printmaking. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 8 credits. Prerequisites: 3 credits of intermediate printmaking or permission of instructor. Relief printing, collographs, monoprints, photoengraving and mixed media will be investigated.

PAPR 431. Drawing and the Model. 4 Hours.

Semester course; 6 studio hours. 4 credits. Prerequisites: PAPR 231. Historical and contemporary figure drawing will be explored with an emphasis on developing the student's individual approach to the figure.

PAPR 480. Critical Issues. 4 Hours.

Semester course; 3 lecture and 2 studio hours. 4 credits. Prerequisites: ARTF 131, 132, 133 and 134. Enrollment is restricted to students with junior or senior standing in the School of the Arts. This advanced course comprises two parts. The first examines diverse critical and aesthetic issues through the study of a select group of highly innovative international artists. In the second part, students will participate in studio visits. Crosslisted as: SCPT 480.

PAPR 490. Senior Seminar. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: PAPR 390. Information to help graduating seniors in the department of painting and printmaking meet the professional requirements involved in exhibiting and promoting their creative work and in functioning as an artist. Writing intensive.

PAPR 491. Topics in Painting and Printmaking. 1-4 Hours.

Semester course; 1-4 credits. May be repeated with different topics for a maximum of 12 credits. Topical course focusing on creative expression and research in the areas of painting and printmaking. See the Schedule of Classes for specific topics to be offered.

PAPR 492. Independent Study in Painting and Printmaking. 1-4 Hours.

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of six credits. Prerequisites: senior status as a major in painting and printmaking and approval of department chair and instructor. Individual instruction and supervision of a special project. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

PAPR 493. Internship for Painting and Printmaking. 1-6 Hours.

Semester course; 1-6 practicum hours. 1-6 credits (40 work hours per credit). May be repeated for a maximum of 12 credits. Enrollment is restricted to juniors and seniors in School of the Arts with permission of the department chair. A practicum that provides students with valuable real-world experience to work in the field of contemporary art.

Photography and Film (PHTO)

PHTO 201. Sophomore Photography Seminar. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: sophomore standing in Department of Photography and Film. Introduces various methods and means of exhibition.

PHTO 202. Sophomore Film Seminar. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: sophomore standing in the Department of Photography and Film. Students will learn all aspects of organizing a film festival that will be held at the end of the spring semester.

PHTO 233. Elements of the Moving Image. 4 Hours.

Semester course; 4 lecture hours. 4 credits. A survey of new media and their origins. An exploration of this visual phenomena and its relationship to modern society.

PHTO 243. Darkroom. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: sophomore standing in the department. Manual 35mm film camera is required. Study of fundamental camera techniques and photographic processes including darkroom printing. Emphasizes professional standards, technical proficiency and individual artistic expression.

PHTO 245. Design Photography I. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. For communication art and design majors only or permission of instructor. A comprehensive beginning class covering an introduction to the camera, the process of exposure, developing, and black-and-white printmaking.

PHTO 260. Experiments in Sequencing. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 243 or PHTO 281. Explores the history, contexts and applications of sequencing as a unifying artistic practice. Emphasis is placed on sequencing as it relates to visual communication and contemporary multimedia.

PHTO 275. Film as Material. 3 Hours.

Semester course; 2 lecture and 3 studio hours. Prerequisite: sophomore standing in the department. Study of the fundamental techniques and processes of 16mm film production, including cameras, lighting and composition. Emphasizes technical proficiency and individual artistic expression.

PHTO 280. Moving Pixels. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: sophomore standing in the department. Introduction to digital video, computer imaging and interactive multimedia as tools of artistic expression and social inquiry.

PHTO 281. Digital Imaging I. 3 Hours.

Semester course; 2 lecture and 3 studio hours (delivered face-to-face or hybrid). Enrollment is restricted to students who have sophomore standing in the department. Digital still image camera is required. Study of fundamental techniques and processes of digital image-making, including image capture, manipulation and digital printing. Emphasizes professional standards, technical proficiency and individual artistic expression.

PHTO 289. Filmmaking for Non-majors. 1-3 Hours.

Semester course; 1-3 lecture hours (delivered online or face-to-face). 1-3 credits. May be repeated for a maximum of six credits. Digital motion picture camera is required. Study of fundamental techniques and processes of digital filmmaking, including image and audio recording, editing and exporting digital media. Emphasizes media as a tool of artistic expression and social inquiry.

PHTO 290. Photography for Non-majors. 1-3 Hours.

Semester course; 1-3 seminar hours (delivered online or face-to-face). 1-3 credits. May be repeated for a maximum of six credits. Digital still image camera is required. Study of fundamental techniques and processes of digital image-making, including image capture, manipulation and digital printing. Emphasizes professional standards, technical proficiency and individual artistic expression.

PHTO 295. Revolutionary Cinema. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHTO 280. Investigates a range of experimental/underground/alternative moving image art forms and styles and covers key historical moments in the avant-garde. Emphasizes attentive viewing and critical analysis of works that challenge dominant media conventions.

PHTO 301. Junior Seminar. 1 Hour.

Semester course; 1 studio hour. 1 credit. Prerequisite: junior standing in the Department of Photography and Film. Instruction in how to make an artist website using current technology and 2-D design principles.

PHTO 307. Processes and Techniques. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 243. Explores alternative photographic techniques with an emphasis on handmade printing. Places various photographic practices and aesthetics in a historical context. Students develop personal awareness of their creative process in the pursuit of a conceptually coherent body of work.

PHTO 340. Lighting I: Studio. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: PHTO 243 and PHTO 281. Introduces controlled lighting for still photography in the studio. Students use continuous light sources and professional grade strobe equipment to explore tabletop and portraiture photography through lectures and studio assignments. Emphasizes professional standards, technical proficiency and individual artistic expression.

PHTO 350. Concepts I. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: UNIV 200 or HONR 200 and PHTO 281. Students utilize the aesthetic and technical skills mastered in previous courses to explore photography as a conceptual tool. Emphasizes both historic and contemporary contextualizations of the medium and fosters development of a long-term, personal artistic project.

PHTO 351. Portrait Photography. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 345 Design Photography or PHTO 350 Intermediate Photography. Students explore the various visual possibilities of the use of portrait photography.

PHTO 352. Concepts II: Junior Project. 3 Hours.

Semester course; 2 lecture and 3 studio hours. Prerequisite: PHTO 350. Students complete a conceptually coherent body of work that engages with photography as an artistic medium. Course emphasizes advanced understanding of historical perspectives and critical theory as they relate to the development of a personal project.

PHTO 361. Sound and Color. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: PHTO 280 and PHTO 281. Explores advanced concepts and techniques in sound design, editing, color grading and postproduction workflow for film, video and multimedia.

PHTO 362. Lighting and Cinematography. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 280. Explores theory and formal aspects of lighting, framing, composition, and camera function and movement for moving-image media in a range of genres. Students develop strategies for visual storytelling through hands-on workshops and exercises.

PHTO 377. The Film Image. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 9 credits. An examination of production techniques and problems encountered by the filmmaker in creating the motion picture image. A selected number of narrative, documentary, experimental and animated films are viewed as source material and dealt with from a production point of view. The films chosen for discussion vary from semester to semester.

PHTO 381. Digital Imaging II. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 281. Digital still image camera is required. Study of advanced techniques and processes of digital image-making, including advanced manipulation and color control and advanced digital printing. Emphasizes professional standards, technical proficiency and individual artistic expression.

PHTO 382. Advanced Digital Printing. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: PHTO 380 and 381. How to manage a digital color workflow in order to produce desired colors and tonal values in the final output – the print. Instruction in controlling image management, color calibration and printing through lectures, demonstration and hands-on experience. Discussion of student work in regular critiques.

PHTO 390. Writing and Directing for the Screen. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Enrollment is restricted to majors in the School of the Arts. Explores basic theory and formal aspects of story, structure, performance and character through readings, workshops and writing exercises. Students develop skills specific to writing, preproducing, staging and directing a short fiction film.

PHTO 391. Topics in Photography and Film. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated with different topics for a maximum of 6 credits. A lecture and/or studio course offered on a variety of photography or film issues. See the Schedule of Classes for specific topics covered each semester.

PHTO 392. Animation. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Explores various materials and processes, analog and digital, involved in creating animated moving image works. Emphasizes studio technique and artistic exploration.

PHTO 394. Documentary I. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 280. Introduces strategies for developing, shooting and editing various types of documentary and nonfiction media including, but not limited to, the electronic essay, biography/portraiture, ethnographic film and new genres. Covers key historical moments and ethical issues related to the representation of the real world.

PHTO 420. Senior Thesis I. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: senior standing in the department. Critical analysis and development of a yearlong creative thesis project with emphasis on the completion of a conceptually coherent body of work. Course emphasizes professional standards, technical proficiency and individual artistic expression informed by historical perspectives and critical theory.

PHTO 421. Senior Thesis II. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 420. Critical analysis and development of a yearlong creative thesis project with emphasis on the completion of a conceptually coherent body of work. Course emphasizes professional standards, technical mastery and individual artistic expression informed by historical perspectives and theory. This course is a capstone experience integrating effective oral, written and visual communication, critical thinking and advanced studio techniques.

PHTO 435. Professional Practice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines a range of business models, practices and tools applicable to building a career in photography and related artistic, commercial and media fields. Emphasizes practical skills, marketing, legal and ethical issues.

PHTO 436. Senior Suitcase. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines a range of professional practices and tools applicable to building a career in the media arts. Students develop ancillary materials related to their overall student film portfolio. Emphasizes practical skills, marketing and audience-engagement issues.

PHTO 442. Lighting II: Location. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 340. Explores photography using lighting design on location. Students concentrate on balancing and matching available lighting with electronic flash and continuous lighting tools. Emphasis is on the technical, professional and logistical skills required of a photographer working on location assignments and on using creative approaches to lighting and image design.

PHTO 474. Contemporary Critical Perspectives. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHTO 352. Explores and interrogates multiple theories of representation and the aesthetic, ideological, ethical and cultural issues raised by contemporary photography and related media. Students will view work, read contemporary criticism, engage in discussion and produce original, critical writing.

PHTO 475. Advanced Production Workshop. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 390. A practical, intensive workshop in which students work collaboratively in standard industry crew positions to complete a single project. Students explore craft, aesthetics, storytelling and production issues at an advanced level.

PHTO 484. Thesis Film I. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 475. Students complete writing, previsualization, preproduction and initial production on their thesis films. Students engage in workshops, screenings and critiques in order to further develop their professional identities and to advance their understanding of the methods and tools deployed by independent film and media artists.

PHTO 485. Thesis Film II. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 484. Students complete all production, editing, sound design and outreach materials for their thesis films. Students engage in workshops, screenings and critiques in order to further develop their professional identities and to advance their understanding of the methods and tools deployed by independent film and media artists. This course is a capstone experience integrating effective oral, written and visual communication, critical thinking and advanced studio techniques.

PHTO 491. Topics in Photography and Film. 1-4 Hours.

Semester course; variable hours. 1-4 credits. May be repeated with different topics for a maximum of 12 credits. A seminar or workshop that intensively engages photography, film and related-media subjects, including, but not limited to, a range of historical and contemporary photographic/cinematic practices, trends, theories and concerns within a wider artistic and art historical context. See the Schedule of Classes for specific topics covered each semester.

PHTO 492. Independent Study in Photography and Film. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of 6 credits. Prerequisites: junior or senior standing as a major in photography and film, and approval of department chair and instructor. Individual instruction and supervision of a special project. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

PHTO 493. Teaching Practicum in Photography and Film. 1-3 Hours.

Semester course; variable hours. 1-3 credits. Repeatable for a maximum of 6 credits. Prerequisites: senior standing in the department and a minimum GPA of 3.0. Advanced students in photography and film are mentored in the classroom while serving as teaching apprentices. Specific duties are negotiated between the student and the mentor and approved by the department chair. Duties will typically include regular classroom attendance, peer tutoring and assistance in technical demonstrations of equipment and/or software.

PHTO 494. Documentary II. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 394. Students will explore advanced concepts and techniques in documentary and nonfiction media creation through in-class exercises, screenings, independent productions and group critiques.

PHTO 495. Photography and Film Internship. 1-6 Hours.

Semester course; 1-6 practicum hours. 1-6 credits (30-40 work hours per credit). May be repeated for a maximum of nine credits. Enrollment is restricted to students with consent of the internship supervisor and academic adviser. Practical work experiences are coordinated with professionals in the field of photography, film and various arts disciplines. A grade of PR will be assigned for an internship that extends past the grading period.

Sculpture and Extended Media (SCPT)**SCPT 209. Introduction to Sculpture. 3 Hours.**

Semester courses; 2 lecture and 3 studio hours. 3, 3 credits. Open to non-art majors only. The course will offer an opportunity for students to work with some of the ideas and materials of sculpture through slides, lecture and studio involvement.

SCPT 211. Materials and Techniques. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisites: ARTF 131, ARTF 132, ARTF 133 and ARTF 134. Enrollment is restricted to students in the departments of Sculpture Education, Craft and Material Studies or Painting and Printmaking. The primary goal of this course is to survey the terrain of inherited materials, processes and techniques of the discipline. The student is introduced to historical tools and materials, with attention given to deep engagement.

SCPT 212. Basic Sculpture II. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: SCPT 211. The primary goal of this course is the effective expression of ideas. The student uses advanced techniques that build upon the basic skills taught in Basic Sculpture I with attention given to problem-solving.

SCPT 215. Sophomore Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTF 131, ARTF 132, ARTF 133 and ARTF 134. Corequisite: SCPT 211. Enrollment is restricted sculpture majors. This course familiarizes students with contemporary artworks, as well as modern and postmodern concepts. Emphasis is placed on articulating and expanding upon individual interests in relation to studio practices.

SCPT 290. Concepts and Issues. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: completion of Art Foundation. A lecture course that familiarizes students with contemporary artworks, as well as modern and postmodern concepts. This class presents contemporary issues in art through the presentation of media and visiting speakers. Visits to outside events and lectures will be required.

SCPT 292. Concepts and Issues II. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: PAPR 290 or SCPT 290. A lecture course that builds on the prerequisite and covers contemporary art from recent decades. Students will be introduced to issues in contemporary art, including recent debates in the field. Crosslisted as: PAPR 292.

SCPT 301. Speculative Futures. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: SCPT 211. The primary goal of this course is to survey the terrain of inherited materials, processes and techniques of the sculpture discipline. The student is introduced to historical tools and materials, with attention given to deep engagement.

SCPT 311. Process and Practice. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: SCPT 301. Enrollment is restricted to majors or minor in the Department of Sculpture and Extended Media. This course develops the student's studio practice through a deep dive into creative processes and research methods for sustained independent investigation using a variety of materials.

SCPT 321. Figure Modeling. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: completion of Art Foundation. This course provides instruction in fundamental figure modeling skills working with clay and from live models.

SCPT 322. Flexible Molds. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: completion of Art Foundation. This course provides instruction on a variety of moldmaking techniques, including plaster and flexible moldmaking materials.

SCPT 323. Foundry. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: SCPT 322. This course provides instruction in bronze and aluminum metal casting using the lost wax process, ceramic shell.

SCPT 330. Digital Fabrication. 3 Hours.

Semester course; 4.5 studio hours. 3 credits. Prerequisite: SCPT 211. This is a studio course that focuses on computer modeling, 3D scanning and several forms of digital fabrication.

SCPT 331. Plastics. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisite: SCPT 211. A seven-week course that prioritizes the re-use of plastic waste to create new materials. Students will work with specialized plastic shredding and sheet forming equipment to create endlessly recyclable materials for sculptural creation.

SCPT 332. Homes. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisite: SCPT 211. A seven-week course that is designed to cover the skills and techniques required to build a housing structure. This includes basic building, framing, introduction to wiring, plumbing and maintenance.

SCPT 333. Metals. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisite: SCPT 211. A seven-week course that introduces students to working with metals. Techniques covered may include welding, cold connection, milling and others.

SCPT 334. Wood. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisite: SCPT 211. A seven-week course that introduces students to advanced techniques for working with wood. Techniques covered may include shaping, construction, milling and surface finishing.

SCPT 335. Found Objects. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisite: SCPT 211. A seven-week course that prioritizes capitalizing on the innate qualities of found objects. Work made will consider how existing materials and objects can be manipulated to create new narratives.

SCPT 336. Extended Media. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisite: SCPT 211. A seven-week course introduces students to the use of performance, sound and/or video to expand and extend their studio work.

SCPT 337. Ceramics for Sculpture. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisite: SCPT 211. A seven-week course that introduces students to basic techniques for working with clay; techniques covered will include hand-building, glazing and firing.

SCPT 338. Documenting Your Work. 2 Hours.

Semester course; 3 studio hours. 2 credits. Prerequisite: SCPT 211. This course will provide professional lighting, shooting and strategies for the student to capture the nature of their work, from micro to macro.

SCPT 339. Bodies. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisite: SCPT 211. A seven-week course that explores a number of topics in sculpture which may include performance, prosthetics, the figure and other embodied practices.

SCPT 340. Liquidity. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisite: SCPT 211. A seven-week course that allows for the exploration of numerous fluid processes which may include fluid dynamics, casting, plastics and mold-making.

SCPT 341. Surfaces. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisite: SCPT 211. A seven-week course that explores the application of final layers. Processes covered include color, surface finish, texture and other exterior issues.

SCPT 342. Heat. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisite: SCPT 211. A seven-week course that allows students to explore topics where the application of heat allows for transformation of materials. Some topics include foundry, melting and cooking.

SCPT 343. Vibes. 2 Hours.

Semester course; 6 studio hours. 2 credits. Prerequisite: SCPT 211. A seven-week course that introduces students to using sound, electricity and vibration in their studio projects. Topics may cover various software used for sound and learning to wire devices and spaces for sound or vibration.

SCPT 411. Advanced Practice in Sculpture. 4 Hours.

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: SCPT 311. Students work on advanced studio projects with critical feedback to develop a personal studio vocabulary of form. Faculty may introduce themes based on their expertise in the field.

SCPT 415. Senior Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SCPT 311. Enrollment is restricted to majors in the Department of Sculpture and Extended Media. This capstone course prepares students to navigate the profession. A focus on portfolio development, writing proposals and working with a mentor is completed in a problem-based simulation.

SCPT 417. Seminar in Contemporary Sculpture. 4 Hours.

Semester course; 4 lecture hours. 4 credits. Prerequisite: SCPT 301. A forum for consideration and discussion of recent developments.

SCPT 419. Professional Studio Practicum. 3 Hours.

Semester course; 9 studio hours. 3 credits. May be repeated for a total of 6 credits. Enrollment requires permission of departmental chair. A studio class that provides a continuation of the student's work in sculpture. This course will be recorded as an elective for a sculpture major.

SCPT 480. Critical Issues. 4 Hours.

Semester course; 3 lecture and 2 studio hours. 4 credits. Prerequisites: ARTF 131, 132, 133 and 134. Enrollment is restricted to students with junior or senior standing in the School of the Arts. This advanced course comprises two parts. The first examines diverse critical and aesthetic issues through the study of a select group of highly innovative international artists. In the second part, students will participate in studio visits. Crosslisted as: PAPR 480.

SCPT 491. Topics in Sculpture. 1-4 Hours.

Semester course; 1-4 credits. May be repeated for a maximum of 16 credits. Prerequisite: permission of instructor. A seminar or workshop on a selected issue or topic in the field of sculpture. See the Schedule of Classes for specific topics to be offered each semester.

SCPT 492. Independent Study in Sculpture. 1-4 Hours.

Semester course; variable hours. 1-4 credits. May be repeated for a maximum total of 8 credits. Prerequisites: senior standing as a major in sculpture and approval of department chair and instructor. Individual instruction and supervision of a special project. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

SCPT 493. Sculpture Internship. 1-6 Hours.

Semester course; 40 contact hours per credit. 1-6 credits. May be repeated for a maximum of 12 credits. Prerequisite: SCPT 311 or SCPT 312. Open to junior- and senior-level sculpture majors only. A practicum in which students work with professionals in the field.

Speech (SPCH)**SPCH 121. Effective Speech. 3 Hours.**

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Structured speaking and critical listening experiences within the basic forms of speech communication: interpersonal, small group and public. Students may receive credit toward graduation for only one of SPCH 121, SPCH 321 or BUSN 225.

SPCH 221. Oral Communication and Presentation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The study of oral communication across various mediums and best practices for effectively presenting to diverse groups and in diverse situations.

SPCH 321. Speech for Business and the Professions. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Theory and practice in the oral communication process. Organization and presentation of informative and persuasive subject matter in professional contexts related to the student's major area of interest. Students may receive credit toward graduation for only one of SPCH 121, SPCH 321 or BUSN 225.

Theatre (THEA)**THEA 100. Technical Production. 1 Hour.**

Semester course; 1 lecture hour. 1 credit. Enrollment is restricted to theatre majors. A crew assignment for a Mainstage production fulfilling all required work and hours of production calls.

THEA 102. Introduction to Technical Theatre. 3 Hours.

Semester course; 1 lecture and 3 studio hours. 3 credits. This course is designed as an introduction to technical theatre for performers. Skills learned in this class will allow the student to become a contributing team member as well as prepare the student for future endeavors requiring basic knowledge of technical theatre. Theatre students enrolled in design/technical production concentrations cannot receive credit for this course.

THEA 103. Stagecraft. 3 Hours.

Semester course; 9 studio hours. 3 credits. Restricted to theatre majors. The fundamental methods, materials and techniques of set construction for the stage. Participation in departmental productions.

THEA 104. Costume Construction. 3 Hours.

Semester course; 9 studio hours. 3 credits. Restricted to theatre majors. The fundamental methods, materials and techniques of costume construction for the stage. Participation in departmental productions.

THEA 105. Advanced Costume Construction. 3 Hours.

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 104. Focuses on the development of skills needed to function as a stitcher in a theatrical costume shop through practical application of techniques and processes.

THEA 107. Introduction to Stage Performance. 3 Hours.

Semester courses; 3 lecture hours. 3, 3 credits. For non-theatre majors. A survey and application of the basic elements in stage performing; acting, scene study, voice and movement.

THEA 108. Introduction to Stage Performance. 3 Hours.

Semester courses; 3 lecture hours. 3, 3 credits. For non-theatre majors. A survey and application of the basic elements in stage performing; acting, scene study, voice and movement.

THEA 110. Improvisation. 3 Hours.

Semester course; 1 lecture and 4 studio hours (delivered online or face-to-face). 3 credits. This course provides students with foundational improv techniques. Students will learn how to apply these techniques to endeavors ranging from artistic to social and beyond.

THEA 111. Fundamentals of Performance. 3 Hours.

Semester course; 1 lecture and 2 studio hours. 3 credits. Enrollment is restricted to theatre majors. Study of foundational acting technique including connections to breath, voice, physicality, ensemble, story and text.

THEA 112. Fundamentals of Theatrical Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to theatre majors. An introduction to the history of theatrical design and the importance of collaboration; elements and principles of design and composition, becoming visual storytellers, script analysis for designers, research, and the skills and tools needed as a designer.

THEA 121. Introduction to Drawing. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Open only to theatre majors. An introduction to drawing skills. Topics include line quality and contour, volume, value with shading and crosshatching, texture, space and composition, perspective, gesture, and figure drawing.

THEA 122. Color Theory. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Open only to theatre majors. An introduction to color theory. Topics covered include how to create different values, hues and intensities, and how to mix color to best express a specific artistic intent.

THEA 161. Figure Drawing: Superficial Anatomy. 2 Hours.

Semester course; 1 lecture and 4 studio hours. 2 credits. Introductory course focused on developing drawings from direct observations of the figure. The specific problem will be the study of superficial anatomy as related to costume design. Various drawing and painting media will be explored.

THEA 162. Figure Drawing: Draping the Human Form. 2 Hours.

Semester course; 1 lecture and 4 studio hours. 2 credits. Focus on developing drawings from direct observations of the figure and folds, students will show the surface influence of superficial anatomy on the draped figure. Various drawing and painting media will be explored.

THEA 191. Topics in Theatre. 1-3 Hours.

Semester course; 1-3 workshop hours. 1-3 credits. May be repeated for a maximum of 6 credits. Enrollment restricted to theatre majors. Flexible semester course in selected aspects of performance, theory, literature or history. See the Schedule of Classes for specific topics to be offered each semester.

THEA 200. Broadway Seminar. 1 Hour.

Semester course; 1 lecture hour. 1 credit. The course will provide a weekly opportunity to work with various guests providing unique training opportunities in singing, dancing and acting. Topics will include audition technique and will introduce current Broadway trends to those interested in musical theatre.

THEA 201. Voice and Speech for the Actor I. 3 Hours.

Semester course; 1 lecture and 2 studio hours. 3 credits. Open only to theatre majors upon satisfactory audition. A study of the basic elements of voice and speech for actors.

THEA 202. Voice and Speech for the Actor II. 3 Hours.

Semester course; 1 lecture and 2 studio hours. 3 credits. Continuing study elements of voice and speech and practicing toward competency of applying these skills to text.

THEA 203. Movement for the Actor I. 3 Hours.

Semester course; 1 lecture and 2 studio hours. 3 credits. Open only to theatre majors upon satisfactory audition. Practice and study of stage movement for the purpose of creating truthful physical behavior in the theatre.

THEA 204. Movement for the Actor II. 3 Hours.

Semester course; 1 lecture and 2 studio hours. 3 credits. Continuing study of creating truthful physical behavior in the theatre, leading toward competency of applying same to characters and text.

THEA 209. Theatrical Rigging. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: THEA 103. Enrollment is restricted to theatre majors. The course will provide a practical introduction to standards and techniques of safe theatrical rigging with an emphasis on safe rigging procedures, load calculations and current industry standards.

THEA 210. Introduction to Stage Combat. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Enrollment is restricted to theatre majors upon completion of satisfactory audition. An introduction to the techniques and performance of unarmed and armed stage combat sequences for the stage.

THEA 211. Introduction to Drama. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Analysis and critical examination of plays for methods of interpretation and production qualities.

THEA 213. Acting I. 3 Hours.

Semester course; 1 lecture and 2 studio hours. 3 credits. Open only to theatre majors upon satisfactory audition. Exploration of the Stanislavski System with particular emphasis on emotional availability, point of view and personalization techniques.

THEA 214. Acting II. 3 Hours.

Semester course; 1 lecture and 2 studio hours. 3 credits. Prerequisite: THEA 213. Enrollment is restricted to theatre majors upon satisfactory audition. Introduction of heightened text with continuing study of point-of-view with personalization, emotional availability and practicing toward competency of basic acting skills.

THEA 215. Live Theatre Now. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. An introduction to theatre as an art form and live theatrical event. The course is designed to cultivate an appreciation, understanding and critical perception of live theatre performance. Students will study the fundamentals of theatre and the theatrical production process.

THEA 216. Welding for Theatre. 1 Hour.

Semester course; 2 studio hours. 1 credit. Enrollment is restricted to theatre majors. This course is designed as a practical introduction to safe welding practices and standards.

THEA 217. Theatrical Drafting. 2 Hours.

Semester course; 1 lecture and 4 studio hours. 2 credits. An introduction to the practices and procedures used in communicating technical and design information among a range of theatre practitioners. Focus on traditional hand-drafting techniques.

THEA 218. Introduction to Scene Painting. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. An introduction to fundamental scene painting technique. Students will have the opportunity to study the materials and techniques of scene painting as well as the practices and expectations of a career in scenic artistry.

THEA 219. Fundamentals of Entertainment Technology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduction to the physical science underlying various disciplines of technical theatre.

THEA 221. Introduction to Scene Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Restricted to theatre majors. An introduction to the theories, practices and procedures of designing for the stage.

THEA 223. Practicum in Theatre Technology. 3 Hours.

Semester courses; 9 studio hours. 3, 3 credits. Prerequisites: THEA 103 and THEA 104. Restricted to theatre majors. Advanced study in theatre technologies and the materials and methodologies of stage construction.

THEA 224. Practicum in Theatre Technology. 3 Hours.

Semester courses; 9 studio hours. 3, 3 credits. Prerequisites: THEA 103 and THEA 104. Restricted to theatre majors. Advanced study in theatre technologies and the materials and methodologies of stage construction.

THEA 225. Electricity for the Stage. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Restricted to theatre majors. A study of the properties and basic principles of electricity as they relate to the utilization of light on the stage. Participation in departmental productions.

THEA 226. Desktop Audio/Video. 2 Hours.

Semester course; 3 studio hours. 2 credits. A basic introduction to desktop audio and video production. Levels of production will be explored from the cheapest solutions to midrange solutions utilizing audio and video equipment working in tandem using nonlinear editors on the computer.

THEA 227. Introduction to Theatrical Makeup. 3 Hours.

Semester course; 2 lecture and 2 studio hours. 3 credits. Teaches basic makeup practices for theatrical work. Students will gain an introductory knowledge of the physiological structure of the human face and how to alter appearance of an actor through the use of stage-makeup and basic prosthetic appliances. These skills will be evaluated through practical applications and studio work.

THEA 228. Introduction to Costume Design. 3 Hours.

Semester course; 2 lecture and 2 studio hours. 3 credits. Introduces students to the costume design process including: the techniques of drawing to aid in facilitating costume design, paperwork required of the costume designer, and costume sketching and painting techniques. Students will employ critical thinking in their evaluation of the costume design process and concurrently be introduced to the skills required in the design process through practical design projects.

THEA 229. Introduction to Lighting Design. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Restricted to theatre majors. A study of issues concerning the properties of light and electricity as they relate to theatre including design, composition and color.

THEA 230. Model Building. 3 Hours.

Semester course; 1 lecture and 3 studio hours. 3 credits. This course will provide students with an in-depth knowledge of basic model-making practices and strategies.

THEA 235. Beginning Stage Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the art and science of stage management with emphasis on the skills and mechanics necessary to successfully contribute to the theatrical production process.

THEA 237. Advanced Lighting I. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 229. An in-depth exploration into development and execution of a lighting design and the lighting potentials of a wide variety of facilities, production styles and lighting equipment. Includes work on development of communication skills with directors via value sketches and lighting plots. Work will include studies and design research, concepts, collaboration, professional procedures and systems, paperwork, and organization. Varies scales of theoretical and practical projects in the light lab.

THEA 251. Rehearsal and Performance I. 1-3 Hours.

Semester course; 2, 4 or 6 studio hours. 1, 2 or 3 credits. May be repeated for a maximum total of 6 credits. Restricted to theatre majors. Work in acting, management, design or technical areas within a TheatreVCU production.

THEA 261. Figure Drawing: Media and Technique. 2 Hours.

Semester course; 1 lecture and 4 studio hours. 2 credits. This course will explore various traditional wet and dry media techniques in depicting representational costume design. Assignments will incorporate applicable references to art history.

THEA 262. Figure Drawing: Advanced Media and Technique. 2 Hours.

Semester course; 1 lecture and 4 studio hours. 2 credits. Prerequisite: THEA 261. An advanced course investigating various traditional wet and dry media techniques depicting the human form and costuming. Assignments will incorporate applicable references to the history of art and contemporary developments.

THEA 291. Topics in Theatre. 1-3 Hours.

Semester course; 1-3 workshop hours. 1-3 credits. May be repeated for a maximum of 6 credits. Enrollment restricted to theatre majors. Flexible semester course in selected aspects of performance, theory, literature or history. See the Schedule of Classes for specific topics to be offered each semester.

THEA 301. Advanced Voice and Speech for the Actor I. 3 Hours.

Semester course; 1 lecture and 2 studio hours. 3 credits. Prerequisite: THEA 202. Open only to theatre majors upon satisfactory audition. Building upon lessons and skills practiced in the prerequisite course, an introduction to advanced elements of voice and speech and practicing toward competency of applying these skills to text.

THEA 302. Advanced Voice and Speech for the Actor II. 3 Hours.

Semester course; 3 studio hours. 3 credits. Prerequisite: THEA 301. Enrollment is restricted to theatre majors with a minimum 2.0 GPA in the major. Continuing study in advanced elements of voice and speech and practicing toward competency of applying these skills to text.

THEA 303. Black Theatre. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the major developments in the evolution of black theatre through readings and studio performances in black-related and black theatre dramaturgy. Crosslisted as: AFAM 303.

THEA 305. Scenic Design Studio I. 3 Hours.

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 221. Enrollment is restricted to theatre majors. A study of the techniques and methods of scene design.

THEA 306. Scenic Design Studio II. 3 Hours.

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 221. Enrollment is restricted to theatre majors. Advanced study of the techniques and methods of scene design.

THEA 307. History of the Theatre. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Enrollment is restricted to theatre majors. A study and analysis of theatre history from Early Greece to the Renaissance: the architecture, the performer and performances, the stage, the production methods, and the audience.

THEA 308. History of the Theatre. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Enrollment is restricted to theatre majors. A study and analysis of theatre history from the Renaissance to the late 20th century: the architecture, the performer and performances, the stage, the production methods, and the audience.

THEA 309. History of Costumes. 3 Hours.

Semester courses; 3 lecture hours. 3, 3 credits. Illustrated lectures on the history of clothing from primitive times to the present.

THEA 310. History of Costumes. 3 Hours.

Semester courses; 3 lecture hours. 3, 3 credits. Illustrated lectures on the history of clothing from primitive times to the present.

THEA 313. Actor's Studio I. 3 Hours.

Semester course; 1 lecture and 2 studio hours. 3 credits. Open only to theatre majors upon completion of satisfactory audition. Scene study and exploration of personalized character work as it applies to modern acting.

THEA 314. Actor's Studio II. 3 Hours.

Semester course; 1 lecture and 2 studio hours. 3 credits. Prerequisite: THEA 313. Enrollment is restricted to theatre students who have successfully completed the sophomore assessment audition. Continuing exploration of personalized character work and heightened text as it applies to modern acting.

THEA 315. Audition Technique. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Enrollment is restricted to theatre majors with a minimum 2.5 GPA in the major upon satisfactory audition or with permission of instructor. Concentrated work using various techniques and methods of auditioning for the stage, television and film.

THEA 316. Musical Theatre History. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of musical theatre history from its beginnings in vaudeville to the golden age to contemporary musical theatre. Students will gain the necessary skills to do dramaturgical analysis of a musical, as well as historiographical skills and a strengthened understanding of how to write about performance both objectively and subjectively.

THEA 317. Musical Theatre Performance I. 3 Hours.

Semester course; 1 lecture and 2 studio hours. 3 credits. Open only to theatre majors upon completion of a satisfactory audition. Development of skills necessary to prepare songs and roles in musical theatre productions.

THEA 318. Musical Theatre Performance II. 3 Hours.

Semester course; 1 lecture and 2 studio hours. 3 credits. Prerequisite: THEA 317. Open only to theatre majors upon completion of a satisfactory audition. Continuation of the development of skills necessary to prepare songs and roles in musical productions while also developing skills in audition technique and the building of a personal repertoire.

THEA 319. Musical Theatre Dance Styles: Landmark Choreographers. 2 Hours.

Semester course; 1 lecture and 1 studio hour. 2 credits. Development of skills necessary to dance and perform in theatre productions. Students will demonstrate an ability in dance basics. An advanced course focusing on the practical application and aesthetic of landmark choreographers of the modern musical theatre. Students will demonstrate and integrate ballet and jazz techniques and apply same to the proper execution of each choreographer.

THEA 320. Structural Design for the Stage. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduction to basic structural analysis as applies to theatrical scenic construction and rigging.

THEA 321. Costume Design Studio I. 3 Hours.

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: THEA 228. A studio course exploring the practice of the creative techniques, skill-building tools and business processes used according to the practical standards of the industry developed by professional union costume designers.

THEA 322. Costume Design Studio II. 3 Hours.

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: THEA 321. Continuing studio course exploring the practice of the creative techniques, skill-building tools and business processes used according to the practical standards of the industry developed by professional union costume designers.

THEA 323. Practicum in Advanced Theatre Technology. 3 Hours.

Semester course; 9 studio hours. 3 credits. May be repeated for a maximum of 9 credits. Restricted to theatre majors. Advanced study in theatre technologies and technical management.

THEA 324. Practicum in Stage Lighting. 3 Hours.

Semester course; 9 studio hours. 3 credits. May be repeated for a maximum of 12 credits. Restricted to theatre majors. Practical application in the methodologies of stage lighting.

THEA 325. Intermediate Stage Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: THEA 235. Continuing study in the art and science of professional stage management.

THEA 326. Audio Mixing. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for a maximum total of nine credits. Enrollment is restricted to theatre majors, those pursuing the sound design minor and others with permission of the instructor. A study of basic mixing theory and ear training to create a completed audio mix for live theatre or concerts.

THEA 327. Computer-assisted Design and Drafting for the Theatre. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 6 credits. Instruction and practice in the use of computer assisted design and drafting for the theatre such as preparation and presentation, perspective, rotation, development and graphic solutions pertaining to theatrical construction problems.

THEA 329. Patternmaking for the Theatre. 3 Hours.

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisite: THEA 105. This course introduces basic patternmaking skills including: sloper development, pattern manipulations employing flat patterning techniques, drafting, scaling and copying of historic garments. This course introduces critical-thinking skills as related to the form, fit and composition of clothing as it relates to the body. Students will apply these skills to practical projects that can relate to a variety of historical period costumes.

THEA 332. Draping for the Theatre. 3 Hours.

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisite: THEA 329. This course introduces basic draping skills including: sloper development, princess-line and bias garments, and clothing draped over extensive understructures. This course practices critical-thinking skills as related to the form, fit and composition of clothing as it relates to the body. Students will apply these skills to demonstrate specific historical period costumes.

THEA 333. Sound Technology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to theatre majors, those pursuing the sound design minor and others with permission of the instructor. This course will explore the concepts between sound, acoustics and our hearing, introducing the student to the basic concepts, equipment and software used to create, reinforce and record sound.

THEA 334. Sound Design for Theatre. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to theatre majors, those pursuing the sound design minor and others with permission of the instructor. Exploration in contemporary practices in sound design for the theatre.

THEA 335. Advanced Movement and Vocal Techniques. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. May be repeated for a total of 6 credits. Enrollment is restricted to theatre majors upon satisfactory audition. A rotating topics course highlighting several performance training methods that link physical and vocal work.

THEA 336. Introduction to Costume Crafts. 3 Hours.

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisite: THEA 227. The course will introduce the student to a variety of skills and application methods that are needed for the execution of costume designs in a theatrical production. An overview and basic understanding of these crafts will be explored and practiced during the semester.

THEA 337. Advanced Lighting Design II. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 237 with a minimum grade of C. Advanced study of lighting design, incorporating increasingly difficult texts, rep plots, facilities and production styles. Further exploration of the process of lighting design for theatre and other related events. Projects focus intensely on communication and the collaborative process.

THEA 340. Theatre Projects. 3,6 Hours.

Semester courses; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Open only to theatre majors. Individual or group projects in acting, directing, costume design, stage design or dramaturgy.

THEA 341. Theatre Projects. 3,6 Hours.

Semester courses; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Open only to theatre majors. Individual or group projects in acting, directing, costume design, stage design or dramaturgy.

THEA 344. Technical Direction I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to theatre majors. Introduction to the methodologies of professional technical direction including budgeting, scheduling, estimating and technical design. Students will employ critical thinking in application to project management and practical technical direction projects.

THEA 345. Technical Direction II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: THEA 344. Enrollment is restricted to theatre majors. Advanced project-based application of methodologies of professional technical direction.

THEA 347. Props Design and Construction. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 6 credits. Enrollment is restricted to theatre majors. A study of procedures and skills needed to be a successful prop master. Topics include organization, research, procurement methods, furniture and ornament history, upholstery and basic furniture repair.

THEA 351. Rehearsal and Performance. 1-3 Hours.

Semester course; 2, 4 or 6 studio hours. 1, 2 or 3 credits. May be repeated for a maximum of six credits. Enrollment is restricted to theatre majors or by permission of instructor. Work in acting, management, design or technical areas within a TheatreVCU production.

THEA 361. Directing I. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Open only to theatre majors. Introduction to and practice in the theories of stage direction.

THEA 362. Directing II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: THEA 361. Continuing practice in solving problems involved in the production of period plays and a study of modern theories.

THEA 365. Playwriting. 3 Hours.

Semester course; 1 lecture and 4 studio hours. Enrollment requires permission of instructor. This course explores the fundamentals of playwriting through the use of Aristotelian and Freytag theories. Using these theories and assigned reading and writing exercises completed in class, the course culminates with the class creating and participating in a public reading of each student's own 10-minute play.

THEA 368. Rendering Techniques. 2 Hours.

Semester course; 4 studio hours. 2 credits. Prerequisite: THEA 262. Enrollment is restricted to theatre majors. Instruction on skills and tools needed to create sketches as a theatrical designer. Will focus on student's rendering skills and individual presentation style. Will provide experience using different media and rendering techniques. Will also help students analyze and critique their own work and help them, as artists, become better observers.

THEA 373. Photo Manipulation for Theatre. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduction to the basic concepts and practices of creating computer-manipulated photo images and documents.

THEA 375. Black Performance Techniques. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisite: THEA 213. Enrollment is restricted to theatre majors. This advanced performance class is focused on the acting and creative techniques of the Black aesthetic as the first voice/primary perspective.

THEA 385. Diverse Voices. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum total of six credits. A study and analysis of the multicultural literature and practices of the American theatre of the 20th and 21st centuries. Students study plays from multicultural perspectives. An emphasis is placed on the performance techniques utilized by various authors as well as their literary style.

THEA 391. Topics in Theatre. 1-3 Hours.

Semester course; 1-3 workshop hours. 1-3 credits. May be repeated for a maximum of 6 credits. Enrollment restricted to theatre majors. Flexible semester course in selected aspects of performance, theory, literature or history. See the Schedule of Classes for specific topics to be offered each semester.

THEA 405. Advanced Scene Design I. 3 Hours.

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 306. Enrollment is restricted to theatre majors. This course will focus on the design of multiscene productions with particular attention to moving scenery and storytelling.

THEA 406. Advanced Scenic Design II. 3 Hours.

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 405. Enrollment is restricted to theatre majors. This advanced course will focus on design for opera, film and/or television. In each case students will conduct research into the origin of the story being examined and adapt those stories to themes that resonate in the current culture. Through the refinement of sketching to rough models and drafting, a package will be assembled to suit the realization of the design.

THEA 407. Advanced Scenic Technique. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisites: THEA 221 and permission of instructor. An intensive involvement in contemporary theory and practice of scenic techniques. Participation in departmental productions.

THEA 408. Advanced Scene Painting. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Repeatable for a maximum of 12 credits. Practice of fundamental scene painting technique. Students will have the opportunity to study the materials and advanced techniques of scene painting, as well as the practices and expectations of a career in scenic artistry.

THEA 412. Acting for Camera. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisite: THEA 313. Enrollment is restricted to theatre majors with a minimum 2.5 GPA in the major upon satisfactory audition or with permission of instructor. Students will learn techniques for approaching acting problems associated with performance in front of a camera.

THEA 413. Actor's Studio III. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisite: THEA 314. Enrollment is restricted to theatre majors. Students will learn techniques for approaching specific acting problems associated with the performance of various classical acting styles.

THEA 416. Solo Performance. 3 Hours.

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisite: THEA 314. Enrollment is restricted to theatre majors. An exploration of story and personal journey. Students will explore and interrogate a diverse range of solo-performance styles culminating in a solo performance of a "work-in-progress" of between 15 and 30 minutes presented to an audience.

THEA 417. Cabaret Storytelling. 3 Hours.

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 317. Enrollment is restricted to theatre majors upon completion of a satisfactory audition. An exploration of story and personal journey through song.

THEA 418. Advanced Acting for Camera. 3 Hours.

Semester course; 6 studio hours. 3 credits. Prerequisite: THEA 412. Enrollment is restricted to theatre majors. This class provides a continuation of acting on camera, preparing the student for work in various formats, including commercials, industrials, television (sitcoms, soap operas, episodic television) and film. Understanding the required professional behavior as well as the variations in acting technique in on-camera skills are emphasized. Students will learn techniques for approaching advanced acting problems associated with performance in front of a camera in these varying mediums. The course will use scene work and the final compiling of a demo reel to expand the knowledge of the field of acting on camera.

THEA 419. Professional Preparation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to theatre majors. This course examines aspects necessary for pursuit of a successful career in various branches of the theatre/film/television profession. Subjects covered include business models, unions, types of jobs available, proper resume preparation, cover letters and artistic statements, agents/managers, etc. The class culminates in the development of a specific plan for next steps after graduation.

THEA 420. Stage Management Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: THEA 435. This course will build upon the skills and knowledge learned in earlier stage management courses. Students will improve and refine their skills in leadership, problem-solving, stress management and conflict resolution, as well as prepare to join the professional industry. Students will learn about and from other industry professionals.

THEA 421. Advanced Costume Design Studio I. 3 Hours.

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisites: THEA 321 and 322. Advanced studio course exploring the practice of the creative techniques and the practical standards of the industry developed by professional union costume designers.

THEA 422. Advanced Costume Design Studio II. 3 Hours.

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisites: THEA 321 and 322. Advanced studio course exploring the practice of the creative techniques and business processes used according to the practical standards of the industry developed by professional union costume designers. During the semester students will create a digital interview-quality portfolio.

THEA 423. Modern Drama. 3 Hours.

Semester courses; 3 lecture hours. 3, 3 credits. Restricted to theatre majors. Intensive study of major continental and American plays.

THEA 426. Advanced Dramatic Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated once for credit. Prerequisite: ENGL 303. A practical approach to the creation of original scripts for theatre or film. Crosslisted as: ENGL 433.

THEA 435. Advanced Stage Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits. Prerequisite: THEA 325. Enrollment is restricted to theatre majors. An analysis of the techniques necessary for a successful career as a stage manager, including studying resumes, interview skills, unions and other areas.

THEA 437. Advanced Lighting Design III. 3 Hours.

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 337 with a minimum grade of C. Course incorporates increasingly difficult texts, facilities and production styles and alternative venue and production styles, such as landscape lighting and concert. Use of industry standard technology and 3-D rendering is a focus in the class.

THEA 439. Advanced Patterning Techniques I. 3 Hours.

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisites: THEA 329 and 332. Garment patterning based on various historic periods. Projects emphasize creative solutions to patterning problems employing critical thinking. Skills learned in prerequisite courses will be practiced, developing competency as related to achieving fit, form and function of period garments within the limitations of a given design.

THEA 440. Theatre Projects. 3,6 Hours.

Semester courses; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Open only to theatre majors. Individual or group projects in acting, directing, costume design, stage design or dramaturgy.

THEA 441. Theatre Projects. 3,6 Hours.

Semester courses; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Open only to theatre majors. Individual or group projects in acting, directing, costume design, stage design or dramaturgy.

THEA 442. Advanced Patterning Techniques II. 3 Hours.

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite:

THEA 439. Garment patterning based on various historic periods.

Projects emphasize creative solutions to patterning problems employing critical thinking. Skills learned in prerequisite course will be practiced and built upon, developing complex understructures for period clothing while practicing competency in patterning and building the period garments, which complement the fit, form and function of these period garments.

THEA 451. Rehearsal and Performance. 1-3 Hours.

Semester course; 2, 4 or 6 studio hours. 1, 2 or 3 credits. May be repeated for a maximum of six credits. Enrollment is restricted to theatre majors or by permission of instructor. Work in acting, stage management, design or technical areas within a TheatreVCU production.

THEA 469. Advanced Patterning Techniques III. 3 Hours.

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite:

THEA 442. Advanced patterning techniques centered on tailoring for students who have completed flat patterning and draping classes.

This class explores modern and historical methods of tailoring; lining and finishing are emphasized for stage and costume use. The course assesses the student's competency in skills taught in previous course work.

THEA 470. Advanced Patterning Techniques IV. 3 Hours.

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite:

THEA 469. Exploration of costume patterning with an emphasis on period patterning in a production setting, assessing the basic and advanced knowledge of draping and flatpatterning. This course provides students with intense production projects on VCU Mainstage productions synthesizing all aspects of patterning.

THEA 491. Topics in Theatre. 1-3 Hours.

Semester course; variable hours. 1-3 credits per semester. May be repeated for a maximum of 9 credits. Restricted to theatre majors. Flexible semester course in selected aspects of performance, theory, literature or history. See the Schedule of Classes for specific topics to be offered each semester.

THEA 492. Independent Study in Theatre. 1-3 Hours.

Semester course; variable hours. 1-3 credits per semester. May be repeated for a maximum of 9 credits. Prerequisites: senior standing as a major in theatre and approval of department chair and instructor. Individual instruction and supervision of a special project. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

THEA 493. Professional Internship. 3-9 Hours.

Semester courses; 3-9 credits. Restricted to theatre majors. A practicum in theatre conducted in cooperation with selected professional or semi-professional theatre organizations.

THEA 495. Senior Project: Portfolio Review. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisites: a minimum of 18 credits in 300- or 400-level major courses. Enrollment is restricted to theatre majors with senior standing. A capstone experience integrating resume preparation and professional development within the field of theatre. Documentation of creative activities and achievements accumulated during theatre studies is compiled for a portfolio review. Graded as pass/fail.

School of Business

Accounting (ACCT)

ACCT 202. Accounting for Non-business Majors. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The course is open only to non-business students. A nontechnical introduction to the principles of financial and managerial accounting with emphasis on the use and interpretation of financial reports, managerial planning and control. The course is for the individual who seeks a basic knowledge of accounting and its uses. It is designed for the user of accounting information rather than the preparer. This course cannot be substituted for ACCT 203, 204 or 205. Students graduating with a major in the School of Business cannot receive credit for this course.

ACCT 203. Introduction to Accounting I. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Theoretical and technical facets of financial and managerial accounting for business. Accumulation, analysis, interpretation and uses of accounting information. Course will focus on financial accounting.

ACCT 204. Introduction to Accounting II. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: ACCT 203 with a minimum grade of C. Theoretical and technical facets of financial and managerial accounting for business. Accumulation, analysis, interpretation and uses of accounting information. Course will focus on managerial accounting.

ACCT 205. Introductory Accounting Survey. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to students in the post-baccalaureate undergraduate certificate programs in accounting and information systems, students seeking a B.S. in Financial Technology, students enrolled in the College of Engineering, or by permission of instructor. An accelerated course covering theoretical and technical facets of financial and managerial accounting for business. Accumulation, analysis, interpretation and uses of accounting information. May not be counted toward any of the B.S. programs offered by the School of Business other than the B.S. in Financial Technology.

ACCT 291. Topics in Accounting. 1-3 Hours.

Semester course. 1-3 credits. Prerequisite: permission of instructor. An in-depth study of selected accounting topics. Graded as pass/fail.

ACCT 301. Federal Income Taxation for Individuals. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: ACCT 204 or ACCT 205 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Income tax legislation and the concept of taxable income; federal income tax law applicable to individuals.

ACCT 303. Intermediate Accounting I. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: ACCT 203 or ACCT 205 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing) or 24 credits with minimum cumulative GPA of 2.5. Focuses on financial accounting and accounting standards, including the conceptual framework for financial accounting. Includes an in-depth study of the income statement, the balance sheet and an introduction to the statement of cash flows. Also covers valuation of inventories.

ACCT 304. Intermediate Accounting II. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: ACCT 303 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Continues the study of financial accounting, covering accounting for acquisition and disposition of property, plant and equipment, intangible assets, contingencies, long-term liabilities, stockholders' equity, earnings-per-share, and investments.

ACCT 305. Intermediate Accounting III. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: ACCT 304 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Continues the study of financial accounting, covering accounting for income taxes, accounting for pensions and postretirement benefits, accounting for leases, accounting changes, error analysis, statement of cash flows, full disclosure in financial reporting and accounting for state and local governments and not-for-profit organizations.

ACCT 306. Cost Accounting. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: ACCT 204 or ACCT 205 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing) or those in the post-baccalaureate certificate program. Cost accumulation for inventory pricing and income determination. Cost behavior concepts for planning and control. Job order and process cost systems, standard costs, budgets and special topics in relevant costs for managerial decisions.

ACCT 307. Accounting Systems. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: ACCT 204 or ACCT 205 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Examines design and evaluation of manual and computerized accounting information systems. Emphasis on the system of internal controls and the impact of computers on those controls.

ACCT 401. Governmental and Not-for-profit Accounting. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ACCT 304 with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). The role of accounting in the management of resources entrusted to government and nonprofit entities, including accounting and reporting standards. Accounting in municipalities and nonprofit entities such as hospitals, charitable and health organizations, and colleges and universities.

ACCT 402. Advanced Cost Accounting. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ACCT 303 and ACCT 306, each with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). An advanced conceptual cost/managerial course designed to familiarize students with the more complex aspects of cost/managerial accounting concepts including process costing, standard costing, activity-based costing, Just-in-Time inventory systems, enterprise resource planning and issues relating to the relative strengths and limitations of managerial accounting.

ACCT 403. Management Control Systems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ACCT 303 and ACCT 306, each with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). An advanced conceptual management control systems course designed to expose students to the theoretical and conceptual foundations of management control systems and to integrate accounting into the managerial decision/control process. Uses a predominantly case-oriented approach. While primary emphasis will be on integrating accounting into the management control process, significant attention also will be devoted to the behavioral issues involved in management control system design and implementation. Students also will receive hands-on experience in structuring and formulating control systems in an Enterprise Resource Planning system environment.

ACCT 404. Introduction to Forensic Accounting and Fraud Examination. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 304 with a minimum grade of C. Introduction to the area of forensic accounting. Topics include the detection of fraudulent financial reporting, employee fraud, money laundering, digital forensic analysis and electronic evidence, evidence management, computer forensics, and an introduction to business valuation.

ACCT 406. Auditing. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: ACCT 304 and 307 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). A study of the conceptual, theoretical and practical procedures applicable to auditing – both external and internal. Primary emphasis is placed upon the theory of audit evidence; the objectives, techniques and procedures for financial and operational audit reports.

ACCT 408. Data Analytics for Accountants. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: ACCT 307 with a minimum grade of C; and MGMT 301, SCMA 301, STAT 210 or STAT 212. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). The spreadsheet analysis and written communication of data relating to accounting-focused business problems.

ACCT 409. Research and Communication for Accountants. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 304 with a minimum grade of C. Restricted to students who have completed at least 54 credit hours (junior standing). Focuses on the research of accounting issues and preparation of technical reports relating to that research. Leadership and team dynamics are explored using group projects.

ACCT 410. Advanced Tax Accounting. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 301 with a minimum grade of C. Enrollment is restricted to students who have completed a minimum of 54 credit hours (junior standing). Complex tax problems of the trust, partnership and corporation. Particular emphasis is given to tax planning.

ACCT 491. Topics in Accounting. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Prerequisites vary by topic. Study of current topics. Topics may vary by semester. See the Schedule of Classes for specific topics to be offered.

ACCT 492. Independent Study. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Restricted to accounting majors who have completed at least 54 credit hours (junior standing). The purpose of this course is to allow international students to take advantage of an internship work experience. Graded as pass/fail.

ACCT 493. Internship in Accounting. 3 Hours.

Semester course; 3 credits. Prerequisites: ACCT 304 with a minimum grade of B; senior standing in accounting and permission of the department chair. Intention to enroll must be indicated to the instructor prior to or during advance registration for semester of credit. Involves students in a meaningful experience in a setting appropriate to the major. A structured course in which the first three weeks are spent in the classroom, followed by 11 weeks at a workplace. The last week of the semester students return to the classroom for discussion and reflection on the work experience. An internship portfolio is required at the end of the course. Graded as pass/fail.

ACCT 497. Guided Study in Accounting. 1-3 Hours.

Semester course; variable hours. 1-3 credits. Maximum total of three credits. Prerequisites: junior standing in accounting and approval of adviser and department chair prior to course registration. Intensive study under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum.

Business (BUSN)**BUSN 160. Digital Literacy: Computer Concepts, Internet, Digital Devices. 1 Hour.**

Semester course; 1 lecture hour (delivered online). 1 credit. Overview of basic computer concepts, the Internet, new technologies and digital security. Topics include but are not limited to computing devices – hardware and software – skills for using and evaluating Internet content and security with digital devices. This course provides the foundation in digital technologies to prepare students for other business courses and application software courses in the BUSN 16X series. Administered as a self-paced course with all online content. Graded as pass/fail at 80 percent pass level with online scheduled assessment only. Purchase of online training/assessment package required.

BUSN 161. Digital Literacy: Word Processing Skills. 1 Hour.

Semester course; 1 lecture hour (delivered online). 1 credit. Presents academic- and professional-level word processing skills. Topics include but are not limited to document preparation and modification, tables and graphic enhancements, collaboration, formatting for research papers, newsletters, forms, and links to other applications. The course will help students prepare documents to support professional tasks and other VCU course work. Administered as a self-paced course with all online content. Graded as pass/fail at 80 percent pass level with online scheduled assessment only. Purchase of online training/assessment package required.

BUSN 162. Digital Literacy: Spreadsheets Skills I. 1 Hour.

Semester course; 1 lecture hour (delivered online). 1 credit. Introduces students to academic and professional spreadsheet skills. Topics include but are not limited to the entering of text, numbers and formulas; formatting; moving; copying; recalculation; retrieving; charting; saving; and printing with introductory coverage of data manipulation. The course will help students prepare analyses, tables and charts to assist with professional tasks and other VCU course work. Administered as a self-paced course with all online content. Graded as pass/fail at 80 percent pass level with online scheduled assessment only. Purchase of online training/assessment package required.

BUSN 165. Digital Literacy: Spreadsheet Skills II. 1 Hour.

Semester course; 1 lecture hour (delivered online). 1 credit. Presents intermediate-level academic and professional spreadsheet skills. Topics include but are not limited to advanced formulas, statistical and financial functions, multiple worksheet/workbook management, macros and pivot tables. This course is designed for students wanting to advance their previous spreadsheet skills. Administered as a self-paced course with all online content. Graded as pass/fail at 80 percent pass level with online scheduled assessment only. Purchase of online training/assessment package required.

BUSN 166. Digital Literacy: Database Skills. 1 Hour.

Semester course; 1 lecture hour (delivered online). 1 credit. Introduces students to academic and professional database skills. Topics include but are not limited to creating and editing tables and forms, sorting and filtering data, and generating reports. Administered as a self-paced course with all online content. Graded as pass/fail at 80 percent pass level with online scheduled assessment only. Purchase of online training/assessment package required.

BUSN 168. Digital Literacy: Presentation Skills. 1 Hour.

Semester course; 1 lecture hour (delivered online). 1 credit. Introduces students to academic and professional presentation skills. Topics include but are not limited to creating and editing presentations, creating and modifying images/graphics, and use of video/audio media tools. The course will help students prepare presentations for professional tasks and other VCU course work. Administered as a self-paced course with all online content. Graded as pass/fail at 80 percent pass level with online scheduled assessment only. Purchase of online training/assessment package required.

BUSN 201. Foundations of Business. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 112, HONR 200 or HONR 250. Introduces students to basic business environments and business functions and practices. Builds awareness of corporate social responsibility and ethical business behavior. Helps students gain an integrated awareness of business and practice analytical skills needed for their advanced business courses and careers.

BUSN 205. Introduction to the World of Business. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: UNIV 112, HONR 200 or HONR 250. This course will cover the concepts, principles and operations of private enterprise in the world economy. Students will explore the functions of modern business management, marketing and accounting. They will have a chance to practice making business decisions in a safe environment; learn how to approach ethical dilemmas in business and explore classic international business blunders made due to a lack of cross-cultural awareness; and begin working on their own professional habits, learn how to search for a job or internship and learn professional ways to get a team to work well together.

BUSN 212. Business Problem Solving and Analysis. 4 Hours.

Semester course; 4 lecture hours (delivered online, face-to-face or hybrid). 4 credits. Prerequisite: BUSN 171*, MATH 139, MATH 141 or MATH 151 with a minimum grade of C; or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. This course provides an intuitive approach to algebra and introductory calculus, with an emphasis on concepts, applications and problems related to business. Starting with a review of functions, the course will explore the use of algebra to formulate and solve problems. Students will learn how to use of matrices to solve introductory linear programming problems. Additionally, students will be introduced to limits, continuity, techniques of differentiation and integration as it applies to algebraic, exponential and logarithmic functions, and optimization with an emphasis on applications in business. Students will build their understanding of mathematical models and how to use functions and data to solve real-world problems. Instruction will include the use of spreadsheets as a calculation and graphing tool. Students may not receive degree credit for more than one of BUSN 212, MGMT 212, SCMA 212 or MATH 200. This course was formerly numbered MGMT 212 and SCMA 212. *Formerly MGMT 171, SCMA 171.

BUSN 225. Winning Presentations. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to School of Business freshmen, sophomores and juniors in the foundation or advanced programs. Why are some presenters bad, some good and others great? Why do some people have more "presence" than others? What leadership skills work in a room full of people who are not on the same page? How does one pitch an idea in less than two minutes? Presentation skills involve more than just speaking in public. Good presentation skills require an understanding of yourself, your subject and your audience. This course will explore the skills involved in mastering all of these. Students may receive credit toward graduation for only one of SPCH 121, SPCH 321 or BUSN 225.

BUSN 291. Topics in Business. 1-3 Hours.

Semester course; 1-3 variable hours. 1-3 credits. May be repeated for credit with different topics for a maximum of 6 credits. Study of current topics in the field of business providing specialized course work that provides deeper, more in-depth understanding. See Schedule of Classes for topics offered each semester and prerequisites as determined by instructor.

BUSN 293. Internship in Business. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits. May be repeated for credit with different topics for a maximum of six credits. Enrollment is restricted to School of Business major or minor with permission of associate dean for undergraduate studies. Intention to enroll must be indicated to the instructor or director prior to advance registration for semester of credit. Exposes students to working in a business environment, enhances professionalism and develops rapport with employers. The course allows students to earn academic credit while gaining real-world experience in order to enhance their business education. May be used as an elective in the business foundation program but cannot count toward the advanced business program. Each credit requires 80 hours in the internship.

BUSN 301. Career and Professional Development. 1 Hour.

Semester course; 1 lecture hour (delivered online, face-to-face or hybrid). 1 credit. Prerequisite: HONR 200, HONR 250 or UNIV 200. Enrollment is restricted to majors in the School of Business who have completed at least 24 credit hours (sophomore standing). This course focuses on preparing students to enter and succeed in the world of business today. Students will examine standard practices and expectations across organizations, evaluate and develop an individual professional style, create a career plan, and prepare to successfully market themselves for an internship or job.

BUSN 323. Legal Environment of Business. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to students who have achieved sophomore standing. Basic legal concepts applicable to business, including the legal aspects of operating a business, contracts, employment relationships, sales, and bailments and commercial paper. Also includes ethical considerations and social and political influences. Students may not receive degree credit for both BUSN 323 and ACCT/MGMT 481. This course was formerly numbered MGMT 323 and SCMA 323.

BUSN 325. Organizational Communication. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: HONR 200, HONR 250 or UNIV 200; and BUSN 225, SPCH 121 or SPCH 321. Enrollment is restricted to students majoring in the School of Business who have completed at least 54 credit hours (junior standing). A study of interpersonal, team and organizational communication practices in modern dynamic work and virtual environments. This course includes dealing with written business messages, report writing, job-search techniques, nonverbal communication, oral presentations and intercultural communication. The focus will include both theoretical constructs and skill development. This course was formerly numbered MGMT 325 and SCMA 325.

BUSN 329. Introduction to Intercultural Communication. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). An introduction to the basic concepts, principles and skills for improving verbal and nonverbal communication with persons from different cultures. Using a cultural general approach, topics discussed include the concept of culture, barriers to intercultural communication, verbal communication process and nonverbal communication aspects. Appropriate for business and non-business majors. This course was formerly numbered INTL 329, MGMT 329 and SCMA 329.

BUSN 391. Topics in Business. 1-3 Hours.

Semester course; 1-3 variable hours. 1-3 credits. May be repeated for credit with different topics for a maximum of 6 credits. Study of current topics in the field of business providing specialized course work that provides deeper, more in-depth understanding. See Schedule of Classes for topics offered each semester and prerequisites as determined by instructor.

BUSN 400. Principles of Consulting. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: junior status and acceptance into International Consulting Program. Corequisite: BUSN 401. Intended to provide students with "formal" training in how to conduct consulting engagements. The course is designed to teach students how to conduct consulting engagements by providing academic background through readings and lectures, real-world perspectives from practicing consultants, and practice application through simulations and cases. The course culminates in a consulting engagement with a real client from the Richmond business community to provide the students with an opportunity to apply the consulting skills they learned in the classroom.

BUSN 401. International Consulting Practicum. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: junior status and acceptance into International Consulting Program. Corequisite: BUSN 401. Intended to provide students with an opportunity to apply the lessons learned about consulting in BUSN 400 to a real business client in a foreign country.

BUSN 490. Emerging Topics in Business. 1-3 Hours.

Semester course; 1-3 variable hours. 1-3 credits. May be repeated for credit with different topics for a maximum of 6 credits. Emerging topics in business designed to provide material not covered by an existing course or program. May be general business or multidisciplinary. See Schedule of Classes for topics offered each semester and prerequisites as determined by instructor.

BUSN 491. Special Topics in Business. 1-3 Hours.

Semester course; 1-3 variable hours. 1-3 credits. May be repeated for credit with different topics for a maximum of 6 credits. Study of current topics in the field of business providing specialized course work that provides deeper, more in-depth understanding. See Schedule of Classes for topics offered each semester and prerequisites as determined by instructor.

BUSN 492. Independent Study in Business. 1-3 Hours.

Semester course; 1-3 variable hours. 1-3 credits. May be repeated for credit with different topics for a maximum of 6 credits. Prerequisites: School of Business major and permission of instructor. Students must submit a written proposal to be approved by the supervising instructor prior to registration. The number of credit hours will be determined by the director of undergraduate studies. Intensive study under the supervision of a faculty member in an area not covered in-depth or contained in other School of Business courses and/or independent investigation and research of business problems through readings, data collection and analysis. Written and oral progress reports as well as a final report and presentation are required.

BUSN 493. Internship in Business. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits. May be repeated for credit with different topics for a maximum of six credits. Enrollment is restricted to School of Business majors with permission of the associate dean for undergraduate studies. Intention to enroll must be indicated to the instructor or director prior to advance registration for semester of credit. Involves students in a meaningful experience, typically 20 hours per week, in a setting appropriate to business. Written interim and final reports required.

BUSN 499. Business Knowledge Exam. 0 Hours.

Semester course; variable hours (delivered online, face-to-face or hybrid). 0 credits. Prerequisites: MGMT 310; MKTG 301; INFO 360, 361 or ACCT 307; FIRE 311; and SCMA 301, STAT 210 or STAT 212. Enrollment is restricted to business majors. This course consists of a capstone exam covering general business knowledge in the subjects of accounting, economics, finance, information systems, management, marketing and statistics. Students may be asked to complete follow-up activities in the areas in which they have weak knowledge in order to earn a passing grade. Students should contact their academic adviser for information on how to take the exam and register for this course. Graded as pass/fail.

Economics (ECON)**ECON 101. Introduction to Political Economy. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Seminar on the development of critical thought and economic analysis of policy issues. Focus is on how policy choices affect society and the individual, the economic methodology that guides policy choices, and the institutional and political environments within which policy is derived. Issues cover a broad range of topics including environmental issues, tax policy, inflation expectations, unemployment, foreign trade and the effectiveness of fiscal and monetary policies. Crosslisted as: INTL 102.

ECON 202. Inequality in America. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Today economic inequality in the United States is higher than at any point in the past century. This course is an introduction to the latest research on various aspects of inequality, including: What are the origins of inequality in employment, income, wealth and health? How is inequality related to age, sex, race, education, geography and technology? How does equality of opportunity differ from equality in outcomes? What are the consequences of inequality for individuals, families and the economy as a whole? Which policies would have the largest impact on inequality, and what will happen to inequality in the future? As students explore these questions, the class will also cover important scientific techniques which will improve the ability to read data, test theories and make predictions. These will include key economic concepts such as scarcity, opportunity costs, prices, supply and demand, equilibrium, and compensating differentials.

ECON 203. Introduction to Economics. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A survey of economic principles, institutions and problems. The course is designed to provide basic economic understanding for students who do not expect to major in economics or in the School of Business. Not applicable for credit toward economics and business majors. Students may receive credit toward graduation for only one of the following three courses: ECON 203, ECON 205 or ECON 210.

ECON 205. The Economics of Product Development and Markets. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to some of the fundamental economic concepts necessary to effectively operate in today's marketplace. Basic elements of microeconomics, net present value analysis and market strategy will be covered in class. The goal is to provide students with a better understanding of how to approach business problems and of proven problem-solving techniques. Intended for engineering students. Students may receive credit toward graduation for only one of the following three courses: ECON 203, ECON 205 or ECON 210.

ECON 210. Principles of Microeconomics. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A course designed to acquaint the student with a theoretical and practical understanding of the economic institutions and problems of the American economy with a focus on microeconomics. Students may receive credit toward graduation for only one of the following three courses: ECON 203, ECON 205 or ECON 210.

ECON 211. Principles of Macroeconomics. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210. A course designed to acquaint the student with a theoretical and practical understanding of the economic institutions and problems of the American economy with a focus on macroeconomics.

ECON 291. Topics in Economics. 1-3 Hours.

Variable hours. Variable credit. Maximum of 3 credits per topic. Prerequisite: permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

ECON 300. Contemporary Economic Issues. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210; and ECON 211. Students will learn to think critically about current policy issues using basic economic principles. Communication skills will be developed through presenting, discussing and debating alternative positions in class. Students will work in teams to outline the basic economic incentives and the direct and indirect costs and benefits associated with different policy actions. Through teamwork students will practice leadership skills and methods to manage group dynamics. Topics will vary by semester and may include the economics of discrimination, the environment, health care, cultural arts, education, business ethics, fiscal policy, monetary policy, globalization, inequality and immigration.

ECON 301. Microeconomic Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210; and BUSN 212* or MATH 200. Analysis of the principles that govern production, exchange and consumption of goods and services. Topics include demand analysis, production and cost theory, price and output determination, theory of markets and distribution theory. *Formerly MGMT 212, SCMA 212.

ECON 302. Macroeconomic Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210; ECON 211; and BUSN 212* or MATH 200. A general survey of national income analysis and macroeconomic theory. Detailed study of public policies affecting price levels, employment, economic growth and the balance of payments. *Formerly MGMT 212, SCMA 212.

ECON 303. Managerial Economics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210; ECON 211; and BUSN 212* or MATH 200. Application of tools of economic analysis to allocation problems in profit and nonprofit organizations. Models for evaluating revenue, production, cost and pricing will be presented. Emphasis on developing decision rules for turning data into information for solving problems. *Formerly MGMT 212, SCMA 212.

ECON 305. Public Finance. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210. An economic analysis of federal, state and local government budgeting, revenue sources and expenditures.

ECON 307. Money and Banking. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECON 211. A study of money, financial markets and the financial structure with emphasis on commercial banks and the Federal Reserve System. Relationships between economic activity and money supply are introduced.

ECON 312. E-commerce and Markets for Information Goods. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210. This course surveys the ways that information and emerging information technologies affect market organization and market efficiency. Competitive strategies and regulatory policy for information markets also are considered. Topics include network effects, first mover advantages, auctions, price discrimination and organizational structure.

ECON 313. Economics of Transportation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210. An economic analysis of the transportation industry with special emphasis on regulation, public policy and urban transportation.

ECON 315. Economic Development. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210; and ECON 211. An introduction to the process of economic development. Surveys development theory and experiences of underdeveloped countries of Africa, Asia, Latin America and the Caribbean and of developed countries. Explores obstacles to development and policies and tools for stimulating economic development. Crosslisted as: INTL 315.

ECON 321. Urban Economics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210. An introduction to urban economics, with an emphasis on the economics of agglomeration and the role of externalities in the urban economy. Economic analysis of the provision of urban public services and urban public financing, especially in politically fragmented areas. Crosslisted as: URSP 321.

ECON 325. Environmental Economics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 54 credit hours (junior standing). The application of economic analysis to externalities such as air and water pollution, pesticide control, land use planning and other environmental issues. The role of cost/benefit analysis in the decision-making process is developed. Efficiency and equity issues are evaluated.

ECON 329. International Economics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210; and ECON 211. An analysis of economic and political influences on exports and imports, balance of payments, foreign investment, exchange rates and international monetary systems. Crosslisted as: INTL 329.

ECON 333. Behavioral Economics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210. Identifies when behavior systematically violates mainstream models and provides alternative behavioral models which are psychologically and empirically plausible. Discusses a variety of violations including endowment effects, framing, dynamic inconsistency and the winner's curse.

ECON 338. Game Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210. Analyzes strategic situations using game theory. Applies the analysis to a variety of settings and questions. Develops an understanding of the uses and limitations of the analysis.

ECON 402. Business Cycles and Forecasting. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210; and ECON 211. An examination of repetitive variations in business activity. The measurement and analysis of economic fluctuations and how they affect the business environment. Stresses modern forecasting techniques.

ECON 403. Introduction to Mathematical Economics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210; ECON 211; and BUSN 212* or MATH 200. The application of mathematical techniques to economic theory and economic models. *Formerly MGMT 212, SCMA 212.

ECON 419. History of Economic Thought. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210; and ECON 211. A survey of the ideas of major economic contributors to modern economic thought. Theories of value, growth and distribution from the 18th through the 20th centuries will be presented.

ECON 421. Government and Business. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210. The application of economic analysis to the behavior of business, industry and government regulation. Topics include the causes and exercise of monopoly power, antitrust enforcement, public utilities and industry studies.

ECON 431. Labor Economics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 300, 301 and 302; and SCMA 301*, STAT 210, STAT 212 or PSYC 214. Analysis of labor markets and institutions to gain an understanding of the process of wage and employment determination. Both historic and current topics are included. *Formerly MGMT 301.

ECON 441. Experimental Economics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 300, ECON 301 and ECON 302; and SCMA 301*, STAT 210, STAT 212 or PSYC 214. Students will learn about the leading models of decision making and human behavior in markets. The course will focus on using experimental methods to test the models' hypotheses. Students will learn how to design experiments, collect experimental data, and how to examine the data and interpret the results. *Formerly MGMT 301.

ECON 442. Economic Growth. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 300, ECON 301 and ECON 302; and SCMA 301*, STAT 210, STAT 212 or PSYC 214. Enrollment is restricted to economics majors with junior standing or with permission of the department chair. Explores determinants of cross-country income differences using economic models, economic history and data analysis. Analyzes factors that influence productivity growth and diffusion of technology between countries. *Formerly MGMT 301.

ECON 461. Monetary Policy Seminar. 3 Hours.

Semester course; 3 lecture/seminar hours. 3 credits. Prerequisites: ECON 300, ECON 301 and ECON 302; and SCMA 301*, STAT 210, STAT 212 or PSYC 214. Students work individually and in teams to formulate and justify a monetary policy recommendation. Students will base their recommendation on an economic analysis of current conditions and their prediction regarding the future state of the economy. The class is organized around discussions and presentations, with short lectures as needed. *Formerly MGMT 301.

ECON 489. Senior Seminar in Economics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 300, ECON 301 and ECON 302; SCMA 301*, STAT 210, STAT 212 or PSYC 214. Analysis of economic theory and problems. Students will study a few topics in depth, focusing on understanding the current research, critically analyzing controversial issues and using data to investigate competing claims. *Formerly MGMT 301.

ECON 491. Topics in Economics. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for maximum total of six credits for all topics courses. An in-depth study of a selected economic topic, to be announced in advance.

ECON 492. Independent Study in Economics. 1-3 Hours.

Semester course; 1-3 credits. Maximum total of 3 credits. Prerequisites: junior or senior standing as an economics major and approval of adviser and department chair prior to course registration. Intensive study under supervision of a faculty member in an area not covered in depth or contained in the regular curriculum.

ECON 493. Internship in Economics. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits (80 contact hours per credit). Enrollment is restricted to students with a minimum GPA of 3.0 in economics courses and permission of the department chair. Intention to enroll must be indicated to the chair prior to or during registration for semester of credit. The internship is designed to give students practical experience in an appropriate supervised environment in the public or private sector. Graded as pass/fail.

Finance, Insurance and Real Estate (FIRE)**FIRE 201. Personal Financial Planning. 3 Hours.**

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Designed to assist individuals and households in understanding and making common financial decisions. Units include income and expenditure, credit, borrowing, banking, savings, insurance, home buying, investment, and estate planning.

FIRE 291. Topics in Finance, Insurance and Real Estate. 1-3 Hours.

Variable hours. Variable credit. Maximum of 3 credits per topic. Prerequisite: permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

FIRE 305. Principles of Real Estate. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Focuses on the language, principles, practices and laws that govern the real estate enterprise, including property rights, legal elements, physical aspects of location and production, brokerage, valuation, ethical dimensions, development, financing and land use.

FIRE 309. Risk Management and Insurance. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Introduction to the study of risk management as it applies to individuals and enterprises. This course introduces the use of non-insurance (capital markets) and insurance tools for managing property, liability, all life cycle risks (life, health, disability and pensions) and financial risks. The course covers sustainability, InsurTech and cyber risks and is structured to generate an awareness of the changing nature of risks and their handling. The course is designed as a basis for more advanced risk management and insurance courses as well as for non-business majors.

FIRE 311. Financial Management. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MATH 200 or BUSN 212*; ACCT 203 or ACCT 202 (for non-business majors); and ECON 210, or ECON 203 or ECON 205 with a minimum grade of B. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing) or 24 credits with minimum cumulative GPA of 2.5. Principles of optimal financial policy in the procurement and management of wealth by profit-seeking enterprises; the application of theory to financial decisions involving cash flow, capital structure and capital budgeting. *Formerly MGMT 212, SCMA 212.

FIRE 312. Financial Modeling. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: FIRE 311 with a minimum grade of C; and SCMA 301, STAT 210, STAT 212 or STAT 541. Enrollment is restricted to students with majors or concentrations offered by the Department of Finance, Insurance and Real Estate who have completed at least 54 credit hours (junior standing). This course is designed to introduce students to a wide array of primarily Excel techniques used in financial model building. Students will be introduced to techniques such as data tables, solver, matrix manipulation, array formulas, pivot tables, etc., to create financial models that are common in the areas of finance, risk management and real estate finance.

FIRE 313. Financial Management for Small Business. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FIRE 311. This course is restricted to students who have completed at least 54 credit hours (junior standing). This course emphasizes financial management needs for entrepreneurs or persons who expect to be employed in closely held corporations.

FIRE 315. Real Property Management. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Real property economics, planning, construction, marketing and management of leased properties.

FIRE 316. International Financial Management. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 311. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Financial management of business in an international environment. Emphasis on tools and techniques to prepare financial managers of multinational firms to effectively respond to the challenges of the international environment. Crosslisted as: INTL 416.

FIRE 317. Investments. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: FIRE 311; and SCMA 301, STAT 210, STAT 212, STAT 312 or STAT 541. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). An analysis of the market for long-term corporate securities. Emphasis is given to the valuation of bonds, common stocks, options and convertible securities, and portfolio concepts. Designed to provide an understanding of the functioning of an efficient market.

FIRE 319. Financial Mathematics. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MATH 200 or BUSN 212, either with a minimum grade of C. The course provides an understanding of the fundamental concepts of financial mathematics, and how those concepts are applied in calculating present and accumulated values for various streams of cash flows as a basis for future use in reserving, valuation, pricing, asset/liability management, investment income, capital budgeting and valuing contingent cash flows.

FIRE 320. Actuarial Probability Concepts. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MATH 200 or BUSN 212 with a minimum grade of C. Probability models, random variables, expectation, special distributions and the central limit theorem. The theory is illustrated by numerous examples from actuarial and financial fields. This class covers parts of CAS Exam 1 and SOA Exam P, which are required for the designation of associate of the Society of Actuaries and Casualty Actuarial Society.

FIRE 321. Intermediate Financial Management. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 312 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Advanced topics in financial management with emphasis on the theoretical bases for the valuation of the firm.

FIRE 325. Real Estate Law. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 54 credit hours (junior standing). Legal fundamentals of real estate including contracts, risk management, environmental and ethical issues, concepts of title, title examination, easements, conveyances, liens and recording statutes affecting real estate.

FIRE 359. Issues in Risk Management and Insurance. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). The course focuses on timely issues in the field of risk management and insurance. Students will consider the role of government and the insurance industry as well as the use of other financial solutions in handling risks faced by businesses and individuals. The topics covered change to reflect current societal and industry issues and to explore new risk management innovations.

FIRE 369. Insurance Company Operations. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 309. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Insurance companies are pivotal players in the financial sector, serving as key institutions for managing risk and making strategic investments. This is a comprehensive course designed to provide students with an in-depth exploration of the workings of insurance companies. The course delves into critical aspects such as marketing, underwriting, ratemaking, reinsurance and investments. The course examines insurance company accounting and financial performance.

FIRE 391. Topics in Finance, Insurance and Real Estate. 1-3 Hours.

Semester course; 1-3 lecture hours (delivered online, face-to-face or hybrid). 1-3 credits. May be repeated for a maximum of six credits. Study of current topics. Topics may vary by semester. See the Schedule of Classes for specific topics offered.

FIRE 417. Security Analysis and Portfolio Management. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 317 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). A detailed analysis of stocks and bonds as well as options and futures. Emphasis is on models for portfolio selection, revision and performance evaluation.

FIRE 419. Advanced Risk and Insurance. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 311. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). It is a risk and insurance course with emphasis on more mathematical computations and analysis. Market, credit and operational risks are covered, along with legal and catastrophic risk assessments. Sustainability is important to this course. Topics covered include (but not limited to) forecasting of losses – loss triangles and computations of reserves; risk mapping and the risk management matrix; cost/benefit and risk/award analyses; pricing; capital structure, risk-based capital and economic capital; financial statements using audit techniques (accounting); insurance regulation; life cycle financial risks; insurance solutions to property/casualty and life/health risks.

FIRE 425. Real Estate Appraisal. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 305 or FIRE 316. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Theory and practice of real property valuation from fundamental concepts to complex income-producing properties and partial-interest valuations. Technology-related tools are employed in the course, including financial modeling with various software programs.

FIRE 429. Property and Liability Insurance. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 309. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Regulated property and liability risks with emphasis on regulated and non-regulated markets and products. The course includes major commercial line coverages including fire, marine, automobile, general liability, worker's compensation, fidelity and surety bonds and unusual new risks, including catastrophic risks covered by alternative, less-regulated insurance solutions. The course includes sustainability issues and the way to mitigate natural and man-made catastrophes and InsurTech.

FIRE 435. Real Estate Finance and Capital Markets. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 305. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Instruments, techniques and institutions of real estate finance; the mortgage market; financing process; mortgage risk analysis; creative financing; emphasis on policies and procedures used in financing residential and commercial properties and their interaction with the capital markets. Technology-related tools are employed in the course, including financial modeling with various software programs.

FIRE 439. Life and Health Insurance. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 309. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). The function, nature and uses of life and health insurance and annuities; operational aspects of life and health insurance companies. Management of group life, health, disability and retirement plans. Governmental and employers' solutions to life cycle risks – sustainability through social insurance programs, group insurance and innovations. The course reflects the dynamic nature of this field and covers cost/benefits analysis, best solutions to risks and a complete portfolio project of plan design, cost considerations, funding, regulation and tax considerations.

FIRE 441. Funds Management in Financial Institutions. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 312 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Funds management techniques for selected financial institutions including investment companies (mutual funds), life and casualty insurers, savings and loans, mutual savings banks, commercial banks, and pension funds.

FIRE 444. Occupational Safety, Health and Security. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Covers the principles and practices, and regulatory dimensions of occupational safety, health and security. Causes of workplace health hazard exposures, accidents and domestic and international industrial violence are studied with an emphasis on prevention. Characteristics of effective occupational safety, health and workplace security programs are studied to facilitate understanding and application in the workplace.

FIRE 445. Real Estate Investment Analysis. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: FIRE 425 and FIRE 435. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). This is the capstone course for real estate majors and covers the analytical methods and tools useful for analyzing commercial real estate investments, including a multidisciplinary approach to financial, spatial and social economics, which builds a cohesive framework for analyzing complex investment decisions emphasizing fundamentals of property and financial markets.

FIRE 449. Employee Benefit Planning. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Management of group life, health, disability and retirement plans. Governmental and employers' solutions to life cycle risks – sustainability through social insurance programs, group insurance and innovations. The course reflects the dynamic nature of this field and requires cost/benefits analysis, best solutions to risks and a complete portfolio project of plan design, cost considerations, funding, regulation and tax considerations.

FIRE 451. Options, Futures and Swaps. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 321 with a minimum grade of C or FIRE 317 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Analysis and valuation of speculative securities and markets, including options, futures and swaps, with emphasis on their use for hedging and speculative purposes. Major valuation models and term structure models are discussed with applications to problems in finance considered.

FIRE 459. Insurance Law. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). The course covers the legal concepts and doctrines applicable to insurance. Fundamental legal aspects of all risks and aspects of sustainability. The course provides legislative issues for all solutions to life cycles risks: life and health insurance, pensions, catastrophes (natural and man-made such as terrorism) and property and liability insurance.

FIRE 461. Cases in Financial Management. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 321 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Cases involving financial decisions for various forms of business enterprises.

FIRE 469. Advanced Property/Casualty Insurance: Alternative Markets. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 309 or FIRE 419. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Property and liability risk with emphasis on alternative, less-regulated insurance solutions to all types of risks. The course includes sustainability issues and the way to mitigate natural and man-made catastrophes including sophisticated modeling and techniques. The course covers Lloyds of London; excess and surplus lines carriers; risk retention group, self-insurance, captives and shadow insurance; reinsurance; multilayers of coverage; catastrophe bonds; terrorism; regulation; liability issues globally; social responsibility.

FIRE 479. Enterprise Risk Management. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: FIRE 309. Pre- or corequisite: FIRE 317. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Corporate risks and the methods for handling them. Covers losses caused by natural disasters, legal liability suits and financial price changes. Risk management methods include self-retention funding, loss prevention, insurance and hedging contracts.

FIRE 491. Topics in Finance, Insurance and Real Estate. 1-3 Hours.

Semester course; 1-3 lecture hours (delivered online, face-to-face or hybrid). 1-3 credits. Maximum of three credits per course; maximum total of six credits for all topic courses. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). An in-depth study of a selected business topic, to be announced in advance.

FIRE 492. Independent Study in Finance, Insurance and Real Estate. 1-3 Hours.

Semester course; 1-3 independent study hours (delivered online, face-to-face or hybrid). 1-3 credits. May be repeated for a maximum total of three credits. Enrollment is restricted to students with junior or senior standing as a major in a business curriculum and requires approval of adviser and department chair prior to course registration. Intensive study under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum.

FIRE 493. Internship in Finance, Insurance and Real Estate. 3 Hours.

Semester course; 3 field experience hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to students with junior standing and a concentration in finance or risk management and insurance or a declared major in financial technology or real estate, a minimum GPA of 2.5, and permission of the department chair or the director of the insurance or real estate programs. Involves students in a meaningful experience in finance, insurance or real estate. Intention to enroll must be indicated to the chair or appropriate program director.

FIRE 496. Practicum in Portfolio Management. 3 Hours.

Semester course; 3 practicum hours. 3 credits. Enrollment is restricted to students with senior standing and two prior semesters of active participation in the VCU Student Managed Investment Portfolio. Registration for this course requires permission of the Department of Finance, Insurance and Real Estate chair or the director of the Capital Markets Center. This course is an experiential learning project in applied portfolio management. Students will perform fundamental security analysis, security selection and risk management for a real money portfolio funded by the VCU School of Business Foundation. They will also build a mock portfolio, create a detailed company valuation model and write a reflection paper.

Information Systems (INFO)

INFO 202. Introduction to Information Systems Development Technologies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is designed to provide students with a solid foundation in programming using JavaScript, a widely-used programming language that powers many business applications, making it an essential skill for future software developers and IT professionals. Students will receive instruction in essential programming skills, such as variables, data types, control flow and functions.

INFO 250. Introduction to Programming. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BUSN 171*. Introduces students to writing, testing and debugging Java programs using simple logic and algorithms. Basic Java applets and the graphic user interface are covered. Cannot be used as an elective in the information systems major. *Formerly MGMT 171, SCMA 171.

INFO 291. Topics in Information Systems. 1-3 Hours.

Variable hours. Variable credit. Maximum of 3 credits per topic. Prerequisite: permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

INFO 300. Information Technology Infrastructure. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Pre- or corequisite: INFO 202, CMSC 245 or CMSC 255. The course introduces principles of computer hardware and software architecture and organization. The focus is on surveying what is likely to be encountered in the IT legacy today, emerging technologies and introducing data structures and algorithms.

INFO 320. Business Intelligence and Data Mining. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SCMA 301*, STAT 210 or STAT 212. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Modeling business-related problems using information systems tools and quantitative techniques. Focus is on relevant business and external data, quantitative analysis and presentation of findings. Typical problem situations involve suggested productivity improvements, revenue enhancement opportunities and marketing. *Formerly MGMT 301.

INFO 350. Intermediate Programming. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 202, INFO 250, CMSC 245 or CMSC 255; and MATH 211, both with a minimum grade of C. This course build on the programming fundamentals covered in introductory courses and provides students with the skills and knowledge necessary to build and deploy API-driven business applications. Students will learn how to use contemporary technologies such as HTML, JavaScript, Node.js and database management systems to develop sophisticated web applications.

INFO 360. Business Information Systems. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Provides an understanding of the importance of computer-based information in the success of the firm. Emphasis is on the role of information systems within each of the functional areas of business. Major concepts include data management, decision support and management information systems.

INFO 361. Systems Analysis and Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 54 credit hours (junior standing). Examines the concepts, tools and techniques used to develop and support computer-based information systems. Systems planning, analysis, design and implementation are covered. Behavioral and model building aspects of systems development are emphasized throughout.

INFO 364. Database Systems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 202, CMSC 245 or CMSC 255 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Students will learn how to design, develop and use databases, including the use of Structured Query Language for querying and manipulating data.

INFO 370. Fundamentals of Data Communications. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 211 with a minimum grade of C; INFO 300. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Computer networks and data communications. Provides an understanding of the underlying concepts of computer networking. Emphasis is placed on terminology, techniques and issues in networking systems.

INFO 450. Programming for Business Analytics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BUSN 212 or MATH 200 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). This course will teach students how to use Python for data analytics and data science. Students will gain proficiency in manipulating, cleaning and analyzing large datasets; creating data visualizations; and developing statistical models. By the end of the course, students will have developed the ability to use Python for data analytics and data science projects, including the development of data-driven insights and predictive models.

INFO 451. Advanced Technology for Web Development. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 350 and INFO 364 with minimum grades of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). This course teaches students to build interactive, data-driven websites using MongoDB, RESTful API and contemporary web technologies. Students will learn database design and management using MongoDB and how to use RESTful APIs to create scalable web applications. The course will cover modern web development tools such as Node.js, Angular, React.js and Vue.js. Throughout the course, students will work on hands-on coding exercises and projects, developing proficiency in server-side programming and client-side scripting. By the end of the course, students will have built interactive web applications that use data to generate dynamic content.

INFO 461. Information Systems Planning and Project Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 361. Concentrated study of planning methods and techniques required for defining, planning, integrating and implementing information technology projects consistent with the organizational strategic plan and mission.

INFO 463. Business Process Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 361. This course is restricted to students who have completed at least 54 credit hours (junior standing). A survey of legacy system re-engineering technologies in which the student becomes familiar with a variety of tools used in practice and has the opportunity to develop applications using these tools under supervision. Selection of technologies is determined each semester.

INFO 465. Projects in Information Systems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 350, INFO 364 and INFO 370. Students will work in teams, using the Scrum methodology, to execute a semester-long application development project. Students will use the skills acquired from the prerequisites to take a project from a formal business proposal to a finished product. The finished product is delivered through multiple sprints.

INFO 468. Information Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 361 and INFO 364. This course is restricted to students who have completed at least 54 credit hours (junior standing). A study of information engineering as a model-based, data-centric approach to integrating organizational strategic planning with enterprise information systems development. Involves readings, group discussion and case studies.

INFO 472. Infrastructure Services. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 370. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). This course provides an overview of Local Area Network technology and underlying protocols, complemented with a hands-on introduction to LAN administration using network operating systems. Wired and wireless networking fundamentals, network administration security and administration in cloud environments are also covered.

INFO 474. Advanced Networking and Security. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 370. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). The course provides the foundation for understanding the key issues associated with protecting information assets, determining the levels of protection and response to security incidents, and designing a consistent, reasonable information security system, with appropriate intrusion detection and reporting features.

INFO 481. Information Technology Auditing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to information systems majors who have completed 54 credit hours (junior standing), or students may enroll with permission of the department. The course teaches the role and objectives of information technology audits and the processes that are necessary to properly conduct an IT audit. Case studies introduce students to the process of interpreting audit evidence.

INFO 482. Introduction to Enterprise Resource Planning Systems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to majors in the School of Business who have completed 54 credit hours (junior standing). This course allows students to develop an appreciation of the impact of enterprise resource planning systems on businesses and to understand the issues involved in the design, implementation and maintenance of these systems. Students also develop practical skills in the use of a commercial enterprise resource planning system.

INFO 491. Topics in Information Systems. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Maximum of 3 credits per course; maximum total of 6 credits for all topics courses. Enrollment restricted to students with junior standing. An in-depth study of a selected business topic, to be announced in advance.

INFO 492. Independent Study in Information Systems. 1-3 Hours.

Semester course; 1-3 credits. Maximum total of 3 credits. Prerequisites: junior or senior standing as a major in a business curriculum and approval of adviser and department chair prior to course registration. Intensive study under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum.

INFO 493. Internship in Information Systems. 3 Hours.

Semester course; 3 field experience hours. 3 credits. Enrollment is restricted to students with permission of department chair prior to or during advance registration of the semester of credit. Students taking this course must have earned 12 hours of course credit in IS courses at the 300-level or above. Involves students in a meaningful work experience, typically 20 hours per week, in a setting appropriate to the information systems major.

Management (MGMT)**MGMT 291. Topics in Management. 1-3 Hours.**

Variable hours. Variable credit. Maximum of 3 credits per topic. Prerequisite: permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

MGMT 303. Creativity and Ideation. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to students who have completed a minimum of 54 credits (junior standing). Course explores the individual, social and institutional contexts for creativity and ideation. Students will examine four specific concepts in support of exploration in these areas: knowledge, curiosity, creativity and ideation.

MGMT 310. Managing People in Organizations. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to students who have completed at least 54 credits (junior standing). Introduces students to the management of people in organizations, focusing on the managerial skills, knowledge and activities needed for a successful business operation. Topics include planning, organizing, staffing and leading; effectively utilizing human capital to achieve an organization's objectives in today's competitive environment.

MGMT 313. Entrepreneurial Finance. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: FIRE 311 or permission of instructor. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). This course emphasizes financial management needs for entrepreneurs or persons who expect to be employed in closely held corporations.

MGMT 319. Leadership. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 310. This course is restricted to students who have completed at least 54 credit hours (junior standing). Coverage of the major approaches to leadership considering individual, team, organizational and cultural perspectives. Emphasis on self-assessment and on historical and contemporary leadership cases.

MGMT 321. Survey of Entrepreneurship. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Underlying concepts in entrepreneurship; the importance of entrepreneurs and the problems they face; entrepreneur characteristics and competencies; what makes an idea entrepreneurial; managing relations, ethics and sustainability; opportunity recognition, critical thinking and emphasis on innovative concept development; detailed concept feasibility analysis.

MGMT 331. Human Resource Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SCMA 301, STAT 210 or STAT 212. This course is restricted to students who have completed a minimum of 54 credit hours (junior standing). Introduces students to the role of human resource management in attracting and retaining a productive workforce. Includes human resource planning, recruitment and selection; employee diversity and development; performance appraisal and reward systems; labor and employee relations; and public policy related to HRM practices.

MGMT 332. Staffing Organizations. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 331. Planning and executing a strategy to attract, select, hire and retain the talent needed to support the organization's mission and enhance performance.

MGMT 333. Compensation Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 331. The design and implementation of compensation and reward systems that both support an organization's strategy and enhance organizational effectiveness.

MGMT 389. Managerial Skills Development. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 310. A practicum in the development of personal, interpersonal and team-management skills as applied to leadership and teamwork.

MGMT 403. Human Resource Development. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: junior standing. Designed to improve qualifications of those seeking employment in the human resources field. Focuses on human resource development and organization development and their relationship to human resource management.

MGMT 405. Negotiation, Influence and Conflict Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to students who have completed a minimum of 54 credit hours (junior standing). Designed to develop negotiation and conflict management skills as well as an understanding of negotiation and influence theories and frameworks. Considerable emphasis is placed on experiential negotiation exercises and role-playing.

MGMT 418. International Management. 3 Hours.

3 lecture hours. 3 credits. Prerequisite: junior standing. The study of the environment of international business, ethics and social responsibility in international settings, culture and its effect on behavior and management practice, and the strategies and management practices of firms engaged in international activities. Aims to provide students with the knowledge, skills and sensitivities needed to be effective managers in the international business environment. Crosslisted as: INTL 418.

MGMT 419. Doing Business in Europe. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: junior standing and permission of instructor. Designed primarily as a core integrative course for students enrolled in the Certificate in International Management Studies, but other students are welcome. The course has three goals: a) integration of foreign languages, European studies and international management; b) infusion of other business areas relevant to doing business in Europe (such as international marketing, finance law and economics); and c) the development of cultural sensitivity and social responsibility. The course will be organized as a series of seminars with faculty and other speakers from the above disciplines. Crosslisted as: INTL 419.

MGMT 423. Social Entrepreneurship and Innovation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment restricted to students who have completed at least 54 credit hours (junior standing). An advanced management course in promoting societal good through entrepreneurial activities. Students will learn the various forms of entrepreneurship that benefit society, developing an understanding of the many contexts in which such entrepreneurship occurs and its impact on society. Students will identify issues of societal/environmental marginalization, ideate potential solutions, generate in-depth research relevant to course projects and take part in presentations regarding their findings and the development of a socially conscious venture.

MGMT 431. Strategic Human Resource Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 332 or MGMT 333, with a minimum grade of C. Enrollment restricted to students with a minimum of 85 credit hours (senior standing). Design and execution of human resource management strategies to achieve a competitive advantage; proper internal alignment of activities within the HRM function as well as external alignment of HRM activities with organizational goals, strategy and competitive environment.

MGMT 434. Strategic Management. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MGMT 310; MKTG 301; FIRE 311; and SCMA 301, STAT 210 or STAT 212. Enrollment is restricted to business majors with senior standing. Integrative course to analyze policy issues at the overall management-level involving functional areas such as production, finance and marketing, in context with the economic, political and social environment.

MGMT 435. New Venture Strategy and Initiation. 3 Hours.

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisites: MGMT 321; completion of MGMT 435 to enroll in MGMT 436. First semester: provides students with an integrated strategic analysis of entrepreneurial firms and how they establish competitive advantage. Second semester: engages students in intensive development of a comprehensive business plan using knowledge and skills from MGMT 435. Students should take MGMT 436 immediately following MGMT 435.

MGMT 436. New Venture Strategy and Initiation. 3 Hours.

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisites: MGMT 321; completion of MGMT 435 to enroll in MGMT 436. First semester: provides students with an integrated strategic analysis of entrepreneurial firms and how they establish competitive advantage. Second semester: engages students in intensive development of a comprehensive business plan using knowledge and skills from MGMT 435. Students should take MGMT 436 immediately following MGMT 435.

MGMT 437. New Venture Strategy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 321. This is an intensive entrepreneurship capstone course. Students will be exposed to an integrated strategic analysis of entrepreneurial firms and concepts, develop an understanding of how they establish competitive advantage and engage in development of key business plan components. Students will also develop an understanding of various approaches to obtaining resources and launching a nascent venture. This heavily revolves around concept design, in-depth research and critical thinking. An understanding of opportunity-recognition, creative solutions, innovation and design-thinking will be emphasized.

MGMT 446. International Human Resource Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 331, INTL/MGMT 418 or ECON/INTL 329. Covers the application of human resource management activities in an international context. Highlights similarities and differences with domestic methods; current practices in the selection, development, compensation and maintenance of parent-country, host-country and third-country nationals; and the impact of regulatory and cultural differences between countries. Crosslisted as: INTL 446.

MGMT 447. Human Resource Information Systems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 331. This course is restricted to students who have completed at least 54 credit hours (junior standing). Covers contemporary human resource information software used in the primary activities of human resource management involving recruitment, selection, performance appraisal, employee benefits, pay administration, safety and health, human resource development, job analysis, human resource planning and job structuring. Emphasis is on introducing the software and practical application through hands-on experience in the computer laboratory.

MGMT 491. Topics in Management. 1-3 Hours.

Semester course; variable hours. Variable credit. Maximum of 3 credits per course; maximum total of 6 credits for all topic courses. Prerequisite: junior standing. An in-depth study of a selected business topic, to be announced in advance.

MGMT 492. Independent Study in Management. 1-3 Hours.

Semester course; 1-3 credits. Maximum total of 3 credits. Prerequisites: junior or senior standing as a major in a business curriculum and approval of adviser and department chair prior to course registration. Intensive study under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum.

MGMT 493. Internship in Management. 3 Hours.

Semester course; 3 credits. Prerequisites: senior standing in the major offering the internship and permission of the department chair. Intention to enroll must be indicated to the instructor prior to or during advance registration for semester of credit. Involves students in a meaningful experience in a setting appropriate to the major. Graded as pass/fail at the option of the department.

Marketing (MKTG)**MKTG 222. Marketing and Society. 3 Hours.**

Semester course; 3 lecture hours (delivered online). 3 credits. Ethical issues abound in marketing and business. Creative marketing tools (e.g., product innovation, social media, advertising or multicultural marketing campaigns) can benefit society and influence behaviors to improve well-being, social justice, the environment and individual ethics. But marketing and consumption have a dark side. This course explores ethical decision-making and frameworks; consumerism; legal and regulatory issues; harmful or controversial products; social marketing; corporate social responsibility; and how marketing and business can contribute to a better world.

MKTG 301. Marketing Principles. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to students who have completed at least 26 credit hours (sophomore standing). An introduction to the activities, set of institutions and processes for creating, communicating, delivering and exchanging offerings that have value for customers, clients, partners and society at large.

MKTG 302. Marketing and Brand Strategy. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Students gain knowledge of and exposure to marketing managerial and brand strategy issues. Marketing majors should take this course in the semester immediately following the term in which they complete MKTG 301.

MKTG 310. Marketing Research. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MKTG 301; and SCMA 301*, STAT 210 or STAT 212. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Students receive an overview of the marketing research process. The course includes coverage of primary research, secondary data sources and marketing information systems. Students learn to apply research findings to marketing decisions.

*Formerly MGMT 301.

MKTG 315. Buyer Behavior. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Study of the relevant psychological, sociological and anthropological variables that shape buyers' activities and motivations in household and organizational decision-making. Throughout the course, students consider the issue of why consumers behave as they do in the marketplace and the nature of their choices as individual, family and institutional buyers.

MKTG 320. International Marketing. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Designed to help students develop an understanding of international marketing policies and the differences among foreign marketing environments. Students compare and contrast domestic and international marketing and examine recent changes in the international marketing environment. Crosslisted as: INTL 320.

MKTG 325. Business-to-business Marketing. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). This course focuses on strategy development for marketers whose customers include other businesses, the government and/or institutions. It explores the buying behavior of these organizations and highlights how the product development and management processes for such customers differ from the processes used for consumer marketing.

MKTG 330. Integrated Marketing Communications. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). An overview of the steps required to develop an integrated marketing communications campaign. Topics include advertising, public relations, sales promotion, personal selling and direct marketing. Special emphasis is placed on the role of new technologies and interactive media.

MKTG 335. Professional Selling I: The Art of Persuasion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to students who have completed at least 26 credit hours (sophomore standing). Selling and persuasion are fundamental not only to business, but to everyday life. Indeed, individuals are called upon to sell all the time – whether it is an idea, product, service or point of view. Students will learn about selling and how to sell effectively. Although focused on selling in a business environment, concepts discussed will add value to interpersonal communication skills in general.

MKTG 336. Content Marketing. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301 or MKTG 335. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Covers strategic use of content to attract new customers and retain current customers. Provides experience identifying and analyzing an audience to create targeted content to achieve set business objectives. Introduces graphic design applications, video editing software, copywriting skills, email automation systems, analytics tools and other resources. Provides training to successfully create and implement an effective content marketing strategy.

MKTG 340. Retail Management. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). A comprehensive view of retailing and an application of marketing concepts in a practical retail managerial environment. Students learn to evaluate retail firms and to identify their strengths and weaknesses.

MKTG 345. Personal Branding and Becoming a Digital Influencer. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301 or MKTG 335. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Throughout history, influential individuals have shaped thought and behavior in politics, religion, business, even interpersonal relationships. Because of the democratizing effects of digital media, social influence is no longer limited to traditional authority figures. Modern influencers include subject-matter experts (from scientists to non-credentialed bloggers), social media stars, even individuals who prefer to remain "anonymous." In this course, students will learn not only how to work with influencers – including identifying, analyzing, approaching, managing and measuring them – but also how to build personal influence, whether for themselves or others.

MKTG 350. Customer and Marketing Analytics. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301 with a minimum grade of C. Introduces tools to gain insights into customer interactions with brands, advertising, digital or social media marketing, and shopping or purchase contexts. Reviews data structure, analysis, synthesis and presentation techniques that aid marketing decision-making.

MKTG 360. Social Media Research. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 310. Enrollment is restricted to students who have completed a minimum of 26 credit hours (sophomore standing). Observational techniques and analyses of social media texts and visuals provides marketers with insights on brand sentiment, the customer journey and competitor intelligence. Social media research can tell marketers why consumers engage in certain behaviors, make certain decisions and communicate about brands in different communities.

MKTG 430. Experiential Marketing. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MKTG 301. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). This course will introduce the student to topics and strategies involving brand experiences and experiential marketing tactics. Students will explore experiential marketing, a marketing strategy designed to cultivate positive brand-consumer experience through products, communication and staged brand experiences. Additional concepts to be examined include brand strategy, marketing and the five senses, event marketing, mobile marketing, ambush marketing, guerilla marketing, venues and sponsorships, sampling, premiums, technology, social media, and data collection.

MKTG 435. Professional Selling II: Advanced Sales Techniques. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 335. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Focuses on applying and practicing selling skills through role-play competition participation and/or selling actual products, services or ideas for collaborating profit or not-for-profit organizations. Students also develop skills in account management and the application of emerging sales technologies and analytics.

MKTG 436. Sales Enablement and Analytics. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301 or MKTG 335. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Organizations now have an influx of data which, when used effectively, can derive actionable insights for both the sales organization and their clients. Today's sales leaders must systematically increase their sophistication in leveraging data, tools and domain expertise to provide customized insights, consulting and guidance to their strategic customers. This course explores the tools and technologies which enable data-driven decisions. Asking the right questions and using the appropriate tools and technologies permits sales representatives and managers to create value for their clients, ultimately increasing customer satisfaction and the likelihood of long-term client retention.

MKTG 440. Contemporary Pricing. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301. Enrollment is restricted to students who have completed at least 26 credit hours (sophomore standing). This course explores contemporary pricing issues in marketing. Topics covered include core concepts of price, including understanding what price is; determinants of price, including cost, demand, value, and other internal firm and external marketing factors; and customer/organizational responses to prices. Also examined is how price is integrated into product, place and promotion decisions.

MKTG 442. Services Marketing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MKTG 301. This course is restricted to students who have completed at least 54 credit hours (junior standing). Students develop both a theoretical and practical understanding of "the service product," including the role of customer service in retail and industrial settings. Students learn techniques for analyzing and improving service system design. Students develop an understanding of "quality" as it relates to service products, and they exercise a number of approaches for assessing and improving perceived service quality.

MKTG 445. Nonprofit Marketing. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Examines the relationship between marketing and organizational success in the nonprofit sector, as well as the impact of nonprofit organizations on local, national and global economies. Through real-world applications, students learn to combine marketing strategies and tactics with civic engagement, community service and corporate social responsibility. Students must complete a minimum of 20 service-learning hours with the nonprofit organization that is the focus of the course.

MKTG 448. Digital Marketing. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301. Enrollment is restricted to students who have completed a minimum of 54 credit hours (junior standing). Examines social media, mobile and Internet marketing as necessary ingredients to successful marketing strategy. Analyzes and applies digital techniques for market evaluation, consumer and competitive analysis, market comparison and selection, and effective marketing communication design and delivery. Crosslisted as: INTL 448.

MKTG 450. Product Development and Management. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Study of the role of marketing in developing and managing products. Essential concepts include the use of project teams for product development and the application of a new product development process. Topics include innovation, technology, listening to the voice of the customer, product design, branding, positioning and product life-cycle management.

MKTG 470. Field Project in Marketing. 3 Hours.

Semester course; 3 field experience hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: MKTG 301. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Students take part in a real-world project under faculty supervision, with the topic announced in advance. Examples include conducting a marketing research project, creating an advertising campaign, writing a marketing case study about an existing business and developing a marketing plan.

MKTG 475. Honors Seminar in Marketing. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: MKTG 301 and permission of department chair. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Students conduct research about major firms in the Richmond region. Chief marketing officers of these firms teach students about current marketing issues and evaluate the students' projects.

MKTG 485. Professional Sales Internship. 3 Hours.

Semester course; 3 field experience hours. 3 credits. Enrollment is restricted to degree-seeking students who have completed at least 54 credit hours (junior standing) while maintaining a minimum GPA of 2.5. This course provides the framework for the student to document learning experiences from the internship and course work in a personal e-portfolio for career management. This applied learning experience involves short-term placement within a firm, which determines the student's internship responsibilities.

MKTG 491. Topics in Marketing. 1-3 Hours.

Semester course; 1-3 lecture hours (delivered online, face-to-face or hybrid). 1-3 credits. Prerequisite: MKTG 301. For marketing majors, a maximum total of six credits for all topics courses. An in-depth study of a selected business topic, to be announced in advance.

MKTG 492. Independent Study in Marketing. 1-3 Hours.

Semester course; 1-3 independent study hours (delivered online, face-to-face or hybrid). 1-3 credits. Prerequisite: MKTG 301. For marketing majors, a maximum total of three credits for all MKTG 492 courses. Enrollment requires junior standing and permission of adviser and department chair prior to course registration. Intensive study or research under supervision of a faculty member in an area not covered in depth or contained in the regular curriculum.

MKTG 493. Internship in Marketing. 3 Hours.

Semester course; 3 field experience hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to students with senior standing in the major offering the internship and permission of the department chair. Intention to enroll must be indicated to the instructor prior to or during advance registration for semester of credit. Involves students in a meaningful experience in a setting appropriate to the major.

Supply Chain Management and Analytics (SCMA)**SCMA 171. Mathematical Applications for Business. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 141 or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. Pre- or corequisite: INFO 162. Mathematics equivalency may be validated by a satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. Formulation and solution of problems using a spreadsheet and algebra, mathematics of finance, matrices and introductory linear programming. Instruction will include spreadsheet use as a calculation and graphing tool.

SCMA 212. Differential Calculus and Optimization for Business. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SCMA 171 or MATH 151 or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. Univariate and bivariate differential calculus and optimization of algebraic functions that model business phenomena. Students should take SCMA 212 immediately after completing SCMA 171. Students may not receive degree credit for both SCMA 212 and MATH 200.

SCMA 301. Business Statistics I. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: BUSN 171*, MATH 151, BUSN 212**, MATH 200 or higher level mathematics course. Statistical methods for collection, visualization and analysis of business and economic data from populations and processes. Statistical thinking, concepts of variability, sampling, descriptive measures, contingency tables, probability and introduction to regression, correlation, confidence intervals and hypothesis testing, with implementation in spreadsheet software. Students may receive credit toward graduation for only one of STAT 206, STAT 208, STAT 210, STAT 212, STAT 312 or SCMA 301. This course was formerly numbered MGMT 301. *Formerly MGMT 171, SCMA 171; **formerly MGMT 212, SCMA 212.

SCMA 302. Business Statistics II. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: BUSN 212* or MATH 200; and SCMA 301**, STAT 210 or STAT 212. Statistical methods employed in the collection and analysis of business and economic data. Continuation of statistical inference for means and variable relationships using t-tests, analysis of variance, contingency tables, regression and correlation analysis with emphasis on problem formulation and interpretation of computational results. *Formerly MGMT 212, SCMA 212; **formerly MGMT 301.

SCMA 303. Business Analytics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BUSN 212* or MATH 200; and SCMA 301**, STAT 212 or STAT 210. Descriptive analysis (Excel models and pivot tables, summary statistics, data visualization and regression analysis), predictive analysis (time series and forecasting) and prescriptive analysis (optimization models, decision trees and sensitivity analysis). *Formerly MGMT 212, SCMA 212; **formerly MGMT 301.

SCMA 320. Production/Operations Management. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: SCMA 301, STAT 210 or STAT 212. This course is restricted to students who have completed at least 54 credit hours (junior standing). Discipline of management and the management process within the operations of an organization. Planning and controlling of operations through decision analysis, forecasting, aggregate planning, inventory management and quality management.

SCMA 339. Quantitative Solutions for Supply Chain Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SCMA 301, STAT 210 or STAT 212. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Modeling business-related problems using quantitative techniques. Focus is on applications to problems in the service and manufacturing sectors. Typical problem situations involve management of inventory, scheduling of people and processes and allocation of scarce resources.

SCMA 350. Introduction to Project Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: junior standing. Introductory exposure to and practice with the concepts of project management, the activities and skills of project managers, the prevalence of projects in organizations, and the value of project management skills for all managers. Students will employ project management terminology, participate in project work and engage in the appropriate technical and interpersonal processes for managing successful projects.

SCMA 386. Global Supply Chain Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SCMA 320. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Introduction to supply chains with emphasis on management, e-commerce and globalization. Topics covered include achievement of strategic fit among members of the chain; managing information system requirements; managing economies of scale, role of cycle inventory, impact of aggregation on risk and inventory; determining the optimal level of product availability, coordination and performance measurement.

SCMA 410. Logistics and Distribution Strategy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SCMA 320. This course provides an introduction to the principal analytical tools and methods used in supply chain management, including experience in solving relevant supply chain and logistics problems. The course content includes a heavy emphasis on the use of Microsoft Excel functions to develop modeling skills, including decision analysis, linear programming, heuristics and simulation for supply chain decision-making. Context areas for problem solving include supply chain network design, inventory management, transportation management, purchasing and demand management.

SCMA 420. Strategic Sourcing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SCMA 320. Procurement and strategic sourcing address the processes that facilitate the structure, creation and management of value-added transactions and relationships between supplier and customer organizations in a channel, supply chain and integrated value system context.

SCMA 430. Data Management and Visualization. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SCMA 303. This course is designed with the goal of equipping students with competencies in data management and visualization, with the intended product being an individual capable of developing analytically rigorous decision support tools, catered to specific managerial environments, which can be easily handed off for robust application by a range of intended users in those environments.

SCMA 439. Process Management and Quality Control. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SCMA 320. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Critical concepts of process management from quality management and Six Sigma; service quality; systems thinking; process improvement strategy and methods; fact-based decision-making; collection and use of data in improvement projects; introduction to data analysis tools and techniques; statistical process control.

SCMA 440. Data Mining and Forecasting. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SCMA 302 or STAT 314. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). This course introduces nonmathematical managers to the major quantitative models designed for sound demand, competitive and system forecasting in today's complex and increasingly uncertain business environment. The course is useful for multiple business disciplines, including general management, marketing and finance. Topics include game theory, Markov processes, statistical quality control, exponential smoothing and seasonally adjusted trend analysis. Emphasis is placed on a general understanding of theory, mechanics, application potential, available software packages and templates.

SCMA 491. Topics in Supply Chain Management and Analytics. 1-3 Hours.

Semester course; variable hours. 1-3 credits. Students are restricted to a maximum total of 6 credits for all topics courses. Prerequisite: junior standing. An in-depth study of a selected business topic related to the disciplines in supply chain management and analytics, to be announced in advance.

SCMA 492. Independent Study in Supply Chain Management and Analytics. 1-3 Hours.

Semester course; 1-3 credits. Maximum total of 3 credits. Prerequisites: junior or senior standing as a major in a business curriculum and approval of adviser and department chair prior to course registration. Intensive study under supervision of a faculty member in an area not covered in depth or contained in the regular curriculum.

SCMA 493. Internship in Supply Chain Management and Analytics. 3 Hours.

Semester course; 3 credits. Prerequisites: senior standing in the major offering the internship and permission of the department chair. Intention to enroll must be indicated to the instructor prior to or during advance registration for semester of credit. Involves students in a meaningful experience in a setting appropriate to the major.

School of Dentistry

Dental Hygiene (DENH)

DENH 301. Dental Hygiene Theory I. 5 Hours.

Semester course; 3 lecture and 6 laboratory/clinical hours. 5 credits. Designed to familiarize the student with the scope, role and responsibilities of the dental hygiene profession. Topics include an introduction to the educational and therapeutic services as well as the philosophy of preventive oral health and its relevance to the practice of dental hygiene. Also introduces the clinical knowledge and skills needed to perform fundamental clinical dental hygiene procedures, instrumentation, patient education and preventive services.

DENH 302. Dental Hygiene Theory II. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Continuation of DENH 301. Designed to provide the student with knowledge and skills necessary to provide patient care and includes instruction in some more advanced dental hygiene skills, including dental hygiene diagnosis, treatment planning, oral signs of abuse/neglect, topical medicaments and use of sonic and ultrasonic instrumentation.

DENH 307. Research Methods and Study Designs. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Designed to guide dental hygiene students in becoming competent in the use of scientific literature as a part of lifelong learning and evidence-based decision-making in patient care. Covers foundational materials in research design and biostatistics, including the development of testable hypotheses, data collection, data summary, and evaluation and interpretation of data found in scientific literature. Students will critique scientific literature from peer-reviewed journals and participate in reflection of current literature on assessment of patients with special needs. Students will also take part in an online collaborative investigator training initiative for protecting human subjects in research.

DENH 312. Community Oral Health Education and Promotion. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: DENH 301. Enrollment is restricted to students in the dental hygiene program. Introduces preventive oral health strategies, methods, materials and principles of instruction in health education and communication. Emphasizes oral health promotion as related to individual patients and community groups as well as professional peer-group presentations. Introduction to evidence-based decision-making in dental hygiene practice.

DENH 327. Clinical Dental Hygiene I. 4 Hours.

Semester course; 1 lecture and 3 clinical hours. 4 credits. Prerequisite: DENH 301. The clinical practicum introduces dental hygiene services as part of a comprehensive care model within the School of Dentistry and reinforces the knowledge and clinical skills learned in the prerequisite course. Students apply basic instrumentation and patient treatment skills in a clinical setting. Weekly seminars provide opportunity for students to problem solve and critically discuss and assess clinical experiences.

DENH 337. Clinical Service Learning. 2 Hours.

Semester course; 2 clinical hours. 2 credits. Prerequisite: DENH 327. Students will participate in an organized service activity that meets community-identified needs. Students are assigned rotations in clinical practice settings in underserved areas, where they are exposed to patients of varied ethnic, socioeconomic and demographic backgrounds, as well as special patient populations not typically encountered in the School of Dentistry clinics. While continuing clinical education, students have the opportunity to make oral health care more accessible to marginalized groups. Throughout this unique learning experience, students are exposed to the benefits of potential practice in public health dentistry. Students will reflect on the service activity to increase understanding and application of course content and to enhance a sense of civic responsibility.

DENH 342. Nutrition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Designed to provide students with an overview of the chemistry of the major nutrients as well as provide a practical approach to the concepts of nutrition. Emphasis will be placed on developing positive preventive health behaviors and providing nutritional education to dental patients in a clinical setting. The interrelationships of diet, nutrition and dental and systemic diseases will be discussed along with current food trends, consumer aspects of food choices and basic nutrition principles. A general review of dietary supplements also will be provided.

DENH 347. Clinical Dental Hygiene Summer Clinic. 2 Hours.

Semester course; 1 lecture and 4.5 clinic hours. 2 credits. Clinic time may be weekly, in block rotation or variable schedule. Prerequisite: DENH 327. The clinical practicum continues dental hygiene services as part of a comprehensive care model within the School of Dentistry and reinforces the knowledge and clinical skills learned in the prerequisite. Students will further develop their clinical skills and utilize didactic learning of pain control for dental hygiene students including local anesthesia and nitrous oxide administration. Students will assess, create a dental hygiene diagnosis, plan care, implement and evaluate their dental hygiene care plan and patient treatment skills in a clinical setting. Weekly seminars provide opportunity for students to problem solve and critically discuss and assess clinical experiences. This course is designed to be taken in the summer between the junior and senior years.

DENH 401. Dental Hygiene Theory III. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Dental specialty content is presented: concepts and techniques in specialty areas that will enable the dental hygienist to consider implications for dental hygiene treatment planning with relation to periodontics, orthodontics, endodontics, preventive, cosmetic and restorative dentistry, pain control, oral surgery, prosthodontics, pediatric dentistry and implantology. Through case scenarios students develop treatment plans with regard to the dental hygiene process of care. Students discuss patient education needed for each phase of care appropriate for the informed consent of the patient.

DENH 402. Dental Hygiene Theory IV. 2 Hours.

Semester course; 2 lecture hours. 2 credits. This course is designed to present the principles of dental practice, including dental team management strategies, business office management, increasing use of computers in dentistry, OSHA and its impact on practice management, insurance coverage for dental care, and employment opportunities and career options.

DENH 407. Evidence-Based Dental Hygiene Practice. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Designed to guide dental hygiene students in becoming competent in the use of scientific literature as a part of lifelong learning and evidence-based decision-making in patient care. Covers foundational materials in research design and biostatistics, including the development of testable hypotheses, data collection, data summary, and evaluation and interpretation of data found in scientific literature. Students will critique scientific literature from peer-reviewed journals and participate in reflection of current literature on assessment of patients with special needs. Students will also take part in an online Collaborative Investigator Training Initiative for protecting human subjects in research.

DENH 411. Dental Public Health I. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: DENH 312. This course is designed to provide dental hygiene students with an introduction and overview of basic concepts of dental public health, community dental health education and community program planning. Course topics include oral health trends, dental indices, prevention and control of oral diseases in a community, and community dental health programs. Students become involved in the application of concepts such as program assessment, design, implementation and evaluation. This course will prepare the dental hygienist for the role of dental public health practitioner, educator, and consultant and resource person in community settings. Community service experience is designed to prepare students to function in a variety of community health settings. Emphasis on special populations of elementary school children, geriatric, institutionalized, hospitalized and individuals with mental and/or physical disabilities. The course serves as a foundation for DENH 412.

DENH 412. Dental Public Health II. 2 Hours.

Semester course; 1 lecture and 3 clinical/service-learning project hours. 2 credits. Prerequisite: DENH 411. This hybrid course is designed to help senior dental hygiene students apply the knowledge gained in the prerequisite course about assessing, planning, implementing and evaluating a dental health program for a community site. Students will work in groups of four to visit a community site to design and implement a dental health program. This course will prepare the dental hygienist for the role of dental public health practitioner, educator, and consultant and resource person in community settings. Field experience is designed to prepare students to function in a variety of community health settings. Emphasis on special populations of elementary school children, geriatric, institutionalized, hospitalized and individuals with mental and/or physical disabilities. Evaluation of this course will be through the development of a manual, site evaluation, group member evaluation and self evaluation.

DENH 422. Current Issues, the Law and Ethics. 2 Hours.

Semester course; 2 lecture hours. 2 credits. This online course is designed to explore the ethics, jurisprudence and principles of dental hygiene practice. Students explore ethical issues and dilemmas in dental hygiene and health care delivery. This course strives to provide students with the foundations of ethical reasoning and decision-making in practices. The course fosters professional development and an understanding of the legal and ethical aspects of oral health care.

DENH 437. Clinical Dental Hygiene II. 5 Hours.

Semester course; 1 lecture and 4 clinical hours (3 clinical hours per credit). 5 credits. Prerequisite: DENH 327. A continuation of the clinical practicum; seminars and clinical experiences continue to prepare students to provide oral health care services in the private and public sector. Students participate in comprehensive care clinical experiences within the School of Dentistry. Advanced dental hygiene procedures are initiated and patient assessment, management skills and self-assessment are emphasized. Skill development in dental hygiene procedures continues; patient management skills as well as decision-making and problem-solving in relation to patient assessment, treatment planning and evaluation are emphasized. Course sequence provides the student with the opportunity to use and further enhance the knowledge and skills of dental hygiene practice and procedures in a clinical model that emphasizes comprehensive patient care and a foundation for transference of those skills to the work environment in the private and public sector. Note: A grade of PR is required in this course for continuation in DENH 447.

DENH 447. Clinical Dental Hygiene III. 5 Hours.

Semester course; 1 lecture and 4 clinical hours (3 clinical hours per credit). 5 credits. Prerequisite: DENH 437 with a grade of PR. A continuation of the clinical practicum; seminars and clinical experiences continue to prepare students to provide oral health care services in the private and public sector. Students participate in comprehensive care clinical experiences within the School of Dentistry. Advanced dental hygiene procedures are initiated and patient assessment, management skills and self-assessment are emphasized. Skill development in dental hygiene procedures continues; patient management skills as well as decision-making and problem-solving in relation to patient assessment, treatment planning and evaluation are emphasized. Course sequence provides the student with the opportunity to use and further enhance the knowledge and skills of dental hygiene practice and procedures in a clinical model that emphasizes comprehensive patient care and a foundation for transference of those skills to the work environment in the private and public sector.

DENH 449. Clinics in Dental Hygiene. 1-5 Hours.

Semester course; 1-3 credits. Clinical/laboratory experiences offering the opportunity to use and further develop the knowledge and skills of dental hygiene practice.

DENH 450. Independent Study. 1-5 Hours.

Semester course; 1-5 credits. Independent study projects planned to meet the learning objectives of the student.

DENH 457. Clinical Service-learning. 2 Hours.

Yearlong course; 2 clinic hours (48-50 clinical sessions). 2 credits. Enrollment is restricted to students in the dental hygiene program. A course-based, credit-bearing educational experience in which students participate in an organized service activity that meets community-identified needs. During the course, students are assigned rotations in clinical practice settings in underserved areas. In these settings, students are exposed to patients of varied ethnic, socioeconomic and demographic backgrounds, as well as special patient populations not typically encountered in the School of Dentistry clinics. Students have the opportunity to make oral health care more accessible to marginalized groups while continuing clinical education. Throughout this unique learning experience students are exposed to the benefits of potential practice in public health dentistry. Students will reflect on the service activity to increase understanding and application of course content and to enhance a sense of civic responsibility. Course graded as CO with no credit for fall semester; letter grade and credit assigned for spring semester.

DENH 460. Individual Plan of Study. 1-6 Hours.

Semester course; variable hours. 1-6 credits. This course is designed on an individual basis to accommodate remediation of a failed course. The course director will design course material to include self-paced learning, assignments, tests and clinic or lab activities necessary to equal the failed course content. Graded as pass/fail.

DENH 477. Special Topics in Dental Hygiene. 1-3 Hours.

Semester course; 1-3 credits. Designed around the interests of students, faculty expertise and availability of educational resources. Format may include intensive mini-courses or workshops.

Dental Hygiene Biomedical Science (DHBS)**DHBS 301. Head and Neck Anatomy for Dental Hygienists. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. This four-week course provides an overview of head and neck anatomy, including the osteological, nervous, muscular, vascular and visceral structures of the human head and neck. Lecture-based instruction will be supplemented by collaborative/team-based learning exercises (with functional and clinical correlations of anatomical concepts), online self-study learning modules (with self-assessment questions) and brief laboratory exercises (for the study of osteological and/or gross anatomical specimens) that provide hands-on exposure to these major anatomical features.

DHBS 302. Microscopic Anatomy. 2 Hours.

Semester course; 2 lecture hours. 2 credits. A lecture course in the microscopic anatomy of the cells and tissues relevant to the oral cavity. This course is designed to provide a basic understanding of the microscopic anatomy of the human body, with emphasis placed on structures contained in the oral cavity. Normal microscopic anatomy forms the base for understanding the organization and function of the tooth and oral structures as well as the base on which pathological changes occur.

DHBS 341. Pharmacology and Pain Control for Dental Hygiene. 4 Hours.

Semester course; 4 lecture hours. 4 credits. A didactic course designed to emphasize the principles of pharmacology and pain control, drug actions and uses, and adverse effects to provide the rationale for the effective and safe use of drugs in dental hygiene.

DHBS 365. Infection and Immunity. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Course provides a general introduction to immunology and microbiology. Students will gain an appreciation for basic components and mechanisms that are involved in immunity, as well as specific health problems associated with immune dysfunction. Additionally, students will become familiar with microbial pathogens, including bacteria, fungi, parasites and viruses, the infectious diseases associated with these pathogens, and methods of control. Specific attention will be given to oral microbiology, immunity and pathologies.

DHBS 441. Pharmacology and Pain Control for Dental Hygiene. 4 Hours.

Semester course; 4 lecture hours. 4 credits. A didactic course designed to emphasize the principles of pharmacology and pain control, drug actions and uses, and adverse effects to provide the rationale for the effective and safe use of drugs in dental hygiene.

General Practice (GENP)**GENP 302. Dental Materials. 2 Hours.**

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Provides the scientific foundation for understanding the factors guiding the use of biomaterials in dentistry as they relate to the practice of dental hygiene. Dental and material science concepts are defined and their relationships developed to establish an understanding of the influence of material properties and manipulation on the longevity and success of treatment. Dental materials are discussed in terms of their physical, mechanical, chemical, biological and esthetic properties. Factors that influence tooth sensitivity, caries prevention, tissue irritation, longevity of restoration, dental bonding, materials selection and allergic reactions are emphasized. Primary dental materials will be discussed in relation to their properties and manipulation with an approach to aid in patient education and to recognize adverse affects on the patient's health from improper manipulation or placement failures.

GENP 311. Oral Anatomy and Occlusion. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to admitted students in the dental hygiene degree program. This course is designed to develop the student's knowledge of the morphology and anatomical features of the human adult dentition. It is intended to provide students with a fundamental working knowledge of the internal and external morphology of the human adult dentition in order to effectively communicate using appropriate anatomical terms related to the human dentition. This course is intended to facilitate additional later course work involving diagnosis and treatment of normal and pathological conditions. This didactic course offers limited hands-on and self-study sessions.

Oral Diagnostic Sciences (ORPT)**ORPT 301. Dental Radiology. 1 Hour.**

Semester course; 1 lecture hour. 1 credit. This is an introductory course that covers radiation physics, radiation biology and geometrical principles as applied to radiology and radiographic anatomy. Students will study the radiographic anatomy of the head and neck and exposure and processing techniques for diagnostic radiographic examinations of the head and neck. Areas are covered with the intent to link these principles to the knowledge needed in clinical practice.

ORPT 324. Oral Pathology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is designed to provide the student with a body of basic information on general and organ specific pathology. The purpose of the course is to enable the student to better recognize and interpret symptoms, signs and pathologic characteristics of organ, systemic and oral disease that will be encountered in practice. Included is study relating to the etiology, pathogenesis, prognosis, prevention and treatment of oral disease. Students will study the development, reactive and neoplastic conditions of the oral cavity with emphasis placed on the more commonly occurring diseases.

Oral Surgery (ORSG)**ORSG 431. Management of the Medically Compromised Dental Patient and Medical Emergencies in the Dental Office. 2 Hours.**

Semester course; 2 lecture hours. 2 credits. This course provides students with the knowledge and skills to provide safe and effective care for medically compromised patients. Instruction in physical evaluation provides the student with sufficient knowledge, judgment and skill to recognize normal findings as well as significant deviations from the normal. Didactic material includes a study of disease processes that affect the major organ systems of the body. In addition, students will have the opportunity to recognize and manage medical emergencies that can occur during dental treatment. Care for individuals with physical and mental disabilities will be presented with emphasis on the management of this special population in the general dental office.

Periodontics (PERI)**PERI 326. Periodontics I. 1 Hour.**

16 lecture, 2 seminar and 2 clinical hours. 1 credit. Corequisites: ANAT 302, BIOL 209 or equivalent, MICR 365. This course introduces the fundamental concepts of periodontal disease necessary for proper patient assessment, diagnosis, prognosis and treatment planning. This course stresses the rationale and technical aspects of examination of the periodontal patient. Emphasis will be placed on the etiology of periodontal diseases, rationale and outcomes of treatment. This course features small-group exercises in lectures, seminars and clinical patient-based instruction.

PERI 329. Periodontics II. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Second in the series of periodontics courses for dental hygiene students, this course provides the scientific basis to understand the pathology and etiological factors of periodontal diseases. In addition, topics related to periodontal therapy not provided elsewhere in the dental hygiene curriculum are addressed, including periodontal risk assessment and advanced periodontal therapy procedures.

School of Education**Adult Education (ADLT)****ADLT 300. Introduction to Human and Organizational Development. 3 Hours.**

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course is designed to provide students with an overview of the basic theories and concepts of organizational development and human resource development. Students will explore core aspects of the field of HRD including its foundations, basic theories, mission and goals, areas of emphasis, and issues and trends in the field. Students will also explore the definition and history of OD, fundamental theories, and the key steps of the OD process.

ADLT 301. Adult Learning Theory and Practice. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course provides an overview of learning and development in adulthood, beginning with the historical development of the field and its philosophical underpinnings. Concepts, models, theories and research in the field of adult learning will be addressed, with an emphasis on practical application of adult learning principles. The psychological and social aspects of adult learning are also addressed, as well as the effects of age on learning and motivations for learning.

ADLT 302. Basics of Instructional Design for Adult Learners. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Instructional design has been described as the process used to design, implement and evaluate learning solutions for adults. This course provides an overview of the instructional design process, including how to assess the needs of an organization, build a learning product that relates to the identified needs and how to evaluate how well the learning solution addresses those needs. Modern instructional design models and frameworks will be discussed, with an emphasis on practical application. This course will be especially helpful for those that work, or plan to work, to support and improve the learning in their organizations.

ADLT 303. Facilitation Skills for Human and Organizational Development. 2 Hours.

Semester course; 2 lecture hours (delivered online, face-to-face or hybrid). 2 credits. This course provides an overview of the knowledge and skills necessary to facilitate and deliver professional presentations and group meetings in various settings. Participants will learn the basics of workshop and group facilitation, including how to plan for the session and how to select appropriate support materials. Participants will also identify effective methods for the facilitation of workshops, in-person meetings and virtual meetings. Instruction will involve dynamic group exercises, experiential role-plays and mini lectures, with a key emphasis on practicing and experiencing facilitation in a variety of settings.

ADLT 304. Designing Online Learning for Adult Learners. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Learning in an online environment is different when compared to learning in a face-to-face classroom environment. Online education can pose a variety of special challenges for both the students and the instructors, but it can also provide completely different opportunities to engage, collaborate and learn. This course is designed to provide an overview of how to design instruction for the unique needs of adult online learners. Participants will examine online teaching strategies and instructional design practices, as well as discover methods that can lead to online learning success, while developing an appreciation for how adult learning theory can inform effective online instruction.

ADLT 305. Technology for Learning and Development. 3 Hours.

Semester course; 3 lecture hours (delivered in hybrid format). 3 credits. Technology, both current and future, is the backbone for creating online learning. This course examines tools that structure and support online learning and instructional design with particular emphasis on the unique affordances and challenges of each tool, including tools used for producing, delivering and supporting online/hybrid learning and technology-enhanced learning. This course will be especially helpful for those who work, or plan to work, to support and improve the learning in their organizations through developing online learning solutions.

ADLT 400. Developing Intercultural Competencies in the Workplace: Diversity, Inclusion and Equity. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course is designed to explore the intersection of personal and professional identity as it relates to workplace culture, climate and working relationships. Ultimately, it seeks to aid in the development and understanding of concepts and theories that underpin people relations in professional spaces. Throughout the course students are exposed to various theories and frameworks that situate social identity within larger social structures using the lens of sociological and psychological constructs. In an effort to enhance this understanding, students can expect to explore concepts and theories such as cultural competence, feedback, social cognitive career theory, organizational culture and social identity theory. Additionally, students will begin to contextualize prejudice and oppression and consider how they have operated historically in the workplace and continue to manifest within various social systems. The course intentionally focuses on issues of diversity, inclusion, cultural competence and equity. It is designed to prepare students to be knowledgeable of biases based on social identities (race, ethnicity, culture, religion, age, sex, sexual orientation, social and economic status, political ideology, ability status, etc.) and how each of these contributes to experiences in the workplace.

ADLT 401. Organizational Development and Change. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course offers a practical and realistic approach to the study of organizational development from the standpoint of its relationship to an overall program of change. While it introduces theoretical and historical foundations of the field, it uses a conceptual framework for understanding the relevant issues in OD coupled with an experiential learning approach which focuses on the development of interpersonal skills that can be applied to life and future job situations. Students will be able to readily experience OD through the use of concepts, theories, illustrations and company examples that show how OD is applied. By engaging in this deeper involvement in the learning process, a lasting impact and/or meaning should be produced, which will result in improved skill and performance.

ADLT 404. Team Learning and Development. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course will explore basic issues and dilemmas fundamental to all groups, such as leadership, mission, goals, group member roles, stages of group development and issues in team performance. The course provides opportunities for learners to examine personal roles and contributions to groups through team assignments. Through an examination of group theory, models and practices, students will explore the nature of intragroup and intergroup behavior, along with the often unconscious processes that occur in the group-as-a-whole.

ADLT 405. Project Management in Learning and Development. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course focuses on a holistic and realistic sociotechnical view of project management, meaning that it encompasses both the technical and sociocultural dimensions of project management and how they interact to determine the fate of projects. It is framed through the lens of application for the learning and development field where emphasis is not only on how the management process works, but also on why it works. Throughout this course, students will learn practical techniques for rolling out performance improvement solutions through learning and development that solve a business problem. This course will also give a comprehensive and integrative understanding of the project management process which will be useful for those at any level of an organization assigned to work on projects.

ADLT 406. Consulting Skills in Adult Learning Environments. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course is an introduction to the concepts, methods and skills required for effective process consultation, or helping, in a variety of adult learning environments including for-profit and nonprofit organizations, higher education, government and other community-based settings in which the adult educator is attempting to effect change. As such, this is a course in developing influencing skills. Implicit in the process consultation model is the assumption that all organizational problems are problems involving human interactions. No matter what technical, financial or structural problems are involved, humans are always involved in managing and implementing the solutions proposed for change strategies. Therefore, understanding human processes and the necessary requirements for change to occur are essential aspects of consulting.

ADLT 407. Culture and Instructional Design. 3 Hours.

Semester course; 3 lecture hours (delivered in hybrid format). 3 credits. This course is intended to enhance knowledge and skills in the design and delivery of e-learning content for the increasingly diverse population of adult learners within the context of current global, national and regional current events. E-learning content includes hybrid, or blended, learning, online courses and learning modules, and face-to-face courses that integrate technology. Creation of successful e-learning requires skills beyond the integration of technologies, such as digital audio and/or video, animation, social networking tools, virtual worlds, screen capture software, digital images, collaborative document editing, as well as linked content. Successful e-learning in the 21st century demands an understanding of the context in which the designer works, including considerations of current events, diversity and inclusion, and an understanding of trends in emerging technologies. This course provides a survey of these trends and the understanding of instructional design methodologies within this context.

ADLT 490. Internship in Human and Organizational Development. 3 Hours.

Semester course; 3 field experience hours. 3 credits. Enrollment is restricted to students who have completed a minimum of 21 hours of 300-level ADLT courses course work from the B.A. in Human and Organizational Development core and with approval of the adviser. This course should be taken during the senior year of the program, or after 21 hours of study within the major, to ensure students have the background and experience to be successful during the internship. This program is designed to offer experiential learning activities in an off-campus environment. Ideal activities for an internship experience provide the student with an opportunity to explore human resource development career interests, while making lived connections between academic theory and practical application in a work environment. Proposed internship activities must first be discussed and approved by the academic adviser, and then completed under the guidance of an on-site supervisor and the faculty sponsor of this course. A minimum of 125 clock hours of learning activities are required.

Early Childhood Special Education**ECSE 201. Infants and Young Children With Disabilities. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. This course focuses on the foundations for early intervention and education, with emphasis on inclusive environments, typical and atypical development, family and community contexts for development, professional standards and current policy issues.

ECSE 202. Social-Emotional Development in Early Childhood. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course examines typical and atypical social-emotional development of young children, as well as risk factors impacting social-emotional development. Students learn techniques for supporting positive behavior (to prevent inappropriate behavior) and strategies for building children's social competence.

ECSE 250. Infant/Toddler Fieldwork. 2 Hours.

Semester course; 1.5 lecture and .5 field experience hours. 2 credits. Prerequisite: ECSE 201. Corequisite: ECSE 302. Enrollment is restricted to students enrolled in the B.S.Ed. in Special Education and Teaching with a concentration in early childhood program who have been admitted to teacher preparation. This field-based course provides an in-depth experience in working with infants and toddlers with disabilities and their families. Students may be placed in settings that provide home-based or community-based services.

ECSE 301. Developmental Assessment for Young Children. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The purpose of this course is to equip early childhood professionals with strong foundational knowledge and application skills in screening and assessment of young children birth through age 8 in inclusive settings. The focus of the course is to introduce formal and informal developmental assessment through a variety of formats and approaches. Students will also learn structured and unstructured observations of young children with or without disabilities in inclusive settings. Survey, review and critique of standardized and non-standardized tests as well as the use of test data in planning instruction will be covered. This course provides experiences to increase awareness of, and knowledge about, a variety of assessment procedures appropriate for use with children birth through age 8. Students completing the course will be prepared to make professional decisions regarding the screening, assessment and ongoing evaluation of typically developing children and children with or at risk for disabilities.

ECSE 302. Early Intervention for Infants and Toddlers With Disabilities. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECSE 201. Enrollment is restricted to students with a minimum of 30 hours (sophomore, junior or senior standing). This infant-toddler early intervention class focuses on the provision of family-centered services as discussed in Part C of the Individuals with Disabilities Education Act. Students learn various relationship-based approaches for providing services that support the development of very young children with disabilities and their families.

ECSE 303. Behavior Support in Early Childhood. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: ECSE 201 and ECSE 202. Enrollment is restricted to students with a minimum of 30 hours (sophomore, junior or senior standing). This course will provide an introduction to theoretical models, research and strategies for supporting positive behaviors and reducing challenging behaviors of young children. Emphasis is on developing, implementing and/or structuring environments and interventions to encourage adaptive behaviors in young children. Trauma-informed approaches to understanding the nature of children's behavior will also be explored. Course content focuses on conducting formal and informal assessments of behavior and environments to individualize and implement strategies to support the growth and development of individuals with challenging behavior.

ECSE 304. Communication and Language Development in Early Childhood. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to students with a minimum of 30 hours (sophomore, junior or senior standing). This course emphasizes how children learn to communicate and how to facilitate communication development. The course includes examination of language development, language differences and disorders, language facilitation, and relationship of language to literacy. Course content and assignments include information about evidence-based practices and promote critical reflection and problem-solving skills.

ECSE 350. Preschool Fieldwork. 2 Hours.

Semester course; 1.5 lecture and .5 field experience hours. 2 credits. Prerequisites: ECSE 201 and ECSE 250. Corequisite: ECSE 410. Enrollment is restricted to students in the B.S.Ed. in Special Education and Teaching with a concentration in early childhood program who have been admitted to teacher preparation. This field-based course provides an in-depth experience in working with preschool-aged children with disabilities. Students may be placed in school- or community-based settings.

ECSE 351. Topics in Early Childhood Special Education. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a maximum of nine credits. A course on selected topics in early childhood special education. Generally, the content will relate to infant and toddler development, parent-child relationships, and strategies to support young children with or at-risk for disabilities and their families.

ECSE 401. Medical Aspects of Early Childhood Special Education. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECSE 201. Enrollment is restricted to students with a minimum of 60 credit hours (junior or senior standing). This course focuses on the nature and characteristics of major disabling and at-risk conditions for infants and young children. Emphasis is given to the medical aspects of young children with disabilities and the management of neurodevelopmental and motor disabilities. Specific strategies for positioning and handling, facilitating movement, and developing self-care skills are provided. Review of adaptive equipment and its safe use, and selection and implementation of appropriate assistive technology will be covered.

ECSE 410. Play-based Instruction for Inclusive Settings. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Registration requires permission of the instructor. This course is designed to introduce students to the sources, concepts, theory and integrated approaches to play-based instruction for young children with or without disabilities from diverse backgrounds, and including school, home and community settings. Young children's development and learning are viewed as integral components of play. Various approaches to formal and informal play will be addressed through a hybrid format of course delivery that includes face-to-face lectures, online discussions and reflections, onsite observations, and case-based inquiries. This course particularly values the critical role of families in child development, therefore emphasizing family involvement in play-based instructions across all settings.

ECSE 450. ECSE Consultation/Itinerant Fieldwork. 2 Hours.

Semester course; 1.5 lecture and .5 field experience hours. 2 credits. Prerequisites: ECSE 201, ECSE 250 and ECSE 350. Corequisite: SEDP 405. Enrollment is restricted to students in the B.S.Ed. in Special Education and Teaching with a concentration in early childhood program who have been admitted to teacher preparation. This field-based course provides an in-depth experience in providing consultation or itinerant services for young children with disabilities. Students may be placed in school- or community-based settings.

ECSE 499. Student Teaching in Early Intervention/Early Childhood Special Education. 9 Hours.

Semester course; 2 lecture and 7 field experience hours (delivered online, face-to-face or hybrid). 9 credits. Prerequisites: ECSE 250, ECSE 350 and ECSE 450. Enrollment is restricted to students in the B.S.Ed. in Special Education and Teaching with a concentration in early childhood program with a minimum of 90 credit hours (senior standing). The student teaching experience is designed to provide in-depth practical experience within a school, community-based program serving young children (birth to age 5) and their families, from a variety of cultural backgrounds, who are at risk for or have developmental disabilities. Through readings, community-based learning and face-to-face and online collaboration, the student will gain an understanding of the early intervention/early childhood special education requirements and practices. To demonstrate their abilities to critically reflect on their effectiveness, students will demonstrate problem-solving and critical-thinking skills as they apply the competencies gained through course work within the student teaching experience. These competencies are based on DEC-CEC standards and include participation in the assessment, planning and implementation of intervention programs; collaboration on an interdisciplinary team; use of family-centered principles; and development of professional relationships with families and other professionals in the student teaching setting.

Education (EDUC)**EDUC 400. Undergraduate Teaching Assistantship. 1-2 Hours.**

Semester course; 3-6 field experience hours (delivered online, face-to-face or hybrid). 1-2 credits. May be repeated for a maximum of four credits. Enrollment is restricted to students with a minimum of 60 credit hours (junior or senior standing) and a minimum cumulative GPA of 3.0. Enrollment requires approval from the faculty lead. Preference will be given to UTA candidates who have previously completed the course with the lead faculty member with a grade of A. Although they do not have to be education majors, special priority will be given to students enrolled in School of Education degree programs and those who have not previously served as a UTA. The undergraduate teaching assistantship provides undergraduate students the opportunity to gain pre-professional skills and support instruction in education courses in partnership with full-time VCU School of Education faculty. Typical duties include facilitation of course discussions and study sessions, piloting exams and quizzes, and maintaining records of student participation in course activities. Graded as pass/fail.

Educational Studies (EDUS)**EDUS 101. Teacher Cadet Program. 3 Hours.**

Semester course; 3 hours. 3 credits. Open only to students concurrently enrolled through a Teacher Cadet program at a participating Virginia high school. Designed to provide an introduction and foundation for the teaching profession, including awareness of personal attributes related to education, learning and cognitive styles, student growth and development, history and trends in public education, basic instructional approaches and the structure and governance of public education. The program includes an extended clinical component.

EDUS 200. Education in American Society. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An elective course for non-education majors, including those who may be exploring careers in education. An examination of the complex nature of our American educational system and various societal influences on that system. The course will include an exploration of some critical issues affecting the future of American education, on-site visits to educational institutions, and other field experiences in settings that will permit exploration of career options.

EDUS 202. Diversity, Democracy and Ethics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course engages students in critical exploration of public education in the United States within sociocultural, historical and philosophical contexts. It examines the relationships between an increasingly diverse society and education in a democracy. Students will be taught the ethical obligations of educational professionals and how to become active agents for democratic, equity-oriented schools. In addition, the course will explore legal and policy aspects of education.

EDUS 203. Pop-cultural Foundations of Education: Film/TV, Music, Literature and Schooling in the U.S.. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will examine the relationship between education, schools and society as presented in film/TV, popular music and literature. Visual media and literature are valuable windows that can help us to see how a culture thinks about education and to consider the place of schools in contemporary society. Furthermore, popular culture images of teachers, teaching and schools are powerful influences on public educational debates, arguably even more powerful than educational research. As such, it is essential to think critically about these images, how they have evolved over time, the meanings they convey, and how they structure the ways we think about educational issues. Students will use visual media, music and literature to explore issues such as teaching, equality, educational aims and the relationship between schooling and social change.

EDUS 300. School and Society. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. The historical, sociological and philosophical backgrounds of educational theories and practices. The aim of the course is to help the student develop a basic understanding of education in the modern world.

EDUS 301. Human Development and Learning. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. A study of human development through the life span with special emphasis on child and adolescent psychology, the nature of learning and basic concepts of learning theories.

EDUS 304. Educational Psychology for Teacher Preparation. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. The application of psychological principles to the teaching-learning process, with special emphasis on theories of learning and development. This course explores the application of psychological principles to the teaching-learning process, with special emphasis on learning and development. Intended specifically for pre- and in-service educators, the course will require students to apply theory and research in educational psychology to their prior, current and future teaching experiences.

EDUS 305. Educational Psychology. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: PSYC 101. The application of psychological principles to the teaching-learning process, with special emphasis on theories of learning and development. Crosslisted as: PSYC 305.

EDUS 400. Independent Study. 1-6 Hours.

Semester course; 1-6 hours. 1-6 credits. Opportunities are provided for supervised research and independent study in selected areas. Designed for advanced students. All work offered on an individual basis with the approval of instructor and departmental chair.

EDUS 401. Assessment in Diverse Settings. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: TEDU 413 or SEDP 201. Enrollment is restricted to students enrolled in a B.S.Ed. program. This course explores all aspects of assessment that a teacher encounters in preK-12 educational settings. The course will cover current assessment theories, approaches and instruments used to measure the performance of the children and students representing the diverse learners in today's classrooms – including students with and without disabilities, English language learners and students representing a range of cultural backgrounds. Assessments at all stages of instruction (before, during and after), including formal and informal assessments and their applications in an inclusive educational setting, will be addressed. Particular attention is paid to the ways in which teachers can gather and use assessments to make data-informed decisions for effective instruction and intervention leading to optimal child development and student achievement. Specifically, the course will explore the relationships among content standards, instruction and assessment as well as ways to use a variety of assessments to monitor student progress. The course emphasizes making valid inferences from assessments in a variety of formats; understanding the legal and policy context of assessment; and the implications for appropriate grading practices and decision-making. Course content and assignments will promote critical-thinking and problem-solving skills. Crosslisted as: SEDP 401.

EDUS 476. Methods for Residence Hall Assistants. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: serve in VCU residence halls or permission of instructor. Course designed primarily to present resident assistants and others with student development concepts, peer assistance and helping skills, and group techniques. Residence halls will be used as primary learning laboratories.

EDUS 494. Topical Seminar in Education. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated for a maximum of 6 credits. A seminar intended for group study by personnel interested in examining topics, issues or problems related to the teaching, learning and development of students.

Reading and Study Skills (RDSS)**RDSS 100. Reading and College Study Skills. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. A study of effective reading and study skills at the college-level. Emphasis is placed on vocabulary development as well as reading and study strategies.

RDSS 101. Advanced Reading, Study and Communication Skills. 3 Hours.

Semester course; 3 lecture and laboratory hours. 3 credits. Prerequisite: RDSS 100, adviser's recommendation, or instructor's permission. A study of advanced reading and study skills at the college-level. Students develop and apply critical reading-thinking skills, library research skills and advanced vocabulary.

Special Education and Disability Policy (SEDP)**SEDP 200. Characteristics of Individuals With Disabilities. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. This course focuses on characteristics and identification of individuals with learning disabilities, emotional and behavioral disorders, intellectual disabilities, developmental delay, the less severe autism spectrum disorders, traumatic brain injury, deaf-blindness, visual impairment and other health impairments, and knowledge of characteristics throughout the lifespan, as well as providing information on effects of educational, psychosocial and behavioral interventions that serve as adaptations to the general curriculum. The possibilities of co-morbid or multiple conditions, coupled with cross-categorical instructional settings, warrant a class that examines all eligibility categories of students served under the special education, general curriculum.

SEDP 201. Foundations of Teaching Special Education. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course provides students with the foundations of curriculum and instructional planning for special education. Students will gain the skills to understand and implement learning principles and teaching pedagogy to deliver instruction to students with disabilities in varied educational settings and in a way that reflects culturally responsive curriculum and pedagogy. Students will develop a framework of evidence-based instructional strategies aimed at aligning learning goals, objectives, instructional materials, activities and assessment for children in grades K-12.

SEDP 202. Preparing Diverse Learners From Multicultural and Global Perspectives. 3 Hours.

Semester course; 3 lecture hours (delivered in hybrid format). 3 credits. This course is designed to enhance cultural competence of students through exploration of diversities from multicultural aspects and global perspectives. Students enrolled in the course will have multiple opportunities to increase their cultural awareness individually, reciprocally and socially. Throughout the course, students will explore diverse cultures and contexts within and outside of the U.S. Students will learn to view the relationship between the U.S. and the rest of the world as a dynamic and reciprocal interconnected unit instead of separate units. Topical areas centering on the main theme of multicultural and global perspectives include race, ethnicity, socioeconomic status, linguistic, gender, abilities, urban youth and sexual orientation differences. Key concepts include cultural beliefs, values, equity, diversity and inclusion. Personal and theoretical constructs of these key concepts are explored. Through lectures, readings, group projects, community activities, videos and class discussions, students will identify factors that have an impact on diverse learners and explore innovative approaches leading to the success of all learners.

SEDP 203. Special Education and Disability Law. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course provides an overview of historical and current federal and state litigation and legislation related to children and students with disabilities (e.g., Rehabilitation Act of 1973: Section 504 and the Americans with Disabilities Act). Students will gain understanding of the key provisions of the Individuals with Disabilities Education Improvement Act. This course will include discussion of advocacy and ethical obligations of professionals working with individuals with disabilities.

SEDP 204. Trends in Special Education. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course provides an understanding of the historical, philosophical and sociological foundations of public education in the United States, as well as standards for Virginia education and teaching professionals and ethical and accepted professional standards. The course will cover general knowledge of the foundations of educating students with disabilities, including a general overview of legislation and case law pertaining to special education; characteristics of individuals with and without exceptionalities, including growth and development from birth through adolescence; medical aspects of disabilities; family systems and culture; collaboration; integration/inclusion; transition; and classroom adaptations for educating students with disabilities in the least restrictive environments.

SEDP 216. Family-Professional Partnerships. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course is designed to increase the knowledge, skills and dispositions that are important for collaborating and communicating effectively with families of children with disabilities from birth through age 22. During this course, students will explore the dimensions of family-centered services and person-centered planning, as well as the familial, ecological and cultural factors affecting children with disabilities and their caregivers. Students will learn about theory, general principles and procedures for fostering collaborative partnerships among families, professionals and other stakeholders that lead to outcomes of individual and mutual empowerment. This course will also emphasize understanding the role and responsibilities of community agencies and providers, as well as how understanding the role of members of the collaborative team can impact families.

SEDP 250. Special Education Elementary Supervision. 2 Hours.

Semester course; 1 lecture and 1 field experience hours (delivered online, face-to-face or hybrid). 2 credits. Corequisite: SEDP 379. Enrollment is restricted to students enrolled in the B.S.Ed. in Special Education and Teaching program. The purpose of this field experience is to provide teacher candidates with practical experiences working with students with disabilities in elementary classroom settings. Assignments will emphasize principles of effective assessment in practice.

SEDP 282. Multicultural Perspectives and Disability. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course is designed to enhance cultural competence in diverse community agencies, classrooms and schools. Discussions center around the impact of race, ethnicity, dis/ability, socioeconomic status, linguistic abilities, gender and sexual orientation on access to services and systems. Students will explore the impact of systemic "isms" on narratives about and interaction with children and youth with disabilities, particularly those from minoritized backgrounds. Students will reflect on how attitudes and biases impact their interactions with individuals with disabilities and from cultural identities different from their own.

SEDP 311. Transition Planning for Students with Disabilities. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course explores the literature, research, issues and trends that are relevant to children and youth with high-incidence disabilities as they transition throughout their educational experience and prepare for life after high school. Candidates will learn how to work with students and families to promote successful transitions, including considerations of post-secondary training, employment and independent living. Course content includes issues related to long-term planning, transition assessments, career development, life skills, community experiences and resources, self-advocacy and self-determination, guardianship, and legal considerations.

SEDP 315. Classroom Management and Behavior Support for Students With Disabilities. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course will provide an in-depth analysis of theoretical models, research and strategies for supporting positive behavior of students with disabilities. The course focuses on development, implementation and evaluation of behavior management programs, functional assessment, positive behavioral supports and related classroom strategies. Students will also learn about school crisis management and safety plans, restorative justice, and individualized behavioral interventions. This course emphasizes an approach to behavior support that is culturally responsive and asset-based for students from diverse backgrounds and with intersectional identities. Students will reflect on their own identities, biases and assumptions, as well as their personal role in mitigating behavior problems.

SEDP 320. Development and Implementation of Positive Behavior Support Plans. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is designed to provide pre-service teachers with the opportunity to acquire advanced skills for effective planning, implementing and evaluating behavior strategies and supports. It will also present strategies available for management, communication and discipline at the introductory level. Students will examine a cross section of theories, models and legal and ethical variables relevant to orchestrating learning across school settings where individuals with disabilities are receiving instructional, social, behavioral and transition life-skill services. The use of positive behavioral interventions and functional behavior analysis will be discussed and students will demonstrate appropriate skills using these strategies. Students will also learn the process used to develop and monitor behavior support plans.

SEDP 330. Survey of Special Education. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Presents an overview of the historical basis and regulatory requirements related to special education, including the individual education program as a legal document and the rights and responsibilities of parents, teachers and schools. The characteristics of learners with disabilities and their educational and medical implications are also examined, as well as the cultural, familial and ethical issues involved.

SEDP 350. Special Education Middle School Supervision. 2 Hours.

Semester course; 1 lecture and 1 field experience hours (delivered online, face-to-face or hybrid). 2 credits. Prerequisite: SEDP 250. Corequisite: SEDP 460. Enrollment is restricted to students in the B.S.Ed. in Special Education and Teaching program who have been admitted to teacher preparation. The purpose of this field experience is to provide teacher candidates with practical experiences working with students with disabilities in a middle school classroom. Assignments will emphasize practical applications of evidence-based literacy assessment and instruction.

SEDP 378. Teaching Math to Students With Disabilities. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. The course focuses on effective mathematics instruction for students with disabilities. Students will gain familiarity with the Virginia Mathematics Standards of Learning and learn principles related to selection of appropriate mathematics curricula and instructional methodologies. Concepts include development of number sense, principles of equitable mathematics instruction, Universal Design for Learning in mathematics, evidence-based practices and strategies for making general education mathematics classrooms and curricula accessible for students with disabilities.

SEDP 379. Assessment in Special Education. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course covers all aspects of assessment for students with disabilities. Students will learn about the foundations of strong, effective assessment, including instrument selection and measurement terminology. They will learn how assessment relates to eligibility and provision of special education services, explore factors that can influence assessment results and interpretations, and gain practice administering and interpreting commonly-used assessments.

SEDP 380. Teaching Reading to Students With Disabilities. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course is designed to provide a foundation of literacy instruction for students with disabilities. Students will learn about theories of literacy and literacy development, the components of literacy, and evidence-based instructional practices, with a focus on the foundations of reading. Students will gain familiarity with the Virginia Standards of Learning for Reading and Writing and practice strategies for making general curriculum literacy instruction accessible for students with disabilities, including students with dyslexia.

SEDP 389. Developing Individualized Education Programs. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: SEDP 203 and SEDP 379. This course is designed to provide educational personnel with knowledge of the legal regulatory requirements for Individualized Education Program development, including timelines and team member responsibilities. Students will gain skills for collaborating with students, families and other professionals in creating culturally responsive IEPs that are truly individualized and meet all legal requirements. They will learn to lead IEP teams in making evidence-based decisions about student progress, accommodations, placement, teaching methods and transition. Students will also complete hands-on IEP writing experiences that will address academic and functional needs of students with disabilities. They will also learn best practices in case management, including implementing and monitoring IEPs throughout the school year. Students will reflect on ethical decision-making with regard to balancing students' needs and regulatory compliance.

SEDP 401. Assessment in Diverse Settings. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: TEDU 413 or SEDP 201. Enrollment is restricted to students enrolled in a B.S.Ed. program. This course explores all aspects of assessment that a teacher encounters in preK-12 educational settings. The course will cover current assessment theories, approaches and instruments used to measure the performance of the children and students representing the diverse learners in today's classrooms – including students with and without disabilities, English language learners and students representing a range of cultural backgrounds. Assessments at all stages of instruction (before, during and after), including formal and informal assessments and their applications in an inclusive educational setting, will be addressed. Particular attention is paid to the ways in which teachers can gather and use assessments to make data-informed decisions for effective instruction and intervention leading to optimal child development and student achievement. Specifically, the course will explore the relationships among content standards, instruction and assessment as well as ways to use a variety of assessments to monitor student progress. The course emphasizes making valid inferences from assessments in a variety of formats; understanding the legal and policy context of assessment; and the implications for appropriate grading practices and decision-making. Course content and assignments will promote critical-thinking and problem-solving skills. Crosslisted as: EDUS 401.

SEDP 402. Exceptionality and Technology: Augmentative and Alternative Communication and Assistive Technology. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course will provide students with foundational ideas and concepts regarding the selection and use of assistive technology and augmentative and alternative communication for infants, toddlers, children and young adults with disabilities. Students will recognize and plan for the uses of technology that will aid children and young adults to access and navigate their environment. This course emphasizes the selection and use of AT and AAC in early intervention and general and special education settings for students across the continuum of disability.

SEDP 404. Methods in Teaching Science and Social Studies for Students With Disabilities. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course emphasizes understanding and application of strategies to create inclusive environments in science and social studies general education classes. Candidates will gain familiarity with current Virginia Standards of Learning in K-12 science and social studies as well as instructional guidelines from national science and social studies organizations. They will also learn how to apply principles of Universal Design for Learning, culturally sustaining practice, asset-based pedagogy and evidence-based practices for students with disabilities within the context of science and social studies curriculum and practice.

SEDP 405. Collaborative Practices to Support Inclusion for Children and Youth with Disabilities. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course is designed to help prospective educators, early interventionists and clinicians develop an understanding of collaborative and communication strategies, models and techniques to meet needs of children with disabilities. Skills in consultation, case management and collaboration, including coordination of service delivery with related services providers, administrators, parents, students and other professionals (e.g., paraprofessionals, community agencies) in collaborative work environments will be emphasized. Students will learn essential teamwork skills, reflect on the application of those skills and practice a variety of instructional and organizational techniques for adapting inclusive environments to address the needs of children with disabilities.

SEDP 410. Building a Community of Learners: Classroom Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EDUS 301, PSYC 301 or PSYC 304 with a minimum grade of C. The course is designed to encompass pre-K through grade 12 classroom management theory and application, motivation theory and application, diversity, socio-emotional development, trauma-informed care, and restorative justice for regular education and special education students. Crosslisted as: TEDU 410.

SEDP 415. Action Research in Education and Special Education: Capstone Project. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to seniors with a minimum of 90 credits. This course will prepare students to be reflective practitioners by connecting theory, research and practice through the exploration of action research. The course will consist of three components that promote students' capacity for putting research into action related to their direct work with children and youth with disabilities and their families. Students will first be guided to investigate a research-based instruction/intervention strategy or approach to teaching children and youth with disabilities or developmental delays through a structured literature review. Students will then develop a research plan to be implemented during one of their externships based on the results of the literature review. Finally, students will present their literature review summary and research plan via an online and/or face-to-face poster presentation format. Ongoing, interactive reflections from students are essential components throughout the course.

SEDP 420. Special Education Leadership for Inclusive Schools. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to students with a minimum of 90 credits (senior standing). This course will introduce participants to issues involved in leadership for creating inclusive environments in schools. These systems are aimed to fully include students with disabilities and ensure positive outcomes for students both academically and in functional skills needed for participation in the education environment, community, employment and for post-secondary success. Students will be challenged with assessing their own leadership styles, professional and ethical standards, personal integrity, and how beliefs and values shape actions. Students will also explore strategies to promote the importance of inclusive education as well examine Virginia standards and CEC standards for inclusive schools. Students will have a chance to see the impact of teacher leadership on special education and understand how to promote self-advocacy in students.

SEDP 450. Special Education High School Supervision. 2 Hours.

Semester course; 1 lecture and 1 field experience hours (delivered online, face-to-face or hybrid). 2 credits. Prerequisite: SEDP 350. Corequisite: SEDP 405. Enrollment is restricted to students enrolled in the B.S.Ed. in Special Education and Teaching program who have been admitted to teacher preparation. The purpose of this field experience is to provide teacher candidates with practical experiences within high school classroom settings that serve students with disabilities. Assignments and experiences will emphasize professional collaborations and communication.

SEDP 452. Supporting Multilingual Learners With Disabilities. 1 Hour.

Semester course; 1 lecture hour (delivered online, face-to-face or hybrid). 1 credit. Corequisite: TEDU 452. This course focuses on instruction for multilingual learners who have disabilities. Teacher candidates will learn how these intersectional identities can impact students and will emphasize how to combine asset-based, culturally sustaining instruction for multilingual learners with evidence-based practice for children and youth with disabilities.

SEDP 460. Specialized Reading and Writing Interventions for Students With Disabilities. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: SEDP 380. This course focuses on intensive, specially designed literacy instruction for students with disabilities, including progress monitoring and data-based decision-making. Students will learn about and practice skills related to literacy assessment, research-based reading curricula and evidence-based strategies for intensifying literacy instruction.

SEDP 461. Specialized Math Interventions for Students With High Incidence Disabilities. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: SEDP 378. This course focuses on design and implementation of specially designed interventions for students with high incidence disabilities who may need additional instruction beyond their core mathematics class. Core concepts include principles of effective mathematics intervention, assessment, goal-setting, progress monitoring and data-based decision-making.

SEDP 492. Independent Study. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Opportunities are provided for supervised independent study in selected areas. All work offered on an individual basis with the approval of instructor and department chair.

SEDP 495. Universal Design for Learning and Transition. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The purpose of this course is to provide students with evidence of each of the components of universal design for learning within access to the general academic curriculum – multiple means of representation, expression and engagement. Students will engage in an understanding of theories of learning and development, including cognitive and learning processes, social-emotional development, practices for culturally and linguistically diverse learners, such as English learners, gifted and talented students and students with disabilities, in individual and universal contexts. Additional focus is placed on UDL components linked to effective transition planning embedded within academic instruction targeting successful transitions to postsecondary educational settings. Emphasis is placed on beginning research on the use of this approach and its promising practice for addressing academic and transition goals as well as increasing student motivation and self-determination.

SEDP 499. Student Teaching. 9 Hours.

Semester course; 2 lecture and 7 field experience hours (delivered online, face-to-face or hybrid). 9 credits. Prerequisite: SEDP 450. The goal of this course is to provide special education student teachers a challenging, relevant and rewarding experience, which will allow them to acquire professional competence. Student teachers will apply knowledge gained through their course work, assume the various responsibilities of a classroom teacher, plan instruction and learning experiences that recognize students' individual needs, organize and manage the classroom environment to maximize learning, use assessment data to guide instructional decisions, and practice being a critically reflective teacher.

Teacher Education (TEDU)**TEDU 101. Introduction to Teaching. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Provides undergraduate students with an introduction to teaching and learning in elementary settings. Students will explore current educational reforms and their influences on elementary schools and students. Service-learning activities will enable students to gain firsthand experiences in urban elementary classrooms.

TEDU 203. Focus on Choice. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated for a maximum of 3 credits. A career planning experience for adults focusing on discontinuity in life patterns and a review of current educational and occupational opportunities. Consideration of the world of work, fields of education and volunteer service, and the development of one's own potential will be featured.

TEDU 207. Urban Awareness and Urban Education. 3 Hours.

Semester course; 3 lecture hours (delivered in hybrid format). 3 credits. This course is designed to enhance students' knowledge of urban schools through the examination of historical, economic, political and socio-cultural frameworks that explore how issues of race, class, gender and immigration status have affected the distribution of equal educational opportunities in urban schools in the United States. Diversity in human experiences will be examined within urban cultures and educational settings. Students will engage with research and various literature about inequities in urban schools but also investigate the complexity and challenges of providing excellent education in urban school contexts. The research projects and class book discussions will provide an understanding of communities, their resources, demographics and economy in urban settings that affect education in various ways.

TEDU 210. Debunking Classroom Myths: How and Why Do We Learn Ideas Incorrectly?. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Ever wonder why concepts are taught over and over and are still difficult to explain? This course explores misconceptions commonly learned in K-12 math, science, humanities and social sciences. Students will investigate these ideas through the lens of their own experiences and what is known about how people learn. This course builds understanding of best practices in learning through reading, discussion, reflection and presentation.

TEDU 211. Censored in School: Banned Books. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course explores books that have been censored or challenged in America's public schools (mostly grades 6-12). Students will read censored books and learn how and why those books were targeted by people on the political right and the political left. By reading censored books and by studying efforts to remove these books from public schools, students will clarify their own views of censorship and learn about the politics of education in a democratic society.

TEDU 212. Creating Digital Art and Music Through Computer Coding. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course provides an introduction to design and creativity through the use of computers to create art and music. The goal of the course is to provide an introduction to creativity at the intersection of technology and the arts. The first half of the course focuses on digital art and the second half of the course focuses on digital music. Digital animations are woven throughout the course. During this course students will create original visual and musical artifacts through computer programming. This course is designed for novices in both music/art composition and computer programming. No previous computer programming experience is required.

TEDU 310. Elementary School Practicum A. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Corequisites: TEDU 410, TEDU 414 and TEDU 426. Restricted to students admitted to the Extended Teacher Preparation Program. A field placement that precedes student teaching/internship. Includes planned observations, tutorials and small-group involvement. Graded pass/fail.

TEDU 311. Middle School Practicum. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Corequisite: TEDU 537. Restricted to students admitted to the Extended Teacher Preparation Program. A field placement that precedes student teaching/internship. Includes planned observations, tutorials and small-group involvement. Graded pass/fail.

TEDU 312. High School Practicum. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Pre- or corequisite: TEDU 311; corequisite: TEDU 540, 545, 547 or 548. Restricted to students admitted to the M.T. program with concentrations in secondary education. A field placement that precedes student teaching/internship. Includes planned observations, tutorials and small-group involvement. Course graded as pass/fail.

TEDU 313. Elementary School Practicum B. 2 Hours.

Semester course; 2 practicum hours. 2 credits. Prerequisite: TEDU 310. Corequisites: TEDU 517, TEDU 522 and TEDU 591. Enrollment is restricted to students admitted to the M.T. program with a concentration in early and elementary education. A field placement that precedes student teaching/internship. Includes planned observations, tutorials and small-group and whole class involvement. Graded as pass/fail.

TEDU 381. Middle School Practicum for Engineering Education. 2 Hours.

Semester course; 2 practicum hours. 2 credits. Corequisites: TEDU 382, TEDU 413 and TEDU 420. Enrollment is restricted to students in the B.S.Ed. in Secondary Education and Teaching with a concentration in engineering education program. A field placement that precedes student teaching/internship. Includes planned observations, tutorials and small-group involvement. Graded as pass/fail.

TEDU 382. High School Practicum for Engineering Education. 1 Hour.

Semester course; 1 practicum hour. 1 credit. Corequisites: TEDU 381, TEDU 413 and TEDU 420. Enrollment is restricted to students in the B.S.Ed. in Secondary Education and Teaching with a concentration in engineering education program. A field placement that precedes student teaching/internship. Includes planned observations, tutorials and small-group involvement. Graded as pass/fail.

TEDU 385. Teaching Writing Through Children's Literature. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course will focus on the art of teaching writing through the use of quality children's literature. The course is designed to give students an appreciation of the value of children's literature, examine current trends and explore the use of literature across the genres as tools for developing readers and writers. In addition, students will learn to construct a successful community of writers in PK and elementary classrooms. Students will critically examine theory, techniques and strategies in the context of how children learn to think and write. A focus on pedagogical and rhetorical theory will include an examination of personal writing processes.

TEDU 386. Children's Literature I. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course is designed to give students an appreciation of the value of children's literature, present a look at current trends and provide a wide range of reading from different literary genres and diverse authors. The course will also explore the creative use of literature and its contribution to the development of oral and written expression in children from birth to grade 6. Throughout the course students will develop skills as educators who are critically reflective practitioners. Crosslisted as: ENGL 386.

TEDU 387. Literature for Adolescents. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. Designed to acquaint the prospective middle and secondary school English teacher with the nature, scope and uses of adolescent literature. The student is acquainted with reading materials for meeting the varied needs and interests of adolescents.

TEDU 389. The Teaching of Writing Skills. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will focus on the art of teaching writing through a writer's workshop approach. The course will critically examine theory, techniques and strategies in the context of how students learn to think and write in k-12 classrooms. The class will also address issues of assessing and responding to student writing, and it includes extensive journal and essay writing with an examination of the student's own personal writing processes. Students will be encouraged to be critically reflective practitioners throughout the course. Crosslisted as: ENGL 389.

TEDU 390. Movement Education. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: TEDU 101. This service-learning course will examine the physiological changes that occur in the brain as a result of moderate physical activity and the relationship to increased cognition. Students will also examine how to develop movement-based lessons to complement existing curricula across all content areas. Students enrolled in this course will receive a movement education certification upon completion of the course requirements.

TEDU 400. Independent Study. 1-6 Hours.

Semester course; 1-6 hours. 1-6 credits. Opportunities are provided for supervised research and independent study in selected areas. Designed for advanced students. All work offered on an individual basis with the approval of instructor and departmental chair.

TEDU 405. Seminar for Student Teaching. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Corequisites: TEDU 493 and TEDU 495. This seminar is "attached" to the student teaching internship in the schools and is intended as a companion piece to that semester experience. Issues, including those which have been identified by members of the seminar, as well as issues that arise in the classroom and those that are of perennial concern to teachers of health and physical education are the basis for this class. The teacher as the critically reflective educator is the focus of this seminar: what choices the teacher has in the classroom and what effect those choices have upon student learning.

TEDU 410. Building a Community of Learners: Classroom Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EDUS 301, PSYC 301 or PSYC 304 with a minimum grade of C. The course is designed to encompass pre-K through grade 12 classroom management theory and application, motivation theory and application, diversity, socio-emotional development, trauma-informed care, and restorative justice for regular education and special education students. Crosslisted as: SEDP 410.

TEDU 411. Integrating the Arts in Curriculum for Young Children. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Provides pre-service teachers with an understanding of how experiences in visual art, music, drama and movement can be used to support the growth and development of children in pre-K through 5th grade. Students will learn of the importance of all of the arts for children's cognitive, socio-emotional and psychomotor development. Emphasis will be given to integrating developmentally appropriate experiences in the arts into early childhood curriculum.

TEDU 413. Curriculum Methods and Instructional Models. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisites: EDUS 202; and EDUS 301, PSYC 301 or PSYC 304, both with a minimum grade of C. A study of developmentally appropriate curriculum and instructional models for Pk-12 children. The course includes the study of curriculum, a variety of instructional models, Virginia Standards of Learning, Virginia's Foundation Blocks for Early Learning, diversity, assessment, planning and creating positive learning environments.

TEDU 414. Curriculum and Methods for Early/Elementary Children. 4 Hours.

Semester course; 4 lecture hours. 4 credits. Prerequisite: admission to teacher preparation program. Corequisites: TEDU 310 (Practicum A) and 426. A study of developmentally appropriate curriculum and methods for early/elementary children, including diversity, assessment, behavior guidance and management, planning instruction and creating positive learning environments. Includes an overview of the history of early/elementary education and issues currently facing the profession.

TEDU 416. Math/Science Methods for Early Childhood Education. 4 Hours.

Semester course; 3.5 hour lecture and .5 hours field experience hours. 4 credits. A combined math and science early and elementary methods course that focuses on the teaching of mathematics and science in a PK through 3rd grade class. The course is a lecture/ hands-on course connected with a practicum experience in a local PK-3rd grade classroom. This course is designed to teach pre-service teachers how to plan, implement and assess strong student-centered mathematics and science lessons in today's diverse classrooms. Activities and assignments will focus on research-based practices, effectively using a variety of instructional strategies and hands-on experiences to help students develop their understanding of abstract math and science concepts. The class will help to position the pre-service teacher as a reflective decision-maker.

TEDU 417. Early/Elementary Science Methods. 3 Hours.

Semester course; 2.5 lecture and .5 field experience hours. 3 credits. Prerequisite: TEDU 413. Corequisites: TEDU 422 and TEDU 496. An undergraduate course designed to renew and/or expand teachers' knowledge and skills in the teaching of science in the elementary classroom and the community. New materials will be examined in the light of current trends, research findings and professional recommendations.

TEDU 420. Teaching Middle and High School Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: EDUS 301. Enrollment is restricted to students admitted to teacher preparation or by permission of instructor. Examines the teaching strategies, materials and objectives of engineering education in middle and high schools. Emphasizes the engineering processes, engineering design cycle, integration of science and mathematics into engineering and use of design challenges to engage students in real-world applications of engineering.

TEDU 422. Early/Elementary Math Methods. 3 Hours.

Semester course; 2.5 lecture and .5 field experience hours. 3 credits. Prerequisites: MATH 303, MATH 361 and MATH 362; and STAT 206, STAT 208 or STAT 210. Corequisites: TEDU 417 and TEDU 496. An early and elementary mathematics methods course that focuses on the teaching of mathematics in the PK through 6th grade classroom. The course is a lecture/ hands on course with 40 hours of in class contact time and a 20 contact hour practicum experience in a local K-5 classroom. This course is designed to teach preservice teachers how to plan, implement and assess strong student-based mathematics lessons in today's diverse classrooms. Activities and assignments will focus on research-based practices, effectively using a variety of instructional strategies and using math manipulatives to help students discuss their thinking. The class will help to position the preservice teacher as a reflective decision-maker.

TEDU 425. Emergent and Early Literacy. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course provides an introduction to the theories, concepts, pedagogical approaches, methods and materials used to promote early literacy acquisition and development. Within the framework of the stages of literacy development, students will develop competency in the components of emergent literacy, including language development, phonological and phonemic awareness, phonics, fluency, comprehension, vocabulary and writing. Application of course content in preschool and early elementary classrooms will encourage critical reflection on pedagogical approaches as students meet the diverse language and learning needs of young children ages birth to 8.

TEDU 426. Teaching Reading and Other Language Arts. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Presents teaching strategies and materials in reading and the other language arts based on current theory and research. Emphasizes the interrelatedness of listening, speaking, reading and writing and the importance of naturalistic language experiences.

TEDU 430. Early Childhood Education Practicum I. 1 Hour.

Semester course; 1 practicum hour. 1 credit. Corequisites: TEDU 413 and TEDU 425. Enrollment is restricted to students enrolled in the B.S.Ed. in Early Childhood Education and Teaching program. This practicum experience provides an opportunity for students to observe, learn from and interact with effective school-based educators and students in their early childhood or classroom placement. This course allows VCU teacher candidates opportunities to implement strategies and techniques that are taught in their accompanying methods classes. Students will focus on reflective practice and research-based teaching methods in the area of reading and language arts content. Graded as pass/fail.

TEDU 431. Early Childhood Education Practicum II. 1 Hour.

Semester course; 1 practicum hour. 1 credit. Prerequisites: TEDU 425 and TEDU 430. Corequisite: TEDU 466. Enrollment is restricted to students enrolled in the B.S.Ed. in Early Childhood Education and Teaching program. This practicum studies reading problems by focusing on reading diagnosis and intervention related to classroom settings. The course involves evaluating and tutoring individual students with reading difficulties. Emphasis is placed on making decisions based upon students' individual needs and critical reflection to improve instruction.

TEDU 432. Early Childhood Education Practicum III. 1 Hour.

Semester course; 1 practicum hour. 1 credit. Prerequisite: TEDU 431. Corequisites: TEDU 416 and TEDU 490. Enrollment is restricted to students enrolled in the B.S.Ed. in Early Childhood Education and Teaching program. A practicum that precedes student teaching/ internship. Field work includes planned observations and teaching activities and lessons to small groups and full classes. Graded as pass/fail.

TEDU 440. Elementary Education Practicum I. 1 Hour.

Semester course; 1 practicum hour. 1 credit. Corequisites: TEDU 413 and TEDU 426. Enrollment is restricted to students enrolled in the B.S.Ed. in Elementary Education and Teaching program. This practicum provides an opportunity for students to observe, learn from and interact with effective school-based educators and students in their elementary classroom placement. This course allows VCU teacher candidates opportunities to implement strategies and techniques that are taught in their accompanying methods classes. Students will focus on reflective practice and research-based teaching methods in the area of reading and language arts content. Graded as pass/fail.

TEDU 441. Elementary Education Practicum II. 1 Hour.

Semester course; 1 practicum hour. 1 credit. Prerequisites: TEDU 426 and TEDU 440. Corequisite: TEDU 466. Enrollment is restricted to students enrolled in the B.S.Ed. in Elementary Education and Teaching program. This practicum studies reading problems by focusing on reading diagnosis and intervention related to classroom settings. The course involves evaluating and tutoring individual students with reading difficulties. Emphasis is placed on making decisions based upon students' individual needs and critical reflection to improve instruction.

TEDU 442. Elementary Education Practicum III. 1 Hour.

Semester course; 1 practicum hour. 1 credit. Prerequisite: TEDU 441. Corequisites: TEDU 422, TEDU 417 and TEDU 496. Enrollment is restricted to students enrolled in the B.S.Ed. in Elementary Education and Teaching program. A practicum that precedes student teaching/internship. Field work includes planned observations and teaching activities and lessons to small groups and full classes. Graded as pass/fail.

TEDU 452. Teaching Multilingual Learners. 2 Hours.

Semester course; 2 lecture hours (delivered online, face-to-face or hybrid). 2 credits. Prerequisite: TEDU 413 or SEDP 405. This course is designed to help teachers who plan to teach English and other content areas to PK-12 students who are speakers of other languages. The course includes attention to social and cultural contexts, the diversity of multilingual learners in the United States, legal and policy contexts, models of ESL programs and advocacy for students. Students will also develop skills in lesson preparation and delivery for multilingual learners within ESL classrooms as well as in other content area classrooms.

TEDU 462. Internship I. 4 Hours.

Semester course; 4 lecture hours. 4 credits. Prerequisites: TEDU 312, TEDU 410, TEDU 414 and TEDU 420. Corequisites: TEDU 464 and TEDU 481. This internship serves as the teacher candidate's culminating clinical experience. It provides students with an opportunity to demonstrate what they have learned during their professional academic preparation. It also serves as an opportunity for public school and VCU personnel to evaluate and strengthen teacher candidates' application of theory to practice in a secondary classroom.

TEDU 464. Internship II. 4 Hours.

Semester course; 4 lecture hours. 4 credits. Prerequisites: TEDU 312, TEDU 410, TEDU 413 and TEDU 420. Corequisites: TEDU 462 and TEDU 480. Enrollment is restricted to students who have received passing scores on VCLA and Praxis II. This internship serves as the teacher candidate's culminating clinical experience. Teacher candidates complete a full-time placement that provides them with an opportunity to demonstrate what they have learned during their professional academic preparation. It also serves as an opportunity for public school and VCU personnel to evaluate and strengthen teacher candidates' application of theory to practice in a secondary classroom.

TEDU 466. Literacy Assessment and Intervention in the Early/Elementary Classroom. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: TEDU 425 or TEDU 426. Corequisite: TEDU 431 or TEDU 441. Students will examine reading problems by focusing on reading diagnosis and intervention related to classroom settings. Emphasis is placed on making decisions based upon students' individual needs and critical reflection to improve instruction. Throughout the semester, students will develop skills as an educator who is a critically reflective practitioner using the VCU School of Education conceptual framework as a guide. Students will apply skills acquired in this course during a supervised practicum experience in the corequisite course in which students will evaluate and tutor individual students with reading difficulties.

TEDU 471. Internship I (PK-K). 4 Hours.

Semester course; 4 field experience hours. 4 credits. Prerequisites: TEDU 416, TEDU 466 and TEDU 490. Corequisites: TEDU 475 and TEDU 481. Enrollment is restricted to students who have completed the student teaching approval process (including passing scores on VCLA and Praxis II). This internship serves as the teacher candidate's culminating clinical experience. It provides students with an opportunity to demonstrate what they have learned during their professional academic preparation. It also serves as an opportunity for public school and VCU personnel to evaluate and strengthen teacher candidates' application of theory to practice in an early childhood classroom setting. Teacher candidates complete a full-time seven-to-eight-week placement in a PK/K classroom and assume full responsibility for planning and implementing instruction under the tutelage of a cooperating teacher for a minimum of two weeks.

TEDU 472. Elementary Internship I (PK-2). 4 Hours.

Semester course; 4 field experience hours. 4 credits. Prerequisites: TEDU 417, TEDU 422, TEDU 466 and TEDU 496. Corequisites: TEDU 474 and TEDU 481. Enrollment is restricted to students with passing scores on VCLA and Praxis II. This internship serves as the teacher candidate's culminating clinical experience. It provides students with an opportunity to demonstrate what they have learned during their professional academic preparation. It also serves as an opportunity for public school and VCU personnel to evaluate and strengthen teacher candidates' application of theory to practice in an elementary classroom. Teacher candidates complete a full-time seven-to-eight-week placement in a pre-K/kindergarten to 2nd grade classroom.

TEDU 474. Elementary Internship II (Grades 3-5). 4 Hours.

Semester course; 4 field experience hours. 4 credits. Prerequisites: TEDU 417, TEDU 422, TEDU 466 and TEDU 496. Corequisites: TEDU 472 and TEDU 481. This internship serves as the teacher candidate's culminating clinical experience. It provides students with an opportunity to demonstrate what they have learned during their professional academic preparation. In addition it serves as an opportunity for public school and VCU personnel to evaluate and strengthen teacher candidates' application of theory to practice in an elementary classroom. Teacher candidates complete a full-time seven-to-eight-week placement in a 3rd through 5th grade classroom. For this internship there is sometimes an option to be placed in a sixth grade classroom as well.

TEDU 475. Internship II (Grades 1-3). 4 Hours.

Semester course; 4 field experience hours. 4 credits. Prerequisites: TEDU 416, TEDU 466 and TEDU 490. Corequisites: TEDU 471 and TEDU 481. Enrollment is restricted to students who have completed the student teaching approval process (including passing scores on VCLA and Praxis II). This internship serves as the teacher candidate's culminating clinical experience. It provides students with an opportunity to demonstrate what they have learned during their professional academic preparation. It also serves as an opportunity for public school and VCU personnel to evaluate and strengthen teacher candidates' application of theory to practice in an early childhood classroom setting. Teacher candidates complete a full-time seven-to-eight-week placement in a grade 1-3 classroom and assume full responsibility for planning and implementing instruction under the tutelage of a cooperating teacher for a minimum of two weeks.

TEDU 478. Internship I for Engineering Education. 4 Hours.

Semester course; 4 field experience hours. 4 credits. Prerequisites: TEDU 382, TEDU 410, TEDU 413 and TEDU 420. Corequisites: TEDU 479 and TEDU 480. Enrollment is restricted to students who have received passing scores on the VCLA and Praxis II. This internship serves as the teacher candidate's culminating clinical experience. It provides students with an opportunity to demonstrate what they have learned during their professional academic preparation. It also serves as an opportunity for public school and VCU personnel to evaluate and strengthen teacher candidates' application of theory to practice in a secondary classroom.

TEDU 479. Internship II for Engineering Education. 4 Hours.

Semester course; 4 field experience hours. 4 credits. Prerequisites: TEDU 382, TEDU 410, TEDU 413 and TEDU 420. Corequisites: TEDU 478 and TEDU 480. Enrollment is restricted to students who have received passing scores on the VCLA and Praxis II. This internship serves as the teacher candidate's culminating clinical experience. Teacher candidates complete a full-time placement that provides an opportunity to demonstrate what they have learned during their professional academic preparation. It also serves as an opportunity for public school and VCU personnel to evaluate and strengthen teacher candidates' application of theory to practice in a secondary classroom.

TEDU 480. Investigations and Trends in Teaching: Engineering. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Corequisites: TEDU 462 and TEDU 464. This course is a companion to the student internship in secondary education. Its major purposes are to cultivate the knowledge, dispositions and skills of a critically reflective practitioner into actual teaching practice. To do so, this class provides opportunities for interns to describe, analyze and evaluate the curricular, instructional and management decisions they make during their internship. The course also focuses on professionalism and ethical standards, as well as personal integrity in the teaching profession.

TEDU 481. Teaching as a Profession. 2 Hours.

Semester course; 2 lecture hours (delivered online, face-to-face or hybrid). 2 credits. Prerequisite: TEDU 432 or TEDU 442. Corequisites: TEDU 472 and TEDU 474; or TEDU 471 and TEDU 475. This course is a companion piece to the student internship in elementary education. Its major purposes are to cultivate the knowledge, dispositions and skills of a critically reflective practitioner into actual teaching practice. To do so, this class provides opportunities for interns to describe, analyze and evaluate the curricular, instructional and management decisions they make during their internship. The course also focuses on professionalism and ethical standards, as well as personal integrity in the teaching profession.

TEDU 483. Second Language Acquisition: Concepts, Curriculum and Assessment. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is designed as an introduction to the processes of second language acquisition, with a focus on SLA theories and concepts and how they apply in classroom settings. The course addresses the application of SLA theories, principles and current research to the use of curriculum and assessment. In-depth analysis of readings will enhance the students' understanding of SLA and the research related to this field. Students examine videos of classroom teaching, analyzing the application of SLA theories utilized in various instructional settings.

TEDU 485. Directed Student Teaching I. 6 Hours.

6 credits. Prerequisites: admission to TEDU 310 or equivalent with a minimum grade of C, recommendation of practicum supervisor and passing score on the VCLA test. A classroom teaching experience in a public school or other approved setting, which includes opportunities for increasing involvement with children. Culminates in full responsibility for planning, implementing and evaluating classroom activities.

TEDU 486. Directed Student Teaching II. 6 Hours.

6 credits. Prerequisites: admission to TEDU 310 or equivalent with a grade of C or better and recommendation of practicum supervisor. A classroom teaching experience in a public school or other approved setting, which includes opportunities for increasing involvement with children. Culminates in full responsibility for planning, implementing and evaluating classroom activities.

TEDU 490. Social Studies Methods for Early Learners. 2 Hours.

Semester course; 1.75 lecture and .25 field experience hours. 2 credits. This course's design is centered on helping the pre-service PK-3 early childhood/elementary teacher examine the purpose of social studies education, the connections between social studies and other curricular areas, and the persisting issues in social studies education, and to do it in an equitable way for all learners. The course will introduce students to an integrative reflective planning process and a variety of instructional strategies and materials. Its ultimate goal is to prepare students to understand the role of the teacher as a reflective decision-maker.

TEDU 494. Topical Seminar in Education. 1-3 Hours.

Semester course; variable hours. 1-3 credits. May be repeated for a maximum of 6 credits. A seminar intended for group study by personnel interested in examining topics, issues or problems related to the teaching, learning and development of students.

TEDU 496. Early/Elementary Social Studies Methods. 3 Hours.

Semester course; 2.5 lecture and .5 field experience hours. 3 credits. Prerequisite: TEDU 413. Corequisites: TEDU 417 and TEDU 422. This course's design is centered on helping the PK-6 teacher examine the purpose of social studies education, the connections between the discipline of social studies and other curricular areas, and the persisting issues in social studies education in an equitable way for all learners. The course will introduce students to an integrative reflective planning process and a variety of instructional strategies and materials. Its ultimate goal is to prepare students to understand the role of the teacher as a reflective decision-maker.

L. Douglas Wilder School of Government and Public Affairs

Criminal Justice (CRJS)

CRJS 181. Introduction to Criminal Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Comprehensive overview of criminal justice; assesses the extent of crime; reviews law enforcement, judicial and correctional processes at all levels of government; discusses history and philosophy of public safety; evaluates career opportunities.

CRJS 253. Introduction to Corrections. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. A survey of societal responses to the offender; traces the evolution of practices based on philosophies of retribution, punishment and rehabilitation; reviews contemporary correctional activities and their relationships to other aspects of the criminal justice system; introduces the emerging area of correctional programming within the community.

CRJS 254. Introduction to Policing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. A survey of different facets of law enforcement including the activities of public police agencies and private security organizations. Assesses changes in law enforcement philosophy and practices, police relationships with the public and the political arena and anticipated future trends in policing.

CRJS 300. Forensic Criminology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The intersection of law, predictions of dangerousness, mental disorder and crime. Behavioral prediction, classification and the development of typologies of offenses and offending will be considered. Issues in the use of clinical and statistical prediction methods in criminal justice will be presented.

CRJS 305. Policing Theories and Practice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 181 and 254. An overview of the nature and application of law enforcement theory. Examines the theoretical underpinnings of a variety of law enforcement practices, with emphasis on evolving trends.

CRJS 316. Victimology and Victimization. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. Enrollment is restricted to criminal justice majors and minors. Introduces the concepts of victimology and various forms of criminal victimization. Evaluates historical and contemporary policy responses to addressing victimization in the United States. Particular attention is given to measuring the nature and extent of victimization, victims' roles in the criminal justice system, the impact of victimization on individuals, and laws and policies designed to prevent victimization.

CRJS 320. Principles of Criminal Investigation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. Surveys the fundamentals of criminal investigation procedures and techniques. Examines crime scene management, distinguishes between types of criminal offenses, analyzes sources of information and covers trial preparation.

CRJS 324. Courts and Sentencing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 181, CRJS 253 and CRJS 254. An overview of the U.S. criminal courts. Examines sources of law, court structure and jurisdiction, the role of courtroom actors and juries, and stages in the criminal process, including pretrial procedures, trials and sentencing. Disparities based on race, gender and class will be included.

CRJS 335. Ethics and Decision-making in Criminal Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 181, CRJS 253 and CRJS 254. Enrollment is restricted to criminal justice majors and minors. Understanding the ethical basis for decision-making in criminal justice, which involves the liberty interests of others. Important decision points are examined to apply ethical perspectives to decisions for criminalizing behaviors, methods of enforcing the law, charging suspects, convicting and sentencing offenders. These decisions include those made by citizens, legislators, police, prosecutors, defense counsel, judges and corrections officials.

CRJS 350. Evaluation and Treatment of the Offender. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 181 and 253. An analysis of the issues and procedures involved in evaluating individual differences in offenders and among classes of offenders; current diagnostic and treatment methods are discussed; introduces the student to case analysis and correctional counseling techniques. Includes analysis of evaluation and treatment resources external to corrections.

CRJS 351. Community Corrections. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 181 and 253. A comprehensive review of various community-based rehabilitation and treatment efforts; includes analysis of probation, parole, work release, halfway houses and other methods of re-integrating the offender into society.

CRJS 352. Crime and Delinquency Prevention. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. Examines the purpose, empirical evidence and effectiveness of major crime and delinquency prevention programs, policies and practices. Focuses on introducing students to primary, secondary and tertiary crime and delinquency prevention programs and uses evidence-based research to assess the effectiveness of crime and delinquency prevention programs implemented in various domains, including families, schools, peers, communities and the criminal justice system.

CRJS 355. Criminological Theory. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 181, CRJS 253 and CRJS 254. Examines the intellectual underpinnings of the criminal justice system. Includes analysis of evolving values and ideas regarding social control, individual and collective responsibilities and rights, the role of punishment, politics and the law, practitioners as public servants, and criminological and other foundations of the criminal justice system.

CRJS 358. Lawyer's Role in the Justice System. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. Examines the multiple responsibilities of lawyers from an historical and contemporary perspective. The basic techniques of the lawyer's craft will be studied with emphasis placed on case advocacy, negotiation skills and legal reasoning, and problem-solving.

CRJS 360. Foundations of Criminal Law. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Clarifies both the content and role of criminal law within criminal justice and its administration in America. Explores the moral, theoretical and historical foundations of American criminal law and jurisprudence; elements and classification of criminal conduct; burdens of proof; defenses to criminal culpability; and a variety of crime types focusing in particular on crimes against person and property.

CRJS 370. Criminalistics and Crime Analysis. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. A comprehensive evaluation of current developments in research, instrumentation and laboratory technology utilized to detect, identify, analyze and compare evidence.

CRJS 373. Crime Scene Evidence: Law and Trial Procedure. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. Provides a fundamental understanding of evidence law. Examines the nature and admissibility of various forms of evidence. Provides an understanding of the investigator's role in the judicial process including the presentation of testimony and adversarial proceedings.

CRJS 380. Research Methods in Criminal Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 181, CRJS 253 and CRJS 254; and STAT 208 or STAT 210. Designed to familiarize the student with current and applied research methods in criminal justice, including the application of data and information processing techniques and procedures; analyzes research in criminal justice journals and government reports; and enhances the capability to evaluate contemporary research.

CRJS 382. Gender, Crime and Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the role of gender as it relates to crime and justice. Special attention will focus on the gendered experiences of practitioners, offenders and victims within the criminal justice system in terms of processing, adjudication and institutional responses. Crosslisted as: GSWS 382.

CRJS 400. Current Issues in Juvenile Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. Restricted to criminal justice majors. Examines key issues facing the modern American juvenile justice system. Integrates social science research, juvenile justice policy and legal scholarship pertaining to current law and policy controversies in juvenile justice.

CRJS 401. Sex Crime and Society. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. Restricted to criminal justice majors. Examines the nature and extent of sex offending, societal responses to sex crime, and the laws and policies enacted to reduce sexual offending. Explores the etiology of sex offending as well as methods to evaluate the efficacy of sex crime laws.

CRJS 407. Jails and Reentry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 181 and CRJS 253. Enrollment is restricted to criminal justice majors. Examines issues specific to jails and short-term detention. Considers historical and contemporary aspects of the American jail, while exploring the complexities of jail management and dynamic offender populations. The challenges of providing health care, mental health and substance-abuse programming, legal resources, educational training, and reentry support are examined, as well as the broader collateral consequences of short-term detention.

CRJS 417. Drug Use, Drug Policy and Criminal Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. Enrollment is restricted to criminal justice majors and minors. A course designed to examine drug use and its important consequences for individuals, health and communities. Traditional criminal justice prohibition-based policies, such as the "war on drugs," are examined and compared and contrasted with the principles of harm reduction. A review of harm-reduction partnerships with law enforcement, courts and correctional agencies will be discussed.

CRJS 421. Race, Crime and Criminal Justice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is an examination of race in the context of the criminal justice system. Emphasis on the various observations of racial minorities as victims and offenders by law enforcement, courts and corrections. In addition, the course will explore the theoretical approaches on how race and ethnicity are connected to the criminal justice system and its myriad processes. In addressing these connections, emphasis is placed on social forces and other related factors as applicable to the criminal justice system.

CRJS 425. Violent Crime Scene Investigation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. Introduces students to specialized tools and scientific aids used in the criminal investigation of violent crime cases. Applies investigative techniques and preparation of trial evidence used in violent crimes.

CRJS 432. Leadership in Criminal Justice Organizations. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. Considers the behavioral dimensions of administrations in criminal justice and public safety agencies. Examines the concepts of leadership and decision-making and the effect of environmental dynamics in the management of the criminal justice system.

CRJS 434. Principles of Police Administration. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 181 and CRJS 254. Examines major management concepts and principles with special emphasis on consideration of law enforcement. Policies and procedures formulated and followed by managers in law enforcement settings will be evaluated from a structural as well as a functional perspective. Contemporary and anticipated future problems, challenges and trends facing police managers will be addressed.

CRJS 450. Cyber Crime and Computer Forensics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Study of computer-related crime and related laws and policies. Focus on the investigation and processes of securing evidence for computer-related crimes.

CRJS 463. Crime and Justice in Global Perspective. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. This course is designed to move students beyond an "American-centric" view of criminal justice in an introduction to crime, law, criminal justice systems and crime control in cross-national perspective. Crime is a global problem that has been part of the human experience through both time and space; as such we will discuss crime trends around the world, the statistics that tell us what we think we know about crime around the world, and the different systems of law, policing, courts and corrections around the world in place to combat it. Problems of cultural relativity, international crime, transnational organized crime and policy transfer will also be discussed.

CRJS 468. Organized Crime. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. The nature and extent of organized crime will be examined. The distinctions from street crimes will be reviewed, as will an assessment of organized crime history, causation, investigation tools, prosecution, defense and sentencing alternatives. The changing nature of organized crime, its transnational manifestations and the outlook for its future will be explored.

CRJS 475. Criminal Procedure. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181. Analyzes criminal procedure regarding the courts and their supervisory role over prosecutions and the use of testimonial and non-testimonial evidence. Examines the judicial interpretive processes by which the public safety is balanced with individual rights.

CRJS 480. Senior Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 181, CRJS 253, CRJS 254, CRJS 355 and CRJS 380. Enrollment is restricted to seniors in criminal justice with at least 85 credit hours taken toward the degree. A capstone course designed to assist students to apply and to think critically about current knowledge regarding crime, crime trends, law, law enforcement, the adjudication process, corrections and crime prevention. Scenarios, research, projections and evaluation of different viewpoints will be employed to develop the student's ability to assess methods of argumentation, use information and apply existing knowledge to new fact situations.

CRJS 491. Topics in Criminal Justice. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Prerequisite: CRJS 181. In-depth examination of selected administration of justice topics. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

CRJS 492. Directed Individual Study. 1-3 Hours.

Semester course; variable hours. 1, 2 or 3 credits. Maximum total of 6 credits. Prerequisite: CRJS 181. Available to all other criminal justice students who are seniors and have a minimum GPA of 3.0 (with permission of department chair) as a substitute for a major elective course. Provides an independent study opportunity for the adult student who is (or was) employed in a criminal justice, safety or risk administration position and who does not require internship or volunteer experience.

Government and Public Affairs (GVPA)**GVPA 100. Making Policy Real: Social Problems and Policy Solutions. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. This course is designed to introduce students to public affairs, expose them to the intersections among Wilder School disciplines through current issues and provide them with placement and career opportunities available through the school. The course explores current social problems, crises, challenges and policy solutions and will expand the students' knowledge and scope of the process and impact of public decision-making. The course will use social problems as a key framework to discuss public policy, civic engagement, policy analysis and the influence of politics and the media on public affairs.

GVPA 391. Special Topics in Government and Public Affairs. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. A maximum 6 credits in all special topics courses offered in the Wilder School may be applied to any of the school's majors. Intended for sophomores and juniors. An intensive focus on a selected field of interest relevant to all majors in the school. See the Schedule of Classes for specific topics to be offered each semester.

GVPA 399. Introduction to Science and Technology Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the study of science, technology and medicine from political, sociological and historical perspectives, focusing on case studies that illustrate the methods and theories used to examine the structure and behavior of the scientific community and the role of scientific knowledge in shaping public culture. Crosslisted as: HIST 399/SCTS 300.

GVPA 423. Virginia Capital Semester Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Open only to students in the Virginia Capital Semester program. Designed as an integral part of the program, this course provides an examination of state policy issues and state legislative processes using the current Virginia General Assembly session as illustration.

GVPA 491. Advanced Special Topics in Government and Public Affairs. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. A maximum 6 credits in all special topics courses offered in the Wilder School may be applied to any of the school's majors. Intended for advanced students and seniors. An intensive focus on a selected field of interest relevant to all majors in the school. See the Schedule of Classes for specific topics to be offered each semester.

GVPA 493. Government and Public Affairs Internship. 1-6 Hours.

Semester course; variable hours. 1-6 credits. (50 hours per credit.) May be repeated for a maximum of 6 credits. Permission of internship coordinator required. Designed to provide the student with an opportunity to relate theory to practice through observation and actual experience within the field of government and public affairs.

GVPA 494. Virginia Capital Semester Internship. 3 Hours.

Semester course; 3 internship hours. 3 credits. Corequisite: GVPA 423. Enrollment restricted to students in the Virginia Capital Semester program. Designed to provide students with an opportunity to relate theory to practice through participation in activities related to the annual session of the Virginia General Assembly. Graded as Pass/Fail.

GVPA 495. UROP Directed Study. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Students enrolling in this course must meet the eligibility requirements of the Undergraduate Research Opportunity Program. Designed to provide advanced research opportunities to undergraduate students. Topics chosen in consultation with the UROP coordinator. Students may take a total of six GVPA 495 credits; only three of those credits may be applied to the major.

GVPA 499. Wilder School Scholars Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Capstone seminar course focusing on a broad topic in one of several disciplines of interest to Wilder School Scholars. Topics, structure and content determined each semester.

Homeland Security and Emergency Preparedness (HSEP)**HSEP 101. Homeland Security and Emergency Preparedness. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. An introduction to the public- and private-sector dimensions of the broad range of theoretical and practical aspects of homeland security and emergency preparedness, including: origins of natural and terrorist-caused disasters; local, state and federal emergency management planning and operations; health infrastructure capabilities; public communication strategies; business community concerns; ethical, legal and constitutional questions; as well as the social and psychological dimensions of disasters.

HSEP 301. Terrorism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A survey of the modern problem of terrorism with an emphasis on the political nature of terrorist acts. Examines the history of terrorism, domestically within the U.S. and internationally, the role of religion, the structures and operations of terrorist organizations, as well as counterterrorism policies and policy-making. Crosslisted as: POLI 367.

HSEP 302. Emergency Planning and Incident Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the basic tasks of emergency preparedness and disaster mitigation, including planning, response and recovery. Special emphasis will be placed on command arrangements, coordination and budgetary issues among emergency responders (law enforcement, firefighters and health care system officials), and within and between federal, state and local governments.

HSEP 310. Risk and Vulnerability Assessment. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to analytical techniques and methodologies for threat and vulnerability assessment of various types of public and private infrastructure. An all-hazard approach is employed, considering natural disaster, system failure and terrorist attack (conventional or weapons of mass destruction). Special attention will be focused on critical infrastructure protection as well as cyberterrorism.

HSEP 311. Strategic Planning for Homeland Security and Emergency Preparedness. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of the strategic planning for emergency preparedness, operations and recovery for all hazards, as well as terrorist-prevention security measures. The course will focus on public goods/free rider issues, setting organizational priorities, governmental budgeting choices, legal aspects of government regulation of infrastructure and business community security concerns.

HSEP 314. Cybersecurity Policy. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course addresses emerging strategic, legal and policy issues associated with computer attack, exploitation, detection and defense. Students will be introduced to research and developments across a range of issues and will engage with topics related to national security, homeland security and economic policy, and local governance.

HSEP 320. The Intelligence Community and the Intelligence Process. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of the concepts of and challenges for state, local and federal policy making and organization for homeland security and emergency preparedness. The intelligence process — the collection, analysis, sharing and dissemination of information within and between local, state and federal governmental agencies — is a special focus.

HSEP 330. Legal and Constitutional Issues in Homeland Security and Emergency Preparedness. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An analysis of the legal and civil liberties changes and challenges brought on by terrorist attacks. Topics addressed may include surveillance issues, federal legislation passed in the aftermath of the terrorist attacks, the rights of foreign nationals, the rights of U.S. citizens, the governmental infrastructure for decisions concerning legal rights and the difficulties of prosecuting terrorist suspects, such as jurisdictional issues, rules of evidence and prosecution strategies.

HSEP 335. International Terrorism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: HSEP 301/ POLI 367. This course covers conceptual and measurement issues associated with the study of cross-national international terrorism, which focuses on examining and explaining country-level terrorism patterns within and between countries. Students will examine global terrorism by focusing on the patterns and correlates of country-level terrorism. Using a multidisciplinary approach that draws academic insights from political science, sociology, economics and criminology, this course exposes students to three related areas of international terrorism.

HSEP 347. Intelligence Analysis. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: HSEP 320. The course provides an overview of the intelligence analysis process and explores a variety of structured analytic intelligence techniques that have been used successfully. This course was designed to contribute to the development of intelligence analysts who can think critically and will contribute to strong analytical tradecraft.

HSEP 350. Emergency Public Health Preparedness. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: HSEP 101. This course provides an introduction and understanding of the policy, strategy and practical application of emergency public health preparedness, response and mitigation from an all-hazards perspective. Through a public health perspective for communities and nations that are at risk for large-scale emergencies, it describes the strategic context presented by the 21st-century risk environment, and explores the interactions, contributions and roles of multiple sectors such as the government, non-governmental organizations, private enterprises and individuals before, during and after a public health emergency.

HSEP 356. Making a Terrorist. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: HSEP 301. This course examines the radicalization and deradicalization processes of violent extremists, with specific emphasis on terrorists. Students will learn about the processes and factors that lead individuals to engage in violence, as well as how these processes can be co-opted to draw individuals away from extremist organizations and ideologies.

HSEP 360. Critical Infrastructure Protection and Resiliency. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: HSEP 310. An advanced study of homeland security critical infrastructure protection and resiliency from an all-hazards perspective. Develops an understanding of the policy, strategy and practical application of critical infrastructure protection and resiliency issues. Special emphasis on understanding the strategic context presented by the 21st-century risk environment, DHS critical infrastructure sectors, and the challenges and opportunities.

HSEP 365. WMD Materials and Tactics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course provides a qualitative and minimally technical introduction to weapons of mass destruction materials that might be expected in a terrorist incident and the tactics that may be employed in their use. Students will gain an understanding of the characteristics of these materials, how they might be employed tactically, how it is possible to respond to WMD incidents in a safe and effective manner and WMD countermeasures. The course will also dispel several “mythical and magical” beliefs about WMD materials.

HSEP 370. Disaster Response and Recovery. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: HSEP 302. This course surveys the research and practice of disaster response and recovery. Students will learn about disaster recovery theory and practice, recovery planning, debris management, donations, volunteer organizations, environmental recovery, sustainable recovery, post-disaster housing recovery, and disaster impacts on vulnerable populations. The course covers all relevant actors during and after disasters, including community members, government agencies, elected officials, media, nonprofit organizations and the business sector.

HSEP 375. Human Trafficking. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Students will receive an overview of contemporary human trafficking and modern-day slavery. The course provides an understanding of the scope of the human trafficking problem, both domestically and globally, and covers the different types of human trafficking that exist, including sex, labor, organ, body and baby trafficking, as well as the exploitation of child soldiers.

HSEP 391. Topics in Homeland Security and Emergency Preparedness. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Maximum total of six credits in all departmental topics courses may be applied to the major. Prerequisites: CRJS 367/HSEP 301/POLI 367 and CRJS 368/HSEP 302. An intensive focus on a specialized field of interest to the study of homeland security and emergency preparedness. See the Schedule of Classes for specific topics to be offered each semester.

HSEP 418. Counterterrorism. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: HSEP 301/POLI 367. This course examines the extent to which terrorism is a threat to U.S. national interests and security by analyzing terrorist organizations' strategies, tactics and methods of operation. It also evaluates the pros and cons of a variety of potential government (foreign and domestic) responses to terrorism, such as diplomacy, sanctions, covert action and military operations in both a historic and contemporary context.

HSEP 490. Senior Seminar. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: HSEP 310, HSEP 320/CRJS 375 and HSEP 330/CRJS 330. A capstone course examining the major issues related to homeland security and emergency preparedness. Students will be required to produce a research project related to a role-playing in-class simulation of an emergency situation that will include exercises in red-teaming.

HSEP 491. Advanced Topics in Homeland Security and Emergency Preparedness. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 367/HSEP 301/POLI 367 and CRJS 368/HSEP 302. An intensive focus on a specialized field of interest to the study of homeland security and emergency preparedness within a seminar setting. See the Schedule of Classes for specific topics to be offered each semester. Maximum total of six credits in all departmental topics courses may be applied to the major.

HSEP 492. Independent Study. 1-4 Hours.

Semester course; 1-4 credits. Maximum total of six credits in all independent study courses may be applied to the major. Prerequisites: junior or senior standing with 12 credits in HSEP courses. Permission of instructor or program director required, with determination of course credit value prior to registration. An independent study that allows students to perform research under the direction of qualified instructor in a subject or field of major interest.

Urban Studies and Planning (URSP)**URSP 102. Introduction to Human Geography. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. An introduction to human geography from a global perspective, emphasizing settlement patterns, human-environment interactions, cultural variations, political transitions and population change in the global economy.

URSP 108. Uncovering Richmond. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the dramatic changes Richmond has undergone in recent decades and how those changes mirror trends in cities across the country. The student will discover the role of politics, public safety, education and other important issues in the development of the city through course lectures, readings, discussion and presentations by guest speakers.

URSP 116. Introduction to the City. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduction to the various theories of urbanism and attempt to offer solutions to the problems of urban life in modern civilization. The course will survey the major works of those who have studied cities or offered solutions and alternatives to existing urban structures. The works of noted social reformers, political analysts, economists, and architects as well as urban planners will be examined through lectures, readings, films, slides, discussions and field trips (when feasible).

URSP 120. Urban Issues in Film. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces students to a variety of themes in urban studies through the medium of film. Focusing on a selection of films and related readings, the course exposes students to critiques of the socioeconomic, historical, political and structural aspects of cities and regions.

URSP 204. Physical Geography. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the interrelated systems of the earth and the physical processes that create regional differences in climate and physiography. Provides a solid foundation for better understanding human-environment interactions, such as those related to climate change, by exploring topics such as earth-sun relationships, air temperature, atmospheric pressure and precipitation, winds and global circulation, plate tectonics, tectonic and volcanic landforms, weathering, and the impacts of running water, waves, wind and glaciers in shaping the landscape.

URSP 245. Housing and Community Revitalization. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The purpose of this course is to examine housing issues as a major determinant of the make-up and the quality of community life in modern American society. Attention is given to the public and private forces that influence various components of the housing issue, such as: demand for housing; housing availability to various economic and social groups; housing design and quality (including new construction, rehabilitation, historic preservation, and adaptive re-use), housing finance and the relationship of housing to planning in metropolitan areas.

URSP 261. Design of the City. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Architecture, space and activities play a special role in the overall design of the city. These elements are analyzed to understand their interrelationships and importance to a city's visual character. Architectural styles, civic art, effects of space on the individual and methods for designing cities will be discussed. The class is for those who want to understand urban design elements and for those who will be involved in city design.

URSP 303. World Regions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of the various regions of the earth, including land forms, climate, resources, peoples, agriculture and urban conditions. Regions to be selected each semester from Anglo-America, Latin America, western Europe, Eastern Europe, the former USSR, Middle East and North Africa, Africa (south of the Sahara), Indian subcontinent, China, Japan, Southeast Asia, and Oceania. May be taken only once for credit. Crosslisted as: INTL 303.

URSP 304. Urban Social Systems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course aims to familiarize undergraduate students with health as a concern in urban studies, and facilitate essential skills in reflexive thinking about the topic. Drawing together foundational readings in public and community health, health service delivery and urban health, this course examines canonical concepts such as social determinants of health, health care financing and community health needs assessments. Broadly, the course is broken up into three distinct parts. The first part introduces students to foundational concepts in public and community health, including the social-ecological model, vulnerable populations, community engagement and health policy. The second part introduces students to key aspects of health care service delivery, such as the types and distribution of health care institutions including the health care safety net. The final part invites students to apply acquired learning to case studies in urban health and to translate their knowledge into a forward-looking view as we enter the next era of urban health.

URSP 306. Economic Geography. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Explores the workings of regional economies through analysis of industries and occupations. Studies the reasons for variation in regional economic characteristics and examines policies and strategies for enhancing regional economic conditions. Course relies heavily on the use of Microsoft Excel; proficiency with using this program is required.

URSP 310. Introduction to Urban and Regional Planning. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: URSP 116 or permission of instructor. Introduction to the theory and practice of governmental planning in the U.S. with emphasis on urban and regional planning. Surveys the history of planning, current planning practice and the ethical responsibilities of planners.

URSP 312. History of Human Settlement. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A cultural and historical geography of human migration and settlement over the earth. Topics may include agricultural and urban systems, exploration, colonization and imperialism, and changing relationships with the environment, during and since the Middle Ages. Crosslisted as: ANTH 312.

URSP 313. Research and Field Methods in Urban and Regional Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: STAT 208 or STAT 210. Introduces students to a variety of field and research techniques used to gather and analyze information to study urban and regional issues. Key topics include designing a research project, developing and implementing surveys, conducting focus groups and observation, analyzing data statistically, interpreting and reporting results, and utilizing secondary information.

URSP 315. The Evolution of American Cities. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A general survey of how cities developed in the United States and the factors that contributed to the process of urbanization. Emphasis is placed on the public attitudes and values that have dominated particular periods of history and how these values affected the efforts to urbanize. The American city is examined as a vital force in the economic, social and political development of modern America, as the major location for conflict between people of all persuasions, and as the home of much of what is meant by American "civilization."

URSP 316. Urban Life in Modern America. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Restricted to nonmajors. Examines how a modern city functions, the public services rendered within the city and the impact of public policy on the city. The city is treated as a system consisting of economic, social and political activities that influence and are influenced by the physical/demographic environment. Each activity is studied separately with the cause-effect relationships among the activities highlighted by an analysis of public service delivery and, more generally, urban public policy.

URSP 321. Urban Economics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECON 203 with a minimum grade of B, ECON 205 with a minimum grade of B or ECON 210. An introduction to urban economics, with an emphasis on the economics of agglomeration and the role of externalities in the urban economy. Economic analysis of the provision of urban public services and urban public financing, especially in politically fragmented areas. Crosslisted as: ECON 321.

URSP 322. Urban Finance. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: GEOG/URSP 306. Treats the local government from a practical management perspective as an organization in a political-economic environment. The nature of city expenditures and sources of revenues are explored. Budgeting and taxing decision-making processes are explored in depth. Economic impacts of these decisions on citizens are analyzed and implications for practice drawn.

URSP 331. Geography of Latin America and the Caribbean. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the physical and human geography of Latin America and the Caribbean from an interdisciplinary perspective. A systems approach is used to concentrate on particular topics, themes and patterns that have broader relevance to the overall region or subregions (e.g. Central America, the Lesser Antilles, the Andes, Amazonia) rather than on the details of each country. However, in relation to some topics, case studies are used that may focus on a particular country.

URSP 332. Environmental Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: URSP 204. An interdisciplinary review of domestic and international environmental problems and their underlying causes, current management frameworks, alternative management approaches and strategies, and barriers to their implementation. Other topics include: environmental history and economics, population growth, natural resources use, biodiversity, pollution. Crosslisted as: ENVS 332.

URSP 333. Geography of Africa. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, peoples, livelihoods, settlement patterns and cultural groupings of sub-Saharan Africa. Crosslisted as: AFAM 333/INTL 333.

URSP 334. Regional Geography of _____. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, resources, peoples, agricultural and urban conditions in a specific region such as North America, Europe, Latin America, the Middle East and India, the USSR and Eastern Europe. See the Schedule of Classes for specific region to be studied each semester. Crosslisted as: INTL 334.

URSP 340. World Cities Outside of North America. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduction to the theories and ideas of urbanism through writings and cases of major global cities outside of the United States. Crosslisted as: INTL 340.

URSP 350. Great Cities of the World. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An interdisciplinary course with a focus on the origin, expansion and significance of one or more cities, the specifics of its/their culture and the role of language. Particular emphasis will be placed on relating the physical, social and economic aspects of the city's growth and development to the cultural expression of urbanism. Crosslisted as: FRLG 345/INTL 345.

URSP 355. Active and Sustainable Transportation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course provides students with an understanding of how transit systems and biking and walking infrastructure networks function within an urban environment. The course explores planning approaches and techniques for shifting travel behavior away from single-occupancy vehicle use and toward biking, walking and mass transit. It also addresses issues around equity of access to transit and other travel modes, as well as the influence that shared mobility, autonomous vehicles and other emerging technologies may have on our transportation systems.

URSP 360. Community and Regional Analysis and GIS. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces students to the core functions and applications of geographic information systems. Trains students in the management, modeling, analysis and visualization of urban and regional georeferenced data. The GIS techniques covered include the classification and symbolization of geographic features, data querying, table and spatial joining, spatial selection, projections, creation and editing of spatial features, geocoding, spatial analysis, and mapping.

URSP 361. Introduction to Urban Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The objectives of the course are to understand the principles of urban design and the means for their implementation within the context of the planning process. The course is organized around three primary topics: human interaction with the spatial environment, implementation of urban design proposals and application of the subject matter of the course through a number of field experiences and projects.

URSP 391. Special Topics in Urban Studies. 1-3 Hours.

Semester course; 1, 2 or 3 credits. Prerequisite: because of the changing subject matter to be treated in this course, permission of the instructor is required. Students will have an opportunity to examine in detail some questions of significance. See the Schedule of Classes for the specific topic to be offered each semester.

URSP 392. Independent Study. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Prerequisite: junior or senior standing is required. Under supervision of a faculty adviser, who must approve the student taking the course, a student studies a topic of interest.

URSP 413. Policy Implementation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An examination of the administrative setting of government and its policy impacts on public programs, policy design and redesign, and evaluation and monitoring.

URSP 425. Labor, Employment and Regional Development. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Examines the role of employment and the workforce in regional development from social, economic and geographic perspectives. Explores the factors impacting U.S. employment patterns, such as the green economy, immigration and technological change, and their implications for workers and regional economies. Also examines policy approaches to address labor and workforce issues with special consideration of disadvantaged groups and communities.

URSP 428. Land Use and Infrastructure Planning. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: URSP 310. Explores how the integration of land use, transportation and other infrastructures (e.g., water supply, waste water and storm water) in urban and regional planning can improve development patterns to ensure sustainability and livability. Examines specific professional planning techniques such as site plan review, subdivision permitting and capital improvements planning.

URSP 435. Diversity, Equity and Inclusion in the City. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will be divided into two units. Unit One – "Foundations" will provide a foundation to the course through the introduction of key concepts related to diversity, equity and inclusion and a brief overview or relevant planning history and practice. Additionally, several frameworks will be explored as a lens to discuss the interactions between demographic identity and urban environments. In Unit Two – "Applications", students will explore through articles, readings and speakers, present-day urban planning practices that address the needs and empower various identity groups in Richmond and in other cities in the U.S.

URSP 440. Senior Capstone Seminar in Urban and Regional Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: URSP 310 and URSP 313. Enrollment also restricted to students with senior standing. Requires students to synthesize knowledge gained in previous major courses and apply it through one or more field-based exercises. Also explores issues related to career planning.

URSP 461. Applied Planning Studio. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: all core courses in the urban and regional studies program. Applying the principles and theories of urban studies, students work as a group in the preparation of a plan to address a real community problem.

Urban Studies and Planning Lab (URSZ)**URSZ 204. Physical Geography Laboratory. 1 Hour.**

Semester course; 2 laboratory hours. 1 credit. Pre- or co-requisite: URSP 204. Problem-solving and map-reading exercises related to topics covered in URSP 204, such as earth-sun relationships, air temperature, atmospheric pressure and precipitation, winds and global circulation, plate tectonics, tectonic and volcanic landforms, weathering, and the impacts of running water, waves, wind and glaciers in shaping the landscape. Provides essential analytical skills aimed at a better understanding of human-environment interactions, such as those related to climate change.

School of Medicine**Anatomy and Neurobiology (ANAT)****ANAT 301. Head and Neck Anatomy for Dental Hygienists. 3 Hours.**

2 lecture and 1 seminar hours. 3 credits. An overview of head and neck anatomy that examines the major osteological, neural, muscular, vascular and visceral features. Lectures will be supplemented by textbook, self-study packages and by brief laboratory exercises that provide hands-on exposure to these major anatomical features.

ANAT 302. Microscopic Anatomy (Dental Hygiene). 2 Hours.

8-week course; 3 lecture and 1 laboratory hours. 2 credits. A lecture course in the microscopic anatomy of the cells and tissues relevant to the oral cavity.

Microbiology and Immunology (MICR)

MICR 365. Infection and Immunity (Dental Hygiene). 2 Hours.

Semester course; 2 lecture hours. 2 credits. A study of infectious diseases and the immune system of humans with emphasis on the distribution properties and roles of pathogenic microorganisms and the varied responses of the host, with emphasis on oral pathologies. Principles of prevention, control and chemotherapy of infectious diseases are major components of the course.

Pharmacology and Toxicology (PHTX)

PHTX 400. Drugs and Their Actions. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to students with junior or senior standing, or permission of instructor. This course is a general survey of pharmacology and related disciplines. The basic principles of pharmacokinetics and pharmacodynamics are presented followed by discussions of neuropharmacology, including drugs for treating neurological disorders and drugs of abuse; immunopharmacology and drugs for pain management; systems pharmacology, including autonomic, cardiovascular, respiratory, renal and endocrine pharmacology; and drugs targeting infectious diseases and cancer chemotherapy. The course will also cover selected topics such as drug design and development, herbal medications and pharmacogenomics.

Physiology and Biophysics (PHIS)

PHIS 206. Human Physiology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 101 and BIOZ 101, BIOL 151 and BIOZ 151, or BIOL 152 and BIOZ 152, each with a minimum grade of C. Functioning of the human body with emphasis on experimental procedures.

PHIS 301. Engaging in Undergraduate Research. 1 Hour.

Semester course; 1 seminar hour. 1 credit. Prerequisite: PHIS 206, with a grade of A, or PHIS 309, with a minimum grade of B. This course will address the nature of research in the fields of physiology and biophysics and at the same time explore areas and laboratories at VCU that would offer undergraduate research opportunities.

PHIS 302. Engaging in Undergraduate Research II. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Prerequisite: PHIS 301. This course permits students to actively engage in scientific research of interest in physiology and biophysics or in other selected areas of research. Graded as Satisfactory/Unsatisfactory.

PHIS 309. Introductory Quantitative Physiology I. 4 Hours.

Semester course; 3 lecture hours and 3 laboratory hours. 4 credits. Prerequisite: calculus at the level of MATH 200 and MATH 201. The course is intended for majors in Biomedical Engineering. Other students may enroll with permission of the instructor. This course is a survey course in physiology with emphasis on physical principles. It is a systems analysis of cellular anatomy, physiology and biochemistry which leads into analysis of the nervous system, musculoskeletal system and the digestive system. It is meant to be taken as part of a two-semester series with PHIS 310.

PHIS 310. Introductory Quantitative Physiology II. 4 Hours.

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: calculus at the level of MATH 200 and MATH 201 and PHIS 309. The course is intended for majors in biomedical engineering. Other students may enroll with permission of the instructor. This course is the second semester of a survey course in physiology with emphasis on physical principles. It includes a systems analysis of the cardiovascular, respiratory, renal and endocrine systems. It is meant to be taken as part of a two-semester series with PHIS 309.

PHIS 403. Protein Structure and Function in Medicine. 1 Hour.

Semester course; 1 lecture hour. 1 credit. CHEM 403 and BIOL 300 highly recommended; otherwise seek permission from course director. In this course students will explore the diversity and wonder of the protein molecular machinery of life in the context of health and disease. They will first learn how proteins are built and folded to produce a diversity of shapes and functions. Students then will learn about the most common molecular graphics programs to view, analyze and study protein structures. The course will show how different types of protein malfunctions lead to diseases such as cancer, heart disease and neurodegeneration, among others, and reveal the role of protein structure in SARS-CoV2 vaccine development.

PHIS 461. Introduction to Human Physiology. 3 Hours.

3 lecture hours. 3 credits. Prerequisites: biology, general chemistry and human anatomy. An introductory course to human physiology based on an analysis of organ systems.

Physiology Lab (PHIZ)

PHIZ 206. Human Physiology Laboratory. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: PHIS 206. Functioning of the human body with emphasis on experimental procedures. Not applicable for credit toward the B.S. in Biology.

School of Nursing

Nursing (NURS)

NURS 103. Culture, Diversity and Communication in Health Care Settings. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course challenges individuals to recognize how and to what extent diversity affects the interactions that occur within the health care system and to explore communication skills through a more holistic and inclusive framework. Effective communication across diverse groups of people is a necessary skill in today's society, but it is especially important in health care interactions. Most individuals will interact with the health care system in the U.S. at several points in their lives as patients and, for some, in a practitioner or policy-maker role. Interactions with the health care system are often brief, fragmented and sometimes involve multiple people for the care of one patient. It is critical to develop one's awareness for how identity, culture and group membership influence health behaviors and decisions to appropriately advocate for oneself and others.

NURS 104. Conceptualizing Mental Illness in Modern Culture. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course explores the conceptualization of mental illness and psychiatric disorders in modern culture. The course covers content related to the history of psychiatry and psychiatric treatment, nosology of psychiatric diagnosis, lived experience of persons with mental illness, societal stigma and beliefs about mental illness, and the concept of recovery and peer-support programs. The course will also highlight the experience of mental illness in persons from marginalized groups. Students will be asked to explore their beliefs, experiences and implicit bias related to mental health and mental illness.

NURS 201. Concepts of Professional Nursing. 2 Hours.

Semester course; 2 lecture hours. 2 credits (2 credits lecture). Prerequisite: admission to the School of Nursing. Provides a foundation for all clinical nursing courses. Content focuses on professionalism, professional nursing values and health care delivery. The core competencies identified by the Institute of Medicine for health care professionals are introduced as critical components of professional nursing practice, and selected concepts related to these core competencies are emphasized. Course activities are structured to establish effective professional behaviors and learning strategies useful across one's professional career.

NURS 202. Technologies of Nursing Practice. 6 Hours.

Semester course; 3 lecture and 90 clinical/laboratory hours. (3 credits lecture and 3 credits clinical/laboratory). 6 credits. Prerequisite: admission to the School of Nursing. This course introduces the student to the study and application of skills and interventions basic to nursing practice. Content focuses on the development of cognitive, psychomotor, affective, interpersonal and communication skills to become effective members of the collaborative health care team. Students will learn how the concepts of nursing process and evidence-based clinical decision-making are integrated into practice. Opportunities are provided for practice and demonstration of selected skills in the laboratory and in clinical settings. This course emphasizes techniques for the safe acquisition and management of patient information.

NURS 261. Health Assessment for Nursing Practice. 3 Hours.

Semester course; 2 lecture and 30 clinical/lab hours. 3 credits (2 credits lecture and 1 credit clinical/lab). Prerequisite: PHIS 206. Pre- or corequisite: NURS 201. Enrollment requires admission to the School of Nursing. This course builds on the biopsychosocial sciences and focuses on development of knowledge, skills and techniques necessary for history-taking and physical examination in adults. Students are introduced to the nursing process and diagnostic reasoning skills are developed through analysis and documentation of assessment data. A laboratory experience provides opportunities for students to integrate communication and problem-solving skills with the health assessment process. The course focuses on the healthy adult patient and emphasizes the diversity of patient populations in health care settings.

NURS 296. History and Health: Concepts in Health Equity. 1 Hour.

Semester course; 1 lecture hour. 1 credit. This innovative course introduces students to concepts in health equity while facilitating an immersive experience with community agencies. Students will explore VCU and Richmond's history and the resulting health inequities. Graded as pass/fail.

NURS 301. Nursing Informatics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: admission to the School of Nursing. This course focuses on data management and use of information and technology to communicate effectively, provide safe and effective patient care and use research and clinical evidence to inform nursing practice decisions. The course emphasizes information literacy and its application to nursing practice and effective health care delivery. Course delivered online.

NURS 307. Foundations of Professional Nursing I. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits. Enrollment is restricted to students admitted to the School of Nursing. This course explores historical and contemporary trends influencing professional nursing practice within the U.S. health care system. The course focuses on research within the context of nursing's development as a profession and discipline and within the context of evidence-based practice. The research process and analysis of research studies are emphasized.

NURS 308. Foundation of Professional Nursing II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: NURS 307 with a minimum grade of C. This course focuses on the impact of regulation and accreditation on safe patient care delivery. The course emphasizes concepts related to professional nursing practice and explores selected internal and external forces that influence health care delivery. Students will evaluate current nursing practice within the context of previous nursing education and professional nursing standards. Upon successful completion of this course, proficiency credits for prior nursing education will be conferred. Course delivered online.

NURS 309. Population Health. 3 Hours.

Semester course; 3 credits lecture. 3 credits. Enrollment is restricted to students admitted to the School of Nursing. This course focuses on core concepts of population health. Socioeconomic, lifestyle, environmental, genetic and other major determinants of population health are examined. The nurse's role in health promotion, disease and injury prevention across the lifespan are emphasized. The importance of collaboration with populations and other health care professionals is highlighted. Course delivered online.

NURS 325. Nursing of Adults I. 6 Hours.

Semester course; 3 lecture and 90 clinical hours. 6 credits (3 credits lecture and 3 credits clinical/laboratory). Prerequisites: NURS 201, NURS 202, NURS 261 and PSYC 304. All prerequisites must be completed with a minimum grade of C. Focuses on adult and geriatric patients with acute and chronic physical illnesses that have relatively stable trajectories. Provides theoretical and evidence-based foundations for nursing management and related therapeutic regimens. Emphasizes clinical decision-making and technical skills in the provision of care to adult and geriatric patients in a variety of health care settings.

NURS 335. Nursing of Women. 5 Hours.

Semester course; 3 lecture and 60 clinical/laboratory hours. 5 credits (3 credits lecture and 2 credits clinical/laboratory). Prerequisites: NURS 201, NURS 202 and NURS 261. All prerequisites must be completed with a minimum grade of C. Examines the health needs of women across the life span with an emphasis on the health needs of the childbearing family. Applies nursing process, theory and research with an emphasis on the development of critical thinking skills in the diagnosis and treatment of human responses to health needs of women, neonates and families. Practices clinical skills and applies theoretical knowledge in selected ambulatory care settings for women's health and post-discharge care, and hospital settings for antenatal, intrapartum, post-partum and neonatal experiences.

NURS 345. Nursing of Children. 5 Hours.

Semester course; 3 lecture and 60 clinical/laboratory hours. 5 credits (3 credits lecture and 2 credits clinical/laboratory). Prerequisites: NURS 201, NURS 202, NURS 261 and PSYC 304, all completed with a minimum grade of C. Examines health care needs of children within the context of the family system. Focuses on application of evidence, nursing process, communication skills and critical thinking when providing nursing to children. Applies current theory and evidence related to the child and family environment, developmental capacity, stress, adaptation and resilience. Incorporates standards of care for both well and ill children in the provision of care.

NURS 350. Introduction to Professional Nursing. 2 Hours.

Semester course; 2 lecture hours. 2 credits (2 credits lecture). Enrollment is restricted to students admitted to the School of Nursing. This course provides an overview of the history and contemporary trends influencing the nursing profession including regulatory, licensing and professional standards. Emphasis is on understanding the nurse's contribution to safe patient care delivery and the importance of self-care.

NURS 355. Psychiatric-Mental Health Nursing. 5 Hours.

Semester course; 3 lecture and 60 clinical hours. 5 credits (3 credits lecture and 2 credits clinical laboratory). Prerequisites: NURS 201, NURS 202 and NURS 261. All prerequisites must be completed with a minimum grade of C. Examines theoretical, empirical and practical knowledge applied to the prevention and treatment of common psychiatric and mental health conditions encountered in basic nursing practice. Provides students with an integrative perspective from which to incorporate various frameworks of knowledge into practice. Provides didactic knowledge and clinical learning experiences to facilitate students' understanding of actual and potential psychiatric illnesses and mental health problems in individuals, families and communities.

NURS 365. Pathophysiology and Pharmacology I. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits (3 credits lecture). Prerequisites: anatomy, physiology and microbiology; BIOL 205, PHIS 206; and BIOL 209 or BIOL 303. Enrollment is restricted to students admitted to the School of Nursing. Introduces general and foundational principles in pathophysiology and pharmacology. Examines pathophysiological mechanisms selected diseases, syndromes and/or conditions and integrates related pharmacotherapeutics. Establishes a biophysiological basis for understanding relevant clinical assessments, clinical manifestations and disease trajectories. Provides a foundation for establishing physiological priorities for nursing care.

NURS 366. Pathophysiology and Pharmacology II. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits (3 lecture credits). Prerequisite: NURS 365 completed with a minimum grade of C. Examines pathophysiological mechanisms in selected human systems diseases, syndromes and/or conditions and integrates related pharmacotherapeutics. Establishes a biophysiological basis for understanding relevant clinical assessments, clinical manifestations and disease trajectories. Provides a foundation for establishing physiological priorities for nursing care.

NURS 380. Applied Health Assessment Across the Lifespan. 3 Hours.

Semester course; 3 lecture hours. 3 credits (3 credits lecture). Enrollment is restricted to students admitted to the School of Nursing. This course focuses on development of nursing knowledge, skills and techniques necessary for history-taking, physical examination and interpretation of data across the lifespan. Application of these techniques in the delivery of nursing care is emphasized. Students will also be taught the application of these techniques to patient care situations.

NURS 396. VCU Health Nursing Internship. 1 Hour.

Semester course; 1 clinical/lab hour (120 hours in clinic/lab). 1 credit (1 credit clinical/lab). May be repeated. Prerequisites: NURS 201, NURS 202 and NURS 261, each with a minimum grade of C. VCU Health may require additional prerequisites. Provides supervised clinical experience in selected VCU Health clinical settings. Many of these settings are not available in traditional curriculum. Introduces students to the work life of a nurse.

NURS 397. International Comparison of Nursing Education and Clinical Care. 1 Hour.

Semester course; 30 clinical hours. 1 credit (1 credit clinical/lab). Enrollment restricted to students in the nursing program of the University of Cordoba or VCU. This course focuses on a comparison of the nature of nursing in two countries: the United States and Spain. Specifically, the course focuses on comparing and contrasting the health care systems and examining the nursing education systems and nursing student experiences in Spain and the U.S. Students from the University of Cordoba will engage in clinical simulations designed to expose them to the high fidelity simulators used in U.S. schools. Additionally, students from both schools will engage in guided observation of nursing care provided to patients in acute care settings and citizens within community-based settings.

NURS 403. Evidence-based Practice in Health Care. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits. Prerequisites: NURS 201; and STAT 208, STAT 210 or STAT 212, both with a minimum grade of C. This course formally introduces models for evidence-based practice, examines hierarchies of evidence, reviews change theories useful to initiate EBP and identifies individual and organizational resources needed for EBP. Emphasis is on developing skills in retrieving and appraising literature relevant to clinical problems, understanding the research process and critiquing evidence from research publications and other sources to inform evidence-based nursing practice.

NURS 406. Interprofessional Collaborative Practice. 2 Hours.

Semester course; 2 lecture hours (delivered online). 2 credits. Prerequisite: NURS 307 with a minimum grade of C. Explores the necessity for interprofessionalism in the contemporary health care environment. Core competencies and best practices for interprofessional collaborative practice are emphasized. Participation in virtual team activities provides students with opportunities to apply interprofessional knowledge, skills and attitudes that improve practice and impact patient care outcomes.

NURS 408. Ethics, Law and Public Policy: Application to Nursing Practice. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: NURS 307 with a minimum grade of C. This course examines ethics, law and public policy that influence nursing practice and the nature and function of the health care system. The emphasis of the course will be on the role of the professional nurse as advocate for patients, families, communities and the nursing profession, as well as an advocate for changes in the health care system as needed. Course delivered online.

NURS 409. Population Health: Application to Nursing Practice. 2 Hours.

Semester course; 2 clinic hours (60 clinical contact hours, delivered online). 2 credits (2 credits clinical/lab). Prerequisite: NURS 309 with a minimum grade of C. This course provides opportunity to apply core concepts of population health in a community within the framework of the nursing process. Epidemiological and population-level data will be used to develop and/or guide interventions in the management of care. The course emphasizes evidence-based approaches to achieving sustainable population health outcomes.

NURS 416. Community Health Nursing. 5 Hours.

Semester course; 3 lecture and 60 clinical hours. 5 credits (3 credits lecture and 2 credits clinical laboratory). Prerequisites: NURS 325, NURS 335, NURS 345, NURS 355, NURS 365, NURS 366 and NURS 403, all completed with a minimum grade of C. Focuses on development of knowledge and skills essential for care of communities and populations. Explores theory and evidence relevant to the assessment, planning, implementation and evaluation of communities and populations. Incorporates epidemiological principles to population-focused nursing and emphasizes the study and application of community health nursing roles for health promotion and disease prevention. Evaluates the impact of health policy on the public's health. Designs an evidence-based service-learning project to address the health care needs of at-risk populations.

NURS 425. Nursing of Adults II. 6 Hours.

Semester course; 3 lecture and 90 clinical hours. 6 credits (3 credits lecture and 3 credits clinical laboratory). Prerequisites: NURS 325, NURS 335, NURS 345, NURS 355, NURS 365 and NURS 366, all completed with a minimum grade of C. Focuses on the patient in acute phases of physical illnesses and with complicated multisystem health problems. Provides theoretical and evidence-based foundations for nursing management and related therapeutic regimens. Focuses on the development and application of clinical decision-making and an evidence-based model in the provision of care to acutely ill adults in a variety of settings.

NURS 450. Pathophysiology and Pharmacology I. 4 Hours.

Semester course; 4 lecture hours. 4 credits (4 credits lecture). Enrollment is restricted to students admitted to the School of Nursing. This course introduces pathophysiological foundations of disorders and pharmacological concepts. Connections among underlying pathophysiology, clinical manifestations and pharmacological treatments are emphasized for selected concepts.

NURS 451. Pathophysiology and Pharmacology II. 4 Hours.

Semester course; 4 lecture hours. 4 credits (4 credits lecture). Prerequisite: NURS 450 or permission of the course faculty. Enrollment is restricted to students admitted to the School of Nursing. This course builds on pathophysiological foundations of disorders and pharmacological concepts. It emphasizes the connections among underlying pathophysiology, clinical manifestations, pharmacological treatments and nursing care for selected concepts.

NURS 462. Advanced Pathophysiological Concepts: Application to Patient Care. 3 Hours.

Semester course; 3 lecture hours (delivered online). 3 credits. Enrollment is restricted to students admitted to the School of Nursing. This course expands on basic knowledge of normal physiology and common pathophysiologic conditions across the lifespan. The course focuses on advanced knowledge of pathophysiology in relation to complex health care conditions. Integration of appropriate assessment skills and evidence-based pharmacologic and non-pharmacologic interventions are highlighted. The nurse's role in anticipating complications and evaluating clinical outcomes is emphasized.

NURS 477. Leadership and Management in Health Care. 4 Hours.

Semester course; 4 lecture hours (delivered online). 4 credits: Prerequisite: NURS 308 with a minimum grade of C. This course examines principles of leadership and management that facilitate coordination and implementation of safe, quality-oriented and ethical patient care. The course emphasizes development of leadership competencies within contexts of the nursing community and interprofessional team in a variety of settings within the contemporary health care delivery system.

NURS 478. Leadership and Management in Health Care: Theory and Application. 3 Hours.

Semester course; 3 lecture hours (3 credits lecture). 3 credits. Prerequisites: NURS 325, NURS 335, NURS 345, NURS 355, NURS 365 and NURS 366, all completed with a minimum grade of C. Integrates principles of leadership and management to prepare students for management, coordination and implementation of safe and ethical patient care in contemporary health care delivery systems. Based on an understanding of nursing's development as a profession, advances enactment of professionalism.

NURS 484. Entry Into the Nursing Profession. 3 Hours.

Semester course; 3 lecture hours. 3 credits (3 credits lecture). Prerequisites: NURS 550 and NURS 551 or permission of the course faculty. This course integrates and synthesizes the skills, knowledge and perspectives gained throughout the program of study. Students will prepare for licensure and transition to practice as novice nurse generalists.

NURS 488. Clinical and Management Decision-making. 3 Hours.

Semester course; 1 lecture and 2 laboratory hours (60 clinical/lab contact hours; delivered online). 3 credits (1 credit lecture, 2 credits clinical/lab). Prerequisites: NURS 308 and NURS 406, both with a minimum grade of C. This course is designed as the culminating or capstone experience for the R.N.-B.S. completion program. The course provides opportunities to evaluate outcomes of baccalaureate education within the context of the clinical practice setting, to apply leadership principles and change theories to clinical and management decision-making, to employ concepts of quality and safety, and to use quality improvement processes in the health care setting.

NURS 491. Special Topics Course. 1-6 Hours.

Semester course; 1-6 lecture hours. 1-6 credits (1-6 credits lecture). Prerequisites: admission to the School of Nursing and permission of instructor. An in-depth exploration of specific topics in nursing theory and practice.

NURS 492. Elective Study. 1-5 Hours.

1-5 credits. Prerequisite: admission to the School of Nursing. Independent study projects planned to meet the learning objectives of the student.

NURS 494. Senior Synthesis. 5 Hours.

Semester course; 225 clinical hours. 5 credits (5 credits clinical). Prerequisites: NURS 550 and NURS 551 or permission of the course faculty. This clinical intensive course builds on the nursing knowledge and skills gained throughout the program to prepare the student nurse to transition to practice as a novice nurse generalist.

NURS 496. Senior Synthesis. 6 Hours.

Semester course; 2 lecture and 120 clinical/lab hours. Honors section only: 2 lecture, 1 seminar and 120 clinical/lab hours. 6 credits (2 credits lecture and 4 credits clinical/lab). Honors section: 7 credits (2 credits lecture, 1 credit seminar [2 contact hours] and 4 credits clinical/lab). Prerequisites: NURS 325, NURS 335, NURS 345, NURS 355, NURS 365, NURS 366, NURS 371, NURS 425, IPEC 501 and IPEC 502. Honors section prerequisite: NURS 512. All prerequisites must be completed with a minimum grade of C. This course is designed as a culminating experience that meets the criteria of the third tier of the VCU Core Curriculum. It prepares students for successful transition into professional practice; thus it requires higher-level cognitive processes that include synthesis of knowledge, evidence and skills from all previous course work and clinical experiences. The course requires that the student consistently enact professional practice, demonstrate competency in standards of care, application of evidence, professionalism and safe and legal practice. This course is taken during the last semester of the nursing program.

NURS 498. Senior Synthesis. 8 Hours.

Semester course; 2 lecture and 6 clinical/lab hours (180 hours in clinic/lab). 8 credits (2 credits lecture and 6 credits clinical/laboratory). Prerequisites: NURS 325, NURS 335, NURS 345, NURS 355, NURS 365, NURS 366, NURS 403, NURS 425, IPEC 501 and IPEC 502, all with a minimum grade of C. This course prepares students for successful transition into professional practice; thus it requires higher-level cognitive processes that include synthesis of knowledge, evidence and skills from all previous course work and clinical experiences. The course requires that the student consistently enact professional practice, demonstrate competency in standards of care, application of evidence, professionalism and safe and legal practice.

School of Pharmacy

Medicinal Chemistry (MEDC)

MEDC 310. Medicinal Chemistry and Drug Design. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: CHEM 302. This course is designed to expose undergraduate chemistry, biology and pre-medicine majors to the history, theory and practice of medicinal chemistry. The course will emphasize a combination of fundamentals and applications of drug design. In particular, the molecular aspects of drug action will be discussed. Special emphasis will also be placed on the methods used by medicinal chemists to design new drugs. Crosslisted as: CHEM 310.

Pharmacy (PHAR)

PHAR 201. Introduction to Pharmacy. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Open to undergraduate students with an interest in pursuing pharmacy as a career. Consists of presentations related to the profession of pharmacy and the pharmaceutical sciences, preparing for admission to the School of Pharmacy and employment opportunities in the profession after graduation. Graded as pass/fail.

School of Social Work

Social Work (SLWK)

SLWK 200. Building a Just Society. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Course will introduce students to social justice issues in a local context with a focus on expanding and deepening their knowledge and skills to effect change through active engagement in the community. Course promotes an understanding and critical analysis of multiple forms of oppression in social systems and in personal experience using professional social work perspectives and theoretical frameworks. Selected reference materials and experiential learning activities are designed to enhance student understanding of what constitutes a just community and a just society. The course may be offered as service-learning.

SLWK 201. Introduction to Social Work. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Systematic overview of the social work profession. Knowledge of the nature of social work, the fields of social work practice, target populations, overview of social work methods.

SLWK 230. Communication and Interpersonal Skills in Social Work. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. The study of the knowledge, skills and values of effective human communication and interpersonal relations. Includes observation, collection and description of data, verbal and nonverbal communication and the relevance of the above to social work practice. Integrates issues of human diversity in all course content. Emphasizes the demonstration and practice of communication through structured exercises. May be offered in a service-learning capacity.

SLWK 311. Social Work and Anti-oppressive Practice. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Enrollment is restricted to majors or minors in social welfare with junior status or by permission of program director or course instructor. Examines forces leading to individual prejudice and institutional oppression. Focuses on impact of oppression. Provides students with an understanding of diversity and a general knowledge of social work strategies to alleviate oppression and to empower the oppressed.

SLWK 313. Social Work Theory and Assessment With Individuals and Micro Systems. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Prerequisites: ANTH/INTL 103; BIOL 101, BIOL 151 or BIOL 152; PSYC 304; and SOCY 101. Enrollment is restricted to majors or minors in social welfare with junior status or by permission of program director or course instructor. First of a three-semester sequence on human behavior and the social environment. Uses theoretical concepts and research findings from the behavioral sciences as background for understanding and assessing the functioning of individuals and families in their social environment. Facilitates integration of theory and research with assessment skills associated with basic social work practice. Emphasizes the social systems approach for analyzing the impact of various social problems on individual and family dynamics.

SLWK 330. Social Work Theory and Assessment with Families, Small Groups and Mezzo Systems. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Prerequisite: SLWK 313 with a minimum grade of C. Enrollment is restricted to majors or minors in social welfare with junior status or by permission of program director or course instructor. Second of three courses on human behavior in the social environment. Uses theoretical concepts from the behavioral sciences to understand the family and small groups as social institutions and social groups as context for human behavior over the life cycle. Designed to provide a theoretical foundation for practice with families and small groups.

SLWK 332. Generalist Social Work Practice I. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Prerequisite: SLWK 313 with a minimum grade of C. Corequisite: SLWK 393 or SLWK 395. Enrollment is restricted to social work majors with junior status. First of three semester practice sequence. Introduces students to basic concepts and skills of beginning-level professional generalist social work practice. Emphasizes application of concepts to the concurrent social work field preparation course.

SLWK 380. Ethical Research for Social Work Practice I: Methods. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Enrollment is restricted to majors or minors in social welfare with junior status or by permission of program director or course instructor. First of a two-semester research sequence. Designed to provide an understanding and appreciation of a scientific, analytic approach to building knowledge for practice and for evaluating multilevel service delivery. Provides an overview of the research process, including problem formulation, sampling, design, measurement, data collection, data analysis and dissemination of findings. Presents ethical standards of scientific inquiry with special attention to research with vulnerable and oppressed populations.

SLWK 381. Ethical Research for Social Work Practice II: Application. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Prerequisite: SLWK 380 with a minimum grade of C. Enrollment is restricted to social work majors or minors in social welfare with junior status or by permission of program director or course instructor. The content includes a review of basic statistical univariate and bivariate descriptive and inferential tools for analyzing, interpreting and presenting data for decision-making in generalist social work practice. It also introduces methods for analysis of quantitative and qualitative data and further develops critical-thinking skills in translating empirical research findings into generalist social work practice principles.

SLWK 391. Topics in Social Work. 1-3 Hours.

Semester course; 1-3 lecture hours (delivered online or face-to-face). 1-3 credits. An in-depth study of a selected topic relevant for professional social work practice. See the Schedule of Classes for the specific topic to be offered each semester.

SLWK 393. Junior Field Instruction. 3 Hours.

Semester course; 3 field experience hours (delivered online or face-to-face). 3 credits. Prerequisite: SLWK 313 with a minimum grade of C. Corequisite: SLWK 332. Enrollment is restricted to social work students with junior status. Students will be required to engage in experiential activities that may include agency-based, simulated or virtual learning opportunities. Intended to facilitate the student's understanding of agency structure and community context, ability to engage in professional relationships, to assess strengths, define problems, set goals and utilize beginning-level practice skills with individuals, families, groups, organizations and communities. Promotes identification as a professional social worker.

SLWK 395. Social Work Field Preparation. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Prerequisite: SLWK 313 with a minimum grade of C. Corequisite: SLWK 332. Enrollment is restricted to social work students with junior status. Students will be required to engage in interactive activities that will include simulated field-related learning opportunities. Intended to facilitate the student's understanding of agency structure and community context, ability to engage in professional relationships, to assess strengths, define problems, identify goals and utilize beginning-level practice skills with individuals, families, groups, organizations and communities. This course prepares the student to participate in a social work internship and promotes identification as a professional social worker.

SLWK 422. Social Welfare, Policy and Practice. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Prerequisites: SLWK 311, SLWK 313, SLWK 332, SLWK 380, SLWK 381; and SLWK 393 or SLWK 395, each with a minimum grade of C. Enrollment is restricted to social work majors or minors in social welfare with junior status or by permission of program director or course instructor. Analyzes social welfare policy as related to social values, social problems and social structures. Examines frameworks for policy analysis and for evaluation of programmatic outcomes of policy, with application to contemporary social service and income maintenance policies and delivery systems. Considers the economic, political and ideological factors and processes that affect social welfare legislation, financing and implementation.

SLWK 431. Social Work Theory and Assessment with Communities, Organizations and Macro Systems. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Prerequisite: SLWK 313 with a minimum grade of C. Enrollment is restricted to majors or minors in social welfare with junior status or by permission of program director or course instructor. Third of three courses on human behavior in the social environment. Builds on the theoretical concepts from the behavioral sciences discussed in SLWK 230 and 313. Focus on understanding organizations and how their purposes, auspices, structure, processes and environment affect the delivery of social services to diverse groups. The community context of social services, including that of the consumer, is emphasized from an open systems theoretical perspective. Students will be expected to integrate course content with their field experience or other agency with which they are familiar. Required of all undergraduate social work majors.

SLWK 441. Generalist Social Work Practice II. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Prerequisites: SLWK 332; SLWK 381; and SLWK 393 or SLWK 395, each with a minimum grade of C. Enrollment is restricted to majors with senior standing. Second of a three-semester practice sequence. Review of interviewing and problem-solving for generalist social work practice with diverse populations. Emphasis on agency structure and function, skills of engagement and problem definition, assessment, planning for intervention, and evaluation. Use of material from concurrent fieldwork practice to facilitate integration of learning.

SLWK 442. Generalist Social Work Practice III. 3 Hours.

Semester course; 3 lecture hours (delivered online or face-to-face). 3 credits. Prerequisites: SLWK 441 and SLWK 494, each with a minimum grade of C. Enrollment is restricted to majors with senior standing. Third of a three-semester practice sequence. Emphasizes planning and implementing change with diverse populations, professional ethics, professional development, termination and evaluation of generalist social work practice. Use of case material from concurrent fieldwork practice to facilitate integration of learning.

SLWK 492. Independent Study. 1-3 Hours.

Semester course; 1, 2 or 3 independent study hours (delivered online or face-to-face). 1, 2 or 3 credits. Enrollment is restricted to social work majors with junior or senior standing and permission of instructor. Under supervision of a faculty adviser, whose consent is required to register, study of a topic of concern to the student. Each student must present their findings in writing or pass an oral examination.

SLWK 494. Senior Field Practicum I. 3 Hours.

Semester course; 3 field experience hours. 3 credits. Prerequisites: SLWK 332; SLWK 381; and SLWK 393 or SLWK 395, each with a minimum grade of C. Corequisite: SLWK 441. Enrollment is restricted to social work majors with senior status. Fourteen hours per week in a community agency under the supervision of an agency-based field instructor. Intended to develop knowledge, values and social work practice skills appropriate to entry-level generalist practice in human service agencies.

SLWK 495. Senior Field Practicum II. 3 Hours.

Semester course; 3 field experience hours. 3 credits. Prerequisite: SLWK 494 with a minimum grade of C. Corequisite: SLWK 442. Enrollment is restricted to majors with senior status. Fourteen hours per week in a community agency under the supervision of an agency-based field instructor. Intended to develop knowledge, values and social work practice skills appropriate to entry-level generalist practice in human service agencies.

SLWK 499. Senior Capstone Seminar. 2 Hours.

Semester course; 2 seminar hours (delivered online or face-to-face). 2 credits. Corequisites: SLWK 442 and 495. Typically to be taken in the last semester of the student's senior year. This course serves as an academic culmination of the undergraduate social work program. The student will compile a portfolio of B.S.W. program academic materials, complete a professional self-assessment and resume and participate in the development of a comprehensive generalist intervention plan with regard to a specified social problem.

VCU Life Sciences**Bioinformatics (BNFO)****BNFO 101. Introduction to Scientific Computing. 1 Hour.**

Semester course; 1 lecture hour. 1 credit. Enrollment is restricted to bioinformatics majors. This course will introduce students to basic principles and skills for using a computer to solve scientific problems. It is hands-on course and does not assume any special prior knowledge or skill with computers. Students completing the course will become familiar with and develop skills and practical knowledge of how to use common computer-based command-line tools and systems critical for effective scientific computing.

BNFO 125. Disease and Human Ancestry. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course introduces the role that disease has played in human existence. A key part of this understanding comes from new DNA sequencing and genomic data analysis tools that provide information about our ancestry and origin, as well as about the ancestry and history of disease organisms that have co-evolved with us. The vast amount of new data has opened controversial doors to social and ethical implications, such as questions of race and discrimination, and teach us how to fight emerging disease at local and global levels. This course will discuss these topics through case examples of different diseases from parasites (e.g., malaria), bacteria (e.g., bubonic plague, tuberculosis and syphilis) and viruses (e.g., smallpox, influenza and AIDS).

BNFO 191. Special Topics in Bioinformatics. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated for a maximum total of nine credits, with the provision that no more than nine combined credits of BNFO 191 and BNFO 193 can apply toward graduation. An introductory, detailed study of a selected topic in bioinformatics unavailable as an existing course. If multiple topics are offered, students may elect to take more than one. Adviser's approval is required for counting each special topics course toward meeting specific requirements of the B.S. program.

BNFO 193. Special Topics in Bioinformatics. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated for a maximum total of nine credits, with the provision that no more than nine combined credits of BNFO 191 and BNFO 193 can apply toward graduation. An introductory, detailed study of a selected topic in bioinformatics unavailable as an existing course. If multiple topics are offered, students may elect to take more than one. Adviser's approval is required for counting each special topics course toward meeting specific requirements of the B.S. program. Graded as pass/fail.

BNFO 201. Computing Skills and Concepts for Bioinformatics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 151 or 200 with a minimum grade of C, or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An introduction to computation in bioinformatics, including basics of data representation, and computer organization, as well as programming in Python or other appropriate scripting language. Bioinformatics applications in the literature will be discussed. Guest speakers will share bioinformatics career experiences and opportunities.

BNFO 251. Phage Discovery I. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. An exploratory laboratory where students will purify phage from soil, visualize phage using electron microscopy and isolate genomic material for nucleic acid sequencing. Registration by override only.

BNFO 252. Phage Discovery II. 2 Hours.

Semester course; 4 laboratory hours. 2 credits. An exploratory laboratory where students will learn about the genomes of viruses infecting bacteria. Students will be given the genome sequence of a novel virus, which will be the basis for a series of computer-based analyses to understand the biology of the virus and to compare it with other viruses that infect the same host. Registration by override only.

BNFO 291. Special Topics in Bioinformatics. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated for a maximum total of nine credits, with the provision that no more than nine combined credits of BNFO 291 and BNFO 293 can apply toward graduation. An introductory, detailed study of a selected topic in bioinformatics unavailable as an existing course. If multiple topics are offered, students may elect to take more than one. Adviser's approval is required for counting each special topics course toward meeting specific requirements of the B.S. program.

BNFO 292. Independent Study. 1-2 Hours.

Semester course; variable hours. 1-2 credits. May be repeated for a maximum total of 6 credits. Prerequisite: permission of instructor. A course designed to provide an opportunity for independent readings of the bioinformatics literature under supervision of a staff member.

BNFO 293. Special Topics in Bioinformatics. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated for a maximum total of nine credits, with the provision that no more than nine combined credits of BNFO 291 and BNFO 293 can apply toward graduation. An introductory, detailed study of a selected topic in bioinformatics unavailable as an existing course. If multiple topics are offered, students may elect to take more than one. Adviser's approval is required for counting each special topics course toward meeting specific requirements of the B.S. program. Graded as pass/fail.

BNFO 300. Molecular Biology Through Discovery. 3 Hours.

Semester course; 3 lecture hours. 3 credits. The course aims to expand students' "ignorance," a prerequisite for success in science, by confronting them with the interface between the known and the unknown, stressing the process by which the boundary is traversed. It will do so using as the raw material the study of molecular biology, an essential groundwork for bioinformatics.

BNFO 301. Introduction to Bioinformatics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BNFO 201 and STAT 212, or permission of instructor. The course will present a practical and theoretical introduction to the tools and techniques needed to obtain and interpret a variety of genome-related data types. The course will include several bioinformatic methods underlying nucleotide and protein sequence alignment, statistical methods for data visualization in R, the types of experimental results commonly encountered in bioinformatics data analysis and the public databases where these data can be accessed.

BNFO 305. Biological Data Science With Python. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BNFO 201 with a minimum grade of C. This course serves as an introduction to biological data science using the Python language. Students will learn the fundamentals of probability and statistics, as well as the implementation of common bioinformatic and data science analyses. Students will build upon the basic Python programming skills covered in the prerequisite to learn the principles of data cleaning, wrangling, analysis, statistical testing and visualization by introducing appropriate Python libraries such as NumPy, Pandas, Matplotlib and Biopython.

BNFO 315. Effective Communication in the Sciences. 3 Hours.

Semester course; 3 lecture hours. 3 credits. How do we tell our science as a story? This course will explore ways to share science with fellow scientists and the public, including best practices for presenting data, simplifying complex ideas for presentations and sharing science in an accurate and ethical way in different media. Students will experience a hands-on approach to scientific writing and storytelling and hear from guest speakers from varying backgrounds in scientific communication. Communicating about science is an important part of being published, securing funding and building awareness around interests and this course is a first step to honing those skills.

BNFO 380. Introduction to Mathematical Biology. 4 Hours.

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisites: MATH 200 and BIOL 151, both with a minimum grade of C, or permission of instructor. An introduction to mathematical biology. Various mathematical modeling tools will be covered and implemented in a range of biological areas. Additionally, the collaborative research process will be presented and discussed. Crosslisted as: MATH 380.

BNFO 391. Special Topics in Bioinformatics. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated for a maximum total of nine credits, with the provision that no more than nine combined credits of BNFO 391 and BNFO 393 can apply toward graduation. A detailed study of a selected topic in bioinformatics unavailable as an existing course. If multiple topics are offered, students may elect to take more than one. Adviser's approval is required for counting each special topics course toward meeting specific requirements of the B.S. program.

BNFO 393. Special Topics in Bioinformatics. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated for a maximum total of nine credits, with the provision that no more than nine combined credits of BNFO 391 and BNFO 393 can apply toward graduation. An introductory, detailed study of a selected topic in bioinformatics unavailable as an existing course. If multiple topics are offered, students may elect to take more than one. Adviser's approval is required for counting each special topics course toward meeting specific requirements of the B.S. program. Graded as pass/fail.

BNFO 411. Ethical Issues in Life Sciences. 2 Hours.

Semester course; 2 lecture hours. 2 credits. This course will introduce fundamentals in ethical conduct with a focus on interdisciplinary application to the life sciences, with attention paid to the design, collection, analysis and dissemination of bioinformatic datasets. Graded as pass/fail.

BNFO 420. Applications in Bioinformatics. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: BIOL 310, CMSC 255 and BNFO 301. Capstone course. Students will integrate biological, computational and quantitative skills to complete bioinformatics projects in a professional team-problem-solving context. Course includes explicit instruction in the conduct of research as well as a review of applicable strategies, methods and technologies. Written and oral presentation is emphasized, with systematic feedback and practice opportunities provided.

BNFO 440. Computational Methods in Bioinformatics. 3 Hours.

Semester course; 2 lecture and 2 laboratory hours. 3 credits.
Prerequisites: CMSC 255 and 256; BNFO 301, or permission of instructor.
An introduction to mathematical and computational methods in bioinformatics analysis. Topics include but are not limited to operating systems, interfaces, languages, SQL, search algorithms, string manipulation, gene sequencing, simulation and modeling, and pattern recognition. Students will be exposed to Maple, Matlab, SPSS, E-cell, BioPerl, Epigram and C as part of the requirements of this course.

BNFO 451. Genomic Medicine. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 300.
Genomic medicine is a clinical approach to diagnose and treat patients based on testing that includes an individual's genomic information. This course will provide an introduction to this emerging field and its potential to improve the diagnosis, prevention and treatment of disease. Topics will include key genomic technologies and the computational approaches used to probe genomic data as applied to real clinical examples. The ethical, legal and societal issues in genomic medicine will be explored. This course is geared toward students with a general biology background.

BNFO 491. Special Topics in Bioinformatics. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated for a maximum total of 12 credits, with the provision that no more than 12 combined credits of BNFO 491 and BNFO 493 can apply toward graduation. A detailed study of a selected topic in bioinformatics unavailable as an existing course. If multiple topics are offered, students may elect to take more than one. Adviser's approval is required for counting each special topics course toward meeting specific requirements of the B.S. program.

BNFO 492. Independent Study. 1-4 Hours.

Semester course; variable hours. A minimum of three hours of supervised activity per week per credit is required. 1-4 credits. May be repeated for a maximum total of 6 credits. Prerequisite: BIOL 218. Projects should include data collection and analysis, learning bioinformatics-related research techniques, and mastering experimental procedures, all under the direct supervision of a faculty member. A final report must be submitted at the completion of the project. Graded as pass/fail.

BNFO 493. Special Topics in Bioinformatics. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated for a maximum total of 12 credits, with the provision that no more than 12 combined credits of BNFO 491 and BNFO 493 can apply toward graduation. A detailed study of a selected topic in bioinformatics unavailable as an existing course. If multiple topics are offered, students may elect to take more than one. Adviser's approval is required for counting each special topics course toward meeting specific requirements of the B.S. program. Graded as pass/fail.

BNFO 496. Undergraduate Teaching Assistantship in Bioinformatics. 1-2 Hours.

Semester course; 1-2 field experience hours. 1-2 credits. May be repeated for a maximum total of two credits. Enrollment requires permission of instructor and a minimum grade of B in the course the student will TA. Student will work with course instructor to implement course objectives. Typical duties involve media preparation, answering questions, providing feedback on course assignments and peer mentoring. Provides exposure to the practice, possibilities, rewards and responsibilities of the act of teaching. Graded as pass/fail.

BNFO 497. Research and Thesis. 1-4 Hours.

Semester course; variable hours. A minimum of three hours of supervised activity per week per credit is required. 1-4 credits. May be repeated for a maximum total of 6 credits. Prerequisites: BIOL 218, junior or senior status. Projects should include data collection and analysis, learning bioinformatics-related research techniques, and mastering experimental procedures, all under the direct supervision of a faculty member. A written thesis of substantial quality is required at the completion of the research.

Environmental Studies (ENVS)**ENVS 101. Introduction to Environmental Studies I. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to environmental studies majors. Study of contemporary issues related to environmental studies including sustainability, biological conservation, global change and an overview of the core earth systems.

ENVS 102. Introduction to Environmental Studies II. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENVS 101 or permission of instructor. Enrollment is restricted to environmental studies majors. Studies of contemporary issues related to government policy and environmental issues at local to international scales.

ENVS 105. Physical Geology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A descriptive approach to physical geology dealing with the history and structure of the earth, catastrophic events and geology as it relates to the contemporary environment. An optional laboratory, ENVZ 105, may be taken with this course.

ENVS 201. Earth System Science. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introduction to the processes of and linkages among the major systems that drive planet Earth. The biosphere, geosphere, hydrosphere, atmosphere and sociosphere are presented as dynamic and interdependent systems.

ENVS 219. Environments and Policies of Urban Food Systems. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course explores how modern food systems play critical roles throughout society, ranging from evidence-based personal nutrition and food safety, personal food behaviors and culinary techniques, food marketing and retail behaviors, and the intersection of food systems and systems business, ecology, politics, sociology and history.

ENVS 222. Electronic Portfolios. 1 Hour.

Semester course; 1 lecture hour (delivered online). 1 credit. This online course will guide individuals in developing an electronic portfolio consisting of student-curated collections of specific academic work, bibliographic information and a curriculum vitae used throughout their academic career. Graded as pass/fail.

ENVS 260. Outdoor Leadership. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is designed to provide an introduction to the concepts and skills needed to work and lead teams in outdoor settings. Topics include the historical and philosophical foundations of outdoor leadership, outdoor teaching and facilitation, safety and risk management, and environmental stewardship. The course includes classroom and field application components.

ENVS 265. Paths to Environmental Leadership. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisites: ENVS 101 and ENVS 102, both with a minimum grade of B. This course focuses on personal leadership development, leadership in the field of environmental studies, grant writing and revision, and the peer-review process. Discussions with guest speakers who are leaders in various environmental fields, additional readings and self-directed exploration of leadership figures will broaden our understanding of environmental leadership. Students will then use the Udall Undergraduate Scholarship application as a tool to begin to develop their own vision of environmental leadership and develop experience in grant writing and peer review.

ENVS 291. Special Topics in Environmental Studies. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated with different topics for a maximum of 12 credits. An introductory investigation into a selected topic salient to environmental studies. See the Schedule of Classes for specific topics being offered each semester.

ENVS 300. Sustainable Societies: James River Basin. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course explores the 25 most critical social, economic and environmental issues in the region in a global context. It examines how people are tackling the issues of sustainably and turning them into opportunities.

ENVS 301. Introduction to Meteorology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introductory course designed to provide the student with an overview of the structures and processes that cause weather. These include atmospheric circulations and the weather patterns that we observe. Emphasis will be placed upon the tracking and display of weather phenomena, as well as their forecast movement and impact.

ENVS 310. Introduction to Oceanography. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An introductory course designed to provide the student with an overview of the structures and processes of the world's oceans. These include the systems that impact the oceans: the hydrosphere, the atmosphere, the geosphere, the biosphere and the sociosphere. Emphasis will be placed upon hands-on techniques for understanding these systems, including online simulations and in-class activities.

ENVS 311. Politics of the Environment. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An exploration of the current controversy about environmental politics and the issues and crises it centers on. Special attention will be given to the constitutional, political and geographical factors in the development of environmental policy and the organized effort to deal with governmental actions and inaction and its impact on policy outcomes. Crosslisted as: POLI 311.

ENVS 314. Human-Environment Interactions: Foundations and Applications. 3 Hours.

Semester course; 3 lecture hours. 3 credits. A comparative study of the ecology and natural history of human populations, including the environments as determining factors in the evolution of human institutions and technology, resources management, and population crises; cultural traditions as mechanisms of population control; basic theory of population biology. Crosslisted as: INTL 314.

ENVS 315. Energy and the Environment. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment restricted to non-physics majors with junior or senior standing; not applicable to the physics major. A study of society's demands for energy, how it is currently being met, the environmental consequences thereof and some discussion of alternatives. Crosslisted as: PHYS 315.

ENVS 321. Cartography. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 131, STAT 208, or higher level MATH or STAT course. This course provides an introduction to the art and science behind the presentation of spatial information using maps and charts. Students will develop visual thinking and communication skills while applying cartographic theory to address contemporary practical problems.

ENVS 330. Environmental Pollution. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151 and BIOL 152. The study of pollution in the environment with emphasis on the procedures for detection and abatement.

ENVS 332. Environmental Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: URSP 204. An interdisciplinary review of domestic and international environmental problems and their underlying causes, current management frameworks, alternative management approaches and strategies, and barriers to their implementation. Other topics include: environmental history and economics, population growth, natural resources use, biodiversity, pollution. Crosslisted as: URSP 332.

ENVS 335. Environmental Geology. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENVS 105 or URSP 204. The relationship between humankind and the physical environment, earth materials and processes, geological hazards, water, mineral and energy resources, land use, and environmental health and law.

ENVS 343. Data Literacy. 4 Hours.

Semester course; 4 lecture hours. 4 credits. Prerequisite: ENVS 102. This course takes a hands-on, collaborative approach for students to develop proficiency in the application of data management skills, static and dynamic data visualization, and quantitative analyses of environmental and geospatial datasets. Students will be required to bring their own laptop and analyses and visualization will be performed using the R statistical programming language.

ENVS 355. Water. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 200 or ENVS 343. The course takes an ecosystem approach to understanding the functioning of streams, rivers, lakes, estuaries and oceans. The course complements curricula in biology and environmental studies and is specifically geared toward students with an interest in the water resources profession.

ENVS 360. Outdoor Programming and Event Management. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is designed to provide students with information and practical experience required to successfully design, promote, implement and evaluate outdoor experiential programming across a range of contexts.

ENVS 361. Outdoor Team Building and Group Facilitation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is designed to provide students with the theory and practice of developing and deploying a successful outdoor recreational, educational, interpretive or adventure experience. In doing so, students will learn about group dynamics, team building, risk management and inquiry-based learning techniques.

ENVS 368. Nature Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, ENGL 202, ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 211, ENGL 215, ENGL 217, ENGL 236, ENGL 250, ENGL 291, ENGL 295 or NEXT 240. A study of the literary genre of nature writing in English. Crosslisted as: ENGL 368.

ENVS 370. Applications of Conservation Science. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENVS 343. The field of conservation science is focused on protecting biodiversity through the promotion of both social and ecological processes. This course will provide a foundation in the real-world applications of conservation science and demonstrate how data are essential to effective conservation of natural resources.

ENVS 391. Special Topics in Environmental Studies. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated with different topics for a maximum of 12 credits. A detailed investigation into a selected topic salient to environmental studies. See the Schedule of Classes for specific topics being offered each semester.

ENVS 401. Meteorology and Climatology. 3 Hours.

Semester course; 3 lecture hours. Prerequisite: PHYS 201 or PHYS 207. A basic, semiquantitative course in the elements of weather and climate, their driving forces and their spatial and temporal distribution and variability. Atmospheric motions and circulation, weather forecasting, human impact on weather and climate.

ENVS 411. Oceanography. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, BIOL 152 and CHEM 102. A basic course in the physical, chemical and geological properties of oceans and ocean basins. Origin and character of ocean basins, properties of oceanic waters, oceanic circulation, land-sea interactions, marine environments and ecology.

ENVS 421. Environmental Data Visualization. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENVS 321. This is an introductory course focused on using data visualization tools in the lab to investigate prevalent environmental issues being faced by our community. Topics driven by in-class applied environmental analysis and include evaluation of environmental datasets, use of tools for data analysis and use of tools for data visualization and communication of geospatial data.

ENVS 430. Invasive Species Management. 3 Hours.

Semester course; 1 lecture and 2 field experience hours. 3 credits. Prerequisite: BIOL 317. This course explores the ecological, political and regulatory issues surrounding invasive species in the city of Richmond and the commonwealth of Virginia. Students will be introduced to the James River Park System habitat restoration plan, a long-term strategy to manage non-native invasive species. Individuals will work directly with environmental professionals, park personnel and community partners to restore natural areas.

ENVS 460. Wilderness First Responder. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course is intended for anyone working in a position of leadership in an outdoor setting or for individuals who want a high level of wilderness medical training for working in remote field settings, extended personal backcountry trips or expeditions. The course is a comprehensive and in-depth look at the standards and skills of dealing with response and assessment, musculoskeletal injuries, environmental emergencies and survival skills, soft tissue injuries, and medical emergencies. Additional topics, such as CPR, are also included. Wilderness First Responder training is the industry standard for those who work as government and nongovernment field technicians, backcountry trip leaders, camp counselors, mountain guides, river guides and ski patrollers.

ENVS 461. Wilderness Policy and Practice. 3 Hours.

Semester course; 2 lecture and 1 field experience hours. 3 credits. This course takes a multidisciplinary and experiential look at the concept of wilderness. Learning spans from the classroom to a first-hand wilderness experience, and materials include environmental law, natural resources management, environmental philosophy and ethics, regional and local history, and conservation science. Throughout students will focus on the intersection between society, biodiversity and the wilderness concept in principle and practice.

ENVS 490. Research Seminar in Environmental Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: senior standing and at least 12 hours of approved environmental studies course work. An interdisciplinary examination of problems and issues central to environmental studies. Environmental research of VCU faculty will be reviewed, and selected local environmental problems will be studied. Each student will complete a research project focusing on a specific environmental question.

ENVS 491. Topics in Environmental Studies. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated with different topics for a maximum of 12 credits. An in-depth study of a selected environmental topic. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

ENVS 492. Independent Study. 1-3 Hours.

Semester course; variable hours. Variable credit. Maximum of 3 credits per semester; maximum total of 6 credits for all topics courses. Prerequisite: junior or senior standing, and permission of instructor.

ENVS 493. Environmental Studies Internship. 1-3 Hours.

Semester course; variable hours. 1-3 credits per semester. Maximum total of 6 credits. Prerequisite: junior or senior standing, and permission of instructor. Graded as pass/fail.

ENVS 499. Environmental Studies Capstone Experience. 0 Hours.

Semester course; variable hours. 0 credits. Corequisite: ENVS 490, ENVS 491 (when topics implement core competencies required for a capstone experience and are approved by the director of the Center for Environmental Studies), ENVS 492 or ENVS 493. Enrollment restricted to students who have completed 90 hours of undergraduate course work. Any of the corequisite courses qualify as a capstone experience if taken with this course. Graded as pass/fail.

Environmental Studies Lab (ENVZ)**ENVZ 105. Physical Geology Laboratory. 1 Hour.**

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: ENVS 105, an optional laboratory course consisting of experiments and activities related to ENVS 105.

ENVZ 335. Environmental Geology Laboratory. 1 Hour.

Semester course; 2 laboratory hours. 1 credit. Corequisite: ENVS 335. Required for environmental science majors enrolled in ENVS 335; optional for other majors. Attendance on one Saturday morning field trip required. Laboratory exercises coordinated with ENVS 335 lectures.

ENVZ 401. Meteorology and Climatology Laboratory. 1 Hour.

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisite: ENVS 401. A series of laboratory and field experiments designed to quantify the elements of weather and climate and to interpret their local temporal and spatial variations.

Life Sciences (LFSC)

LFSC 101. Academic and Career Options in Life Sciences. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Students interested in the life sciences at VCU are faced with an enormous variety of academic options from bioinformatics and biomedical engineering to exercise science and nursing. Students outside of these programs have post-graduate opportunities in the life sciences, such as health care administration and government policy. This course will introduce students to an overview of all of the academic programs in life sciences available at VCU and their associated potential career options. Graded as pass/fail.

LFSC 191. Special Topics in Integrative Life Sciences. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated for credit with different topics. A 100-level study of a selected topic in integrative life sciences. Students will find specific topics and prerequisites for each special topics course listed in the Schedule of Classes. If multiple topics are offered, students may elect to take more than one.

LFSC 301. Integrative Life Sciences Research. 3 Hours.

Semester course; 2 lecture and 1 recitation hours. 3 credits. Pre- or corequisite: UNIV 200 or HONR 200. Students will leave this course knowing enough about science and the process of science to feel confident in critically evaluating scientific information and/or embarking on their own process of discovery with a faculty mentor. They will gain an appreciation of the interdisciplinary and complex nature of life sciences and will hone their critical thinking about how science interacts with and informs society.

LFSC 307. Community Solutions: Multiple Perspectives. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Explores possibilities for addressing social concerns of the Richmond community by understanding the complex nature of social issues as essential to their successful amelioration via perspectives of life and social sciences. Toward this end, expertise from the social sciences, the life sciences and the community are integrated. Includes a service-learning experience (a 20-hour volunteer requirement). Crosslisted as: PSYC 307.

LFSC 391. Special Topics in Integrative Life Sciences. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated for credit with different topics. A 300-level study of a selected topic in integrative life sciences. Students will find specific topics and prerequisites for each special topics course listed in the Schedule of Classes. If multiple topics are offered, students may elect to take more than one.

LFSC 401. Faith and Life Sciences. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Open to students of any school or program. Explores the complex relationships between faith traditions and the life sciences. Topics include epistemology, impact of life sciences on ideas of fate and responsibility, limits of science and technology, and scientific and religious perspectives on human origins, consciousness, aggression, forgiveness, health, illness and death. Crosslisted as: RELS 401.

LFSC 491. Special Topics in Integrative Life Sciences. 1-4 Hours.

Semester course; 1-4 lecture hours. 1-4 credits. May be repeated for credit with different topics. A 400-level study of a selected topic in integrative life sciences. Students will find specific topics and prerequisites for each special topics course listed in the Schedule of Classes. If multiple topics are offered, students may elect to take more than one.

University College

Interdisciplinary Studies (IDST)

IDST 160. Introduction to Mixed and Immersive Reality Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will familiarize students with the interdisciplinary history, theory, practice and future of mixed, immersive, virtual and augmented realities. It will examine how various disciplines integrate to understand and create mixed reality, including arts, technology, humanities and social sciences. The course will help students articulate how mixed reality applies to their lives, majors, chosen careers and communities, and it will help them to navigate the fundamental questions and technical literacy of the emerging field. Students will gain hands-on, collaborative experience building virtual, interactive environments. No previous technical experience is necessary.

IDST 301. Interdisciplinary Theory and Practice. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to students in the University College's Bachelor of Interdisciplinary Studies program. This course will familiarize students with the history, theory and practice of interdisciplinarity. It is a core component of the Bachelor of Interdisciplinary Studies curriculum and provides an overview of the integrative intellectual pursuit that is interdisciplinary studies. This course immerses students in the breadth of interdisciplinary synthesis and integration of research methods appropriate to their area of interdisciplinary study.

IDST 303. Interdisciplinarity in the Professional World. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. This course provides an overview of strategies for academic success and career-readiness within the context of interdisciplinarity in the 21st-century university and professional world. Students will leverage the work they are doing in their focus areas as they begin to explore or refine their pre-professional interests and goals. Students will research specific interdisciplinary intellectual preparation and professional skills and expectations aligned with the goals.

IDST 305. Interdisciplinary Social Innovation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course provides students with the opportunity to learn about community issues through service to and partnerships with organizations that further social causes. Students will form interdisciplinary teams to design projects for these organizations to bring sustainable change to the community. The course emphasizes design thinking and leadership development and foregrounds skills for collaborative problem-solving and project management.

IDST 360. Mixed and Immersive Reality Studies Synthesis. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: IDST 160. Enrollment is restricted to students in the mixed and immersive reality studies minor. This course is designed to help students in the minor evaluate and synthesize distinct conceptual, methodological and disciplinary approaches to mixed, immersive, virtual and augmented realities. Through the guided, process-driven creation of a project, students will collaborate to apply learning and skills acquired in the minor's course work to produce new knowledge or solutions in studying, utilizing or designing mixed and immersive reality. This course will help students apply interdisciplinary thinking, collaboration and problem-solving to XR spaces, components, capabilities and technologies, emphasizing their work's relationship to their lives, majors, chosen careers and communities.

IDST 391. Interdisciplinary Special Topics. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a maximum of 12 credits. Specialized topics in interdisciplinary subjects not provided by an existing course or program.

IDST 450. Career Readiness Synthesis. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Enrollment is restricted to students who have completed 14 hours of course work required for the interdisciplinary career readiness skills minor, who are enrolled in the interdisciplinary studies major or by permission of the program. This course enables students to reflect upon the courses and co-curricular experiences they have completed through the ICRS minor and serves as the capstone course for the minor. Students will explore how those courses and experiences have helped them develop the skills and competencies needed for post-graduation employment, and they will synthesize evidence of those skills into an eportfolio to share with potential employers and graduate/professional programs.

IDST 452. Interdisciplinary Career Learning Synthesis. 1 Hour.

Semester course; 1 lecture hour (delivered online). 1 credit. Enrollment is restricted to students in the Bachelor of Interdisciplinary Studies program. This course will help students in the B.I.S. program reflect on how their career and prior learning experiences have led to skill development worthy of college credit. They will study: principles and methods related to assessing college-level study outside of the classroom and in interdisciplinary spaces; NACE career competencies and their relationship to interdisciplinary learning and work; and portfolio development, including reflection and argumentation. Students will use this knowledge to develop a portfolio that demonstrates proficiency in 1-6 NACE career competencies of their choosing. This portfolio may then be sent to a panel of interdisciplinary faculty who may approve the student for 1-6 credits in IDST 455 based on their successful demonstration of proficiency. Students may not use credit for this course toward their interdisciplinary studies focus area. Credit earned through the subsequent portfolio evaluation course may, however, be considered for focus area inclusion.

IDST 455. Interdisciplinary Career Learning. 1-6 Hours.

Semester course; 0 contact hours. 1-6 credits. Prerequisite: IDST 452. Enrollment is restricted to students in the Bachelor of Interdisciplinary Studies program. This course will enable students in the B.I.S. program to receive college credit for prior learning experiences and interdisciplinary career skills. Students who have completed the prerequisite may submit their portfolio to a panel of interdisciplinary faculty. Based on the successful demonstration of competencies (one successfully demonstrated competency equals one credit hour, and so on), students may earn 1-6 credits. If the panel does not approve credit(s), students may appeal the decision. Credit earned through this course may be considered for focus area inclusion.

IDST 492. Independent Study. 1-3 Hours.

Semester course; 1-3 independent study hours. 1-3 credits. May be repeated for credit. This course is designed to provide upper-level B.I.S. students the opportunity to explore and investigate a complex interdisciplinary problem or area of research beyond available curricular offerings. Students must discuss their specific interest with the interdisciplinary studies faculty adviser, secure an approved faculty mentor and complete the independent study proposal form (with their faculty mentor) prior to receiving an override for course registration.

IDST 493. Internship. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits (50 field site contact hours per credit). May be repeated for credit with different internships for a maximum of nine credits. Enrollment is restricted to interdisciplinary studies students who have completed 24 credits in their focus areas, earned junior or senior status and obtained approval of placement site from their faculty adviser. The internship is designed to help B.I.S. students have a real-world learning experience that will help move them in the direction of their desired future career. It is intended to provide opportunities for the student to apply classroom knowledge and acquire professional skills. The internship site(s) selected must be compatible with one or more of the focus areas of the student's major and should help to build skills toward a future professional or academic path of interest to them.

IDST 499. BIS Senior Capstone. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Pre- or corequisite: IDST 301. Enrollment is restricted to students in the University College's Bachelor of Interdisciplinary Studies program who have senior standing and have completed 18 hours in their focus area. Students will synthesize and evaluate the theoretical, methodological and substantive issues discovered during course work in the focus area, producing both an eportfolio and a capstone project.

Relevant Experiential and Applied Learning (REAL)

REAL 300. Principles of Community Engagement. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment in some course sections is restricted to students in the VCU Transform or other living-learning programs. This course will introduce the knowledge, skills and attitudes needed to be a successful community-engaged leader in an interconnected, global society. Students will use an interdisciplinary lens to understand and analyze principles and practices of community engagement in local, national and global contexts. Topics could include but are not limited to theories and models of civic action, citizenship, civil discourse, human rights, intercultural competence, and privilege and equity. Students may consult the Schedule of Classes for additional information and restrictions.

REAL 301. Principles of Leadership. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment in some sections is restricted to students in the VCU Transform and other living-learning programs. This seminar will provide an overview of the theories, models and perspectives of the field of leadership studies. Students will explore leadership in terms of the role of leaders, the role of followers and the context in which leadership occurs. With an emphasis on practical application of leadership, students will evaluate their own leadership experiences in terms of the course contents, while also exploring contemporary examples of leadership. Students may consult the Schedule of Classes for additional information and restrictions.

REAL 310. Pathways to Experiential Learning. 1 Hour.

Semester course; 0-1 field experience hour. 0-1 credits. Enrollment is restricted to students in the VCU Transform living-learning program. In this seminar students will verify and document their participation in experiential learning opportunities, including extended community service, undergraduate research projects, peer leadership and other noncredit experiences, in order to receive academic credit for them toward the LLP certificate of completion. Students will also reflect on their experiential learning and produce an artifact for the LLP e-portfolio.

REAL 399. REAL: ____ 3 Hours.

Semester course; 0-3 independent study hours. 0-3 credits (45 hours direct contact per credit minimum). May be repeated for a maximum of three credits. Enrollment is restricted to students with at least sophomore standing with approval of the REAL office. This course supports student completion of a self-directed experiential learning project in one of the five REAL learning domains: academic discipline, skills and knowledge; professional identity and career preparation; community or civic identity; diversity and inclusion; and global knowledge. The student's satisfaction of the course requirements is determined by a VCU faculty/staff supervisor. In cases where the project engages an external partner (an employer or community organization, for example), an evaluation from that partner may also be administered to determine satisfaction of course requirements. Graded as pass/fail.

REAL 400. Principles of Problem-solving. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: REAL 300 and REAL 301. Enrollment is restricted to students in the VCU Transform living-learning program. This course is designed to help students in the Transform living-learning program evaluate and synthesize the theoretical, methodological and substantive issues discovered through their participation in the program and related to leadership, community engagement and cultural agility. Through a guided, comprehensive problem-based learning assignment, students will synthesize and apply their knowledge in innovative ways. In-class activities are designed to aid in the application of theory to address complex problems and to deepen the community among Transform students. The individual projects aim to clarify each student's unique leadership potential and how they can become engaged as change-makers in their local communities and/or field of study.

REAL 401. Capstone Seminar. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: REAL 300, REAL 301 and REAL 400. Enrollment is restricted to students in the VCU Transform living-learning program. In this seminar students will integrate their learning into a comprehensive e-portfolio to showcase their signature experiential learning and present it at a public symposium. Students will also reflect critically on their entire living-learning program experience and highlight key moments and learning as a result of their participation.

REAL 491. Special Topics in Leadership and Experiential Learning. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for credit. Enrollment is restricted to students in the VCU Transform living-learning program. Students will study and discuss advanced and contemporary material related to leadership practice and theory. Topics will vary by semester.

REAL 492. Independent Study in Leadership and Experiential Learning. 1-3 Hours.

Semester course; 1-3 independent study hours. 1-3 credits. May be repeated for credit. Enrollment is restricted to students in the VCU Transform living-learning program. The course provides an opportunity for living and learning program students to learn more about a specific topic of interest that is not included among existing VCU course offerings. Study is conducted under the guidance of a VCU faculty mentor who assists the student in planning and implementing the course of study. The independent study topic should be selected in consultation with the student's academic adviser to ensure that the proposed course of study is relevant to the student's educational goals and VCU Transform. The faculty mentor must agree to be available to the student throughout the duration of the course.

University College (UNIV)**UNIV 101. Introduction to the University. 1 Hour.**

Semester course; 1 lecture hour (delivered online, face-to-face or hybrid). 1 credit. Designed to orient new students to the traditions, purposes and expectations of a university education. Students will assess their expectations and evaluate their academic strengths and goals. Through lectures, guest speakers and individual projects, students will learn of VCU resources designed to help them solve problems and to achieve a rewarding and successful academic program.

UNIV 102. Investigations in Learning. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Enrollment restricted to first-year students who want to improve college success skills. The student will create an individualized action plan to improve academic performance.

UNIV 103. Education and Career Planning. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for a total of 3 credits. An education- and career-planning course focusing on the process of researching and selecting a major. Through course work, research, guest speakers and informational interviewing, students will discover various educational and career options. Topics will include interest, abilities and work-values assessments, decision-making models and career development theories. One- and two-credit versions of the course are offered with correspondingly reduced meeting schedules.

UNIV 111. Focused Inquiry I. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Utilizes contemporary themes to give students opportunities and practice in writing, critical thinking, oral presentation, collaborative learning, information retrieval and evaluation, and social and civic responsibilities. Incorporates common reading materials and course activities across all sections.

UNIV 112. Focused Inquiry II. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: UNIV 111 or equivalent. Builds on skills introduced in UNIV 111 by providing practice in expository essays, argument and contextual analysis. Focuses on practice in writing in a variety of genres, framing writing according to both purpose and audience and identifying academically valid sources. Students must earn a minimum grade of C to receive credit for this course.

UNIV 151. Focused Learning Workshop in BIOL 151. 1-2 Hours.

Semester course; 3 workshop hours. 1-2 credits. Corequisite: BIOL 151. Designed to assist students in improving their understanding of complex biology material. Will supplement the BIOL 151 class lecture. Course assists students with integrating how-to-learn with what-to-learn for BIOL 151. Includes both discussion and study-skills strategies. Students required to complete homework assignments and to demonstrate mastery of specific study techniques. In addition to the semester-long 2-credit offering, a 1-credit course is opened to students after the first BIOL 151 exam.

UNIV 152. Focused Learning Workshop in BIOL 152. 1-2 Hours.

Semester course; 3 workshop hours. 1-2 credits. Corequisite: BIOL 152. Designed to assist students in improving their understanding of complex biology material. Will supplement the BIOL 152 class lecture. Course assists students with integrating how-to-learn with what-to-learn for BIOL 152. Includes both discussion and study-skills strategies. Students required to complete homework assignments and to demonstrate mastery of specific study techniques. In addition to the semester-long 2-credit offering, a 1-credit course is opened to students after the first BIOL 152 exam.

UNIV 191. Student Success Special Topics. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different content for a maximum of three credits. Transitioning from high school to VCU as a first-year student brings both excitement and nervousness. VCU offers a menu of first-year courses that address either motivators or barriers to student success. These courses are taught by academic advisers, financial aid counselors, campus leaders and student affairs professionals interested in connecting to first-year students based on their interests, fears, aspirations and career goals. Students who complete these courses historically earn higher GPAs and graduate faster with less debt.

UNIV 200. Advanced Focused Inquiry: Literacies, Research and Communication. 3 Hours.

Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Prerequisite: UNIV 112 or HONR 250 with a minimum grade of C. Asks students to consider real-world applications of writing and research. Students will develop critical analysis, inquiry-based research skills, communication of argument and research across media. Work represents the culmination of foundational ConnectED competencies developed in UNIV 111 and UNIV 112. Students must earn a minimum grade of C to receive credit for this course.

UNIV 211. Food for Thought. 3 Hours.

Semester course; 3 lecture hours. 3 credits. An interdisciplinary exploration of food using analytical lenses from sociology, anthropology, philosophy, art, literature, history, political science, psychology, economics and religious studies.

UNIV 213. The Truth About Lying. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Students will engage in collaborative inquiry to critically consider their own beliefs, common notions of ethical behaviors and practical standards through exploring the nature and function of lying. Students will work together to build a foundation of knowledge on the subject of lying and investigate a broad range of disciplines through the lie to question, abandon and embrace value judgments imperative to their daily lives.

UNIV 217. Finding Your Voice in Contemporary Society. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: UNIV 111 and 112 or HONR 200 or HONR 250. Focuses on strategies for expression in contemporary society. This course examines the messages that are conveyed in our society and how people decode and understand those messages. Course will focus on popular culture themes and practical problem-solving.

UNIV 222. Pseudoscience. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Course critically evaluates controversial fringes of scientific inquiry, such as those related to paranormal investigations and quack medicine. By engaging with topics chosen from astronomy, anthropology, biology, mathematics, medicine, philosophy and psychology, students will apply critical thinking skills to a variety of strange and provocative ideas.

UNIV 250. Undergraduate Teaching Assistant Program. 1 Hour.

Semester course; 1 lecture hour. 1 credit. May be repeated for up to two credits. Prerequisite: UNIV 112 with a minimum grade of B. Utilizes classroom practice to further the core skills developed in UNIV 111 and 112 (writing, critical thinking, oral presentation, collaborative learning, information retrieval and evaluation, and social and civic responsibilities) as well as exposing students to the practice, possibilities, rewards and responsibilities of the act of teaching. Enrollment will be arranged through faculty mentors.

UNIV 251. Undergraduate Teaching Assistant Program. 1 Hour.

Semester course; 1 lecture hour. 1 credit. May be repeated for up to two credits. Prerequisite: UNIV 200 or HONR 200 with minimum grade of B. Utilizes classroom practice to further the core skills developed in UNIV 200 (including writing, critical thinking, collaborative learning, information retrieval and evaluation) as well as exposing students to the practice, possibilities, rewards and responsibilities of the act of teaching. Enrollment will be arranged through faculty mentors.

UNIV 270. Introduction to Leadership Studies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Open only to students participating in the Emerging Leaders Scholarship Program or enrolled in VCU LEAD. Introductory study of leadership theory, group dynamics and human relationships used in volunteer organizations and leisure delivery systems. Foundations of leadership/follower behavior, advanced facilitation techniques and techniques of decision-making, problem-solving, conflict management and program evaluation will be examined.

UNIV 291. University Special Topics. 1-4 Hours.

Semester course; variable hours. 1-4 credits. May be repeated with different content. Specialized topics in subject and competency areas related to the core curriculum program not provided by an existing course or program. May be multidisciplinary. Graded as pass/fail or normal letter grading at the option of the instructor.

UNIV 299. What's the Big Idea?. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Each section in this interdisciplinary course will focus on a particular "big question" that has intrigued thinkers throughout time and across cultures. As students move from personal to global — and from theoretical to practical — investigations of the question, they will come to understand inquiry as a complex cycle of questioning, gathering, examining, interpreting, comparing, analyzing and evaluating, with important application to decision-making and problem-solving in the real world.

UNIV 350. Peer Leadership Program. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for up to six credits. Prerequisite: UNIV 250 and/or UNIV 251 with a minimum grade of B (must have a total of two credits in courses listed). Building on skills introduced in the prerequisite(s), this course gives students hands-on experience in the practice of creating and maintaining student engagement.

UNIV 391. University Special Topics. 1-4 Hours.

Semester course; variable hours. 1-4 credits. May be repeated with different content. Specialized topics in subject and competency areas related to the core curriculum program not provided by an existing course or program. May be multidisciplinary. Graded as pass/fail or normal letter grading at the option of the instructor.

da Vinci Center for Innovation

Human-centered Design (HCDN)

HCDN 351. Introduction to Human-centered Design. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. This course explores the human-centered design paradigm from a broad perspective. Students are exposed to human-centered design thinking and experiential client activities. Topics include human-centered design principles, methodologies, user research, data collection and assessment, inspiration, ideation, and implementation phases, and critical- and creative-thinking models.

HCDN 352. Human-centered Design Methods. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: HCDN 351. This course explores human-centered design methods and an experiential client interaction. Students will be challenged to develop, utilize and assess several ways of knowing and thinking about how to effectively contextualize, formulate, conduct, analyze and disseminate the results derived from particular engagements with human-centered design and their processes in the context of research and design.

HCDN 353. Human-centered Design Through Service Learning. 2 Hours.

Semester course; 2 lecture hours. 2 credits. Prerequisite: HCDN 352. This course allows students to engage in an experiential nonprofit client scenario working through human-centered design methods that solve a community need specific to social innovation. Lecture is coupled with 20 hours of service-learning client engagement.

HCDN 451. Interaction Design and Prototyping. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: HCDN 353. Investigates the practice of interaction design using an experiential project-oriented approach. Develops expertise in design, development and critique of solutions for digital platforms and consumer products. Examines issues such as interaction theory, requirements and specifications, design language, prototyping, evaluation, and project presentation.

HCDN 452. Professional Practices. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: HCDN 353. An overview of professional industry practices, concepts, self-marketing strategies, educational and career options in product innovation and venture creation is presented. Preparing written materials, documenting client work and building a professional portfolio for presentation to potential employers are stressed.

HCDN 491. Special Topics in Human-centered Design. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for a maximum of six credits. Study of current and emerging topics in the field of human-centered design. Topics may vary from semester to semester.

HCDN 492. Independent Study in Human-centered Design. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. Students pursuing a da Vinci Center certificate may repeat for a maximum total of 3 credits. Enrollment restricted to students with junior standing and permission of adviser and da Vinci Center director prior to course registration. Intensive study or research under supervision of a faculty member in an area not covered in depth or contained in the regular curriculum.

HCDN 493. Internship in Human-centered Design. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for a maximum of 3 credits. Enrollment restricted to students who have permission of the certificate director. Supervised pragmatic work experiences. Training is provided under the direction and supervision of qualified professional practitioners.

Innovation in Product Design and Development (INNO)**INNO 200. Introduction to Innovation and Venture Creation. 1 Hour.**

Semester course; 1 lecture hour. 1 credit. A speaker series focused on the discussion of pertinent topics related to product innovation and venture creation. Students will be exposed to numerous topics through guest speakers supplemented by readings and class discussion. Topics include conceptualization, patents, capitalization, venture formation, commercialization, market assessment, project management and product life cycle management.

INNO 210. The Innovation Intersection: Industry and Entrepreneurship. 3 Hours.

Semester course; 3 lecture hours. 3 credits. This course will explore the intersection of industries of innovation and entrepreneurship in the social world we live in. This course will operate as part speaker series, part podcast and part group dialog. Topics include, but are not limited to, innovation in education, systemic exclusion and discrimination, ecosystem building, innovation in health care, equity, access, and funding.

INNO 221. Introduction to Arts and Design Principles. 3 Hours.

Semester course; 1 lecture and 2 studio hours. 3 credits. Introduces arts and design principles to students from non-arts disciplines. Students will begin to understand how art and design play a role in product innovation. Open to all VCU undergraduate students.

INNO 223. Introduction to Business Principles. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces business fundamentals to students from non-business disciplines. Particular focus will be concepts and issues in product innovation and contemporary business. Open to all VCU undergraduate students.

INNO 225. Introduction to Engineering and Technology Principles. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces engineering and technology fundamentals to students from non-engineering disciplines. Particular focus is the engineering problem-solving process as applied to open-ended problems. Students will be introduced to the different types of engineering, examine engineering and technology issues and apply the engineering problem-solving process in the context of product innovation. Open to all VCU undergraduate students.

INNO 250. Introduction to Global Coding for Data. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces fundamental skills and techniques required to manipulate, analyze and extract insights from data using various programming languages. In addition to technical skills, this course places an emphasis on intercultural skills, professional development, problem-solving through a global lens and essential skills to succeed in the workforce.

INNO 251. Introduction to Global Digital Marketing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces fundamental skills, core principles and techniques of digital marketing through a global lens. Students will learn how businesses and organizations rely on digital marketing strategies to connect with their target audiences, enhance brand visibility and drive growth. In addition to technical skills, this course places an emphasis on intercultural skills, professional development, problem-solving through a global lens and essential skills to succeed in the workforce.

INNO 252. Introduction to Global Coding for Web. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces fundamental skills, core principles and techniques to build dynamic mobile and web experiences for users from around the world, using industry-standard best practices. Students also learn cultural web application nuances relevant to developing web applications that are accessible to all users. In addition to technical skills, this course places an emphasis on intercultural skills, professional development, problem-solving through a global lens and essential skills to succeed in the workforce.

INNO 253. Introduction to Global Data Analytics. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces fundamental skills, core principles and techniques to analyze real-world data and make data-driven decisions, using industry-standard best practices. Students will develop the ability to collaborate on technical challenges in a diverse business environment and grapple with real-world case studies featuring international organizations. In addition to technical skills, this course places an emphasis on intercultural skills, professional development, problem-solving through a global lens and essential skills to succeed in the workforce.

INNO 291. Special Topics in Product Innovation. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for a maximum of six credits. Study of current and emerging topics in the field of product innovation. Topics may vary from semester to semester. See Schedule of Classes for specific topics to be offered.

INNO 351. Creativity for Innovation and Entrepreneurship. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Students are introduced to the role of creativity in innovation and entrepreneurship. A multidisciplinary orientation and approach are emphasized.

INNO 352. Making Innovation Happen. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Students are introduced to the role of innovation in today's society. A multidisciplinary orientation and approach are emphasized.

INNO 353. Making Entrepreneurship Happen. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Students are introduced to the role of entrepreneurship in today's society. A multidisciplinary orientation and approach are emphasized.

INNO 450. Realizing Innovation and Entrepreneurship. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Students will learn how innovation and entrepreneurship are manifested in today's society. A multidisciplinary orientation and approach are emphasized.

INNO 460. Product Innovation: da Vinci Project. 3 Hours.

Semester course; 3 credits. Prerequisite: permission of instructor. Students from the School of the Arts, School of Engineering and School of Business work together on a semester-long product innovation project with a corporate sponsor under faculty supervision. Topics and activities may include project management, team building, concept generation and testing, market analysis, visualization, and prototyping.

INNO 491. Special Topics in Product Innovation. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for a maximum of six credits. Study of current and emerging topics in the field of product innovation. Topics may vary from semester to semester. Open to all undergraduate students.

INNO 492. Independent Study in Product Innovation. 1-3 Hours.

Semester course; 1-3 independent study hours. 1-3 credits. May be repeated for a maximum total of six credits by students pursuing a da Vinci Center certificate. Enrollment restricted to students with junior standing and permission of adviser and da Vinci Center director. Intensive study or research under supervision of a faculty member in an area not covered in depth or contained in the regular curriculum.

INNO 493. Internship in Product Innovation. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits. May be repeated for a maximum of three credits. Enrollment requires permission of the academic director. Supervised pragmatic work experiences in product innovation and development. Each internship credit requires 40 logged hours of work for the sponsoring organization. Training is provided under the direction and supervision of qualified professional practitioners.

Venture Creation (VNTR)**VNTR 300. Venture Creation Skills. 3 Hours.**

Semester course; 3 lecture hour. 3 credits. Students are introduced to and apply various skills important for real venture creation. A multidisciplinary orientation and approach are emphasized throughout the course.

VNTR 460. Venture Creation Project. 3 Hours.

Semester course; 3 lecture hour. 3 credits. Students will work in cross-disciplinary teams on a semester-long venture creation project. Topics and activities may include business model generation, customer discovery, customer validation, financial analysis and agile development.

VNTR 491. Special Topics in Venture Creation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits. Enrollment restricted to students with permission of adviser and da Vinci Center director prior to course registration. Study of current and emerging topics in the field of venture creation. Topics may vary from semester to semester.

VNTR 492. Independent Study in Venture Creation. 1-3 Hours.

Semester course; 1-3 hours. 1-3 credits. May be repeated for a maximum total of six credits by students pursuing a da Vinci Center certificate. Enrollment restricted to students with junior standing and permission of adviser and da Vinci Center director. Intensive study or research under supervision of a faculty member in an area not covered in depth or contained in the regular curriculum.

VNTR 493. Internship in Venture Creation. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits. May be repeated for a maximum of three credits. Enrollment requires permission of the academic director. Supervised pragmatic work experiences in startups and new venture development. Each internship credit requires 40 logged hours of work for the sponsoring organization. Training is provided under the direction and supervision of qualified professional practitioners.

Academic Affairs**Community Studies (CMST)****CMST 210. Health Careers Exploration. 1-3 Hours.**

Semester course; variable hours. 1-3 credits. Open only to high school students enrolled in programs partnering with VCU's Health Sciences Academy. High school students will learn college-success skills, how to make informed decisions about the health careers they wish to pursue and plan college-level courses and extracurricular activities to achieve their career goals. Material is presented through lectures from health care workers in various specialties, hands-on activities and exposure to college mentors.

CMST 300. The Foundations of Community Engagement. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Course content includes theories of citizenship, social movements, civic leadership, social justice, civil discourse, service and social capital. The survey course is foundational for subsequent seminars.

CMST 301. Neighborhood Research Seminar. 1 Hour.

Semester course; 1 credit. Prerequisite: CMST 300. Enrollment restricted to VCU ASPIRE students. Community engagement knowledge and skills are applied to studying the character, history and social issues that impact Richmond neighborhoods through group and individual projects.

CMST 310. Orientation to Service-learning. 1.5 Hour.

Seven-week course; content delivered online. 1.5 credits. Prerequisite: permission of instructor. Interactive, online orientation training designed to introduce students to the historical and theoretical foundations of service-learning. Students will also become familiar with indicators of high-quality community engagement practices. Course content is available through Blackboard, and the class will not meet face-to-face. Students are expected to complete assignments and activities for course modules by the due dates specified on Blackboard.

CMST 391. Topics in Community Studies. 1-3 Hours.

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for a maximum of six credits with different topics. Open only to students enrolled in the ASPIRE living-learning program. An in-depth study of a selected topic in community studies. See the Schedule of Classes for specific topics to be offered each semester.

CMST 400. The Community Engagement Seminar. 1 Hour.

Semester course; 1 credit. Prerequisite: CMST 301. Discipline-based knowledge and skills are applied to assessed community needs. A service-learning component of 25 hours is included.

CMST 401. The Capstone Community Engagement Seminar. 1 Hour.

Semester course; 1 credit. Prerequisite: CMST 400. Community-identified needs are addressed by discipline-specific interventions that result in documented social change. A service-learning component of 25 hours is included.

CMST 410. Service-learning Teaching Assistant Supervision. 1.5 Hour.

Semester course; 2.5 laboratory hours. 1.5 credits. Enrollment requires permission of instructor. Corequisite: CMST 310. Provides undergraduate students with support and instruction during their first semester of service as teaching assistants to VCU service-learning courses. Requirements include a minimum of five hours per week of teaching assistance activities within a designated service-learning course, attendance at monthly group supervision meetings and participation in service-learning group activities. Supervision meetings are designed to help students build important community leadership skills such as team facilitation, ethical problem-solving and diversity awareness/appreciation.

CMST 411. Advanced Service-learning Teaching Assistant Supervision. 1 Hour.

Semester course; 2 laboratory hours; 1 credit. Prerequisites: CMST 310 and CMST 410. This course emphasizes effective techniques and strategies for advanced service-learning teaching assistants to increase their impact on student development and community outreach in service-learning courses. Students serve as peer mentors and facilitators for SLTAs in their first semester of service in addition to providing invaluable technical support to their instructors. The course will provide advanced SLTAs with individualized leadership assessments designed to enhance their leadership skills and emphasize the role of student leaders in successful service-learning courses.

CMST 491. Special Topics in Community Studies. 1-3 Hours.

Semester course; 1-3 variable hours. 1-3 credits. Prerequisite: permission of instructor. An in-depth study of a selected topic related to community studies. See the Schedule of Classes for specific topics to be offered each semester. If several topics of different content are offered, students may elect to take more than one.

CMST 492. Independent Study in Community Studies. 1-3 Hours.

Semester course; 1-3 variable hours. 1-3 credits. Prerequisite: permission of instructor. Intensive study or research under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum.

CMST 493. The Community Engagement Internship. 1-3 Hours.

Semester course; 1-3 variable hours. 1-3 credits. May be repeated a maximum of two times with program approval. Prerequisite: CMST 300. Civic leadership and responsibility are emphasized in workplace internships established with community partners. A service-learning component of 45 hours per credit hour is included.

Cooperative Education (COOP)**COOP 298. Cooperative Education Experience. 0 Hours.**

Semester course; the student works a maximum of 20 hours per week, completes all off-campus/on-campus assignments. No credit. Open to students who have been placed in an approved co-op position with an agency, business, industry or institution.

COOP 398. Cooperative Education Experience. 0 Hours.

Semester course; the student works a maximum of 40 hours per week, completes all off-campus/on-campus assignments. No credit. Open to students who have been placed in an approved co-op position with an agency, business, industry or institution.

Global Education (GLED)**GLED 493. Global Leadership Practicum. 1-3 Hours.**

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of 6 credits, with a limit of 3 credits in a single semester. Prerequisites: GLED 302 and permission of instructor. Open only to seniors enrolled in the VCU Globe program. Working in teams, students will implement selected proposals. Includes 30 hours of service work per credit.

Honors (HONR)**HONR 150. Flourishing. 1 Hour.**

Semester course; 1 lecture hour. 1 credit. Restricted to freshmen in The Honors College. Transitioning from high school to college is a major developmental task. The challenges include independence from adult supervision, new friendships, exposure to a unique culture of academic pressure, relative freedom with access to leisure time activities that include both positive and negative elements. Anxiety/depression, problems with substance use and mental illness often make their presence known in this period. It can be a time of high stress and tension but also a time for unprecedented opportunity to discover strength and resilience that sets students on a positive trajectory on the stage of life. Both professors and students have discovered that self-doubt, tension and stress not only impede knowledge acquisition but also the capacity to flourish, i.e. to actualize one's innate capacity for resilience and growth. This course examines the state of college student mental health and wellness on a personal and systems level. It provides an opportunity for students to re-evaluate their beliefs, values and assumptions, and to do so in the context of learning about the science behind health and wellness. Key findings from the fields of positive psychology and the study of mental illness will inform students' understanding of the biopsychosocial underpinnings of well-being.

HONR 160. Introduction to Community Engagement. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Enrollment is restricted to juniors and seniors in The Honors College. Contemporary communities are diverse and interconnected. To impact positive social changes, leaders in these communities must understand critical theories of community engagement. This course surveys critical theories and models of community engagement, including but not limited to theories of citizenship, social movements, civic leadership, social justice, civil discourse and social capital. Students will use an interdisciplinary lens to analyze principles and practices of community engagement.

HONR 170. Humans of RVA and VCU. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Enrollment restricted to students in the Honors College. Students will study the nature of community, especially the Richmond community, as well as community engagement and their role in it. They will study the differences among the terms community engagement, community service and service learning, as well as their relationship to social justice and social change. In the style of the website Humans of New York, students will work in cohorts to interview Richmond residents and post stories and photos to social media, with an eye toward better understanding the many aspects of community.

HONR 171. Investigative Inquiry in RVA. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: HONR 170. Enrollment is restricted to students in the Honors College. Utilizing "City as Text," this experiential learning course provides students with an opportunity to work in diverse cohorts to experience activities and events in the Richmond community.

HONR 190. Freshman Seminar. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Restricted to freshmen in The Honors College. This course develops a learning paradigm for students appropriate to university education. Students are expected to gain a willingness to take intellectual risks, to engage in their own learning actively and to take responsibility for their own education. A thorough orientation to the library and other university resources is included. The students will hone critical-thinking skills while examining selected topics from a perspective that emphasizes critical interpretation rather than mastery of information. Students will engage in collaborative projects on specified topics. Attendance at certain Honors College events is required.

HONR 198. Freshman Honors. 1-4 Hours.

Semester course; 3 lecture hours. Variable credit. Maximum total of 8 credits. May be repeated once under different topic. Prerequisite: permission of the dean of The Honors College. An interdisciplinary course that will provide an intensive study of selected topics.

HONR 200. Research Writing. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to honors students. In-depth study of principles of rhetoric and argumentation in both written and oral formats. Emphasis is on research-based expository writing and debate, with skills development in technological applications for information retrieval. Students may not receive credit for both HONR 200 and UNIV 200.

HONR 250. Writing in Cultural Conversation. 3 Hours.

Semester course; 3 lecture hours. 3 credits. In-depth study of principles of expository writing focusing on purpose and audience. Particular emphasis on critically engaging with texts and writing about original ideas informed by the thinking of others. Develops a number of writing strategies and skills including narration, description and figuration, as well as the art of persuasion.

HONR 298. Sophomore Honors. 1-4 Hours.

Semester course; 3 lecture hours. Variable credit. Maximum total of 8 credits. May be repeated once under different topic. Prerequisite: permission of the dean of The Honors College. Appropriate prerequisite or corequisites may be demanded. An interdisciplinary course that will provide an intensive study of selected topics.

HONR 300. Qatar Honors Experiential Learning Project. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisites: junior or senior standing and approval of Honors College dean. Restricted to honors students. Experiential learning is a project-based and student-led experience utilizing hands-on learning, academic research and personal reflection to increase knowledge, develop skills, clarify values and make worthwhile contributions to communities, organizations or groups. This course provides honors students with opportunities to collaborate with local, regional and/or international communities and organizations to engage in meaningful projects and initiatives that enhance academic enrichment, foster personal growth and practice social responsibility.

HONR 398. Honors Topics. 1-4 Hours.

Semester course; 3 lecture hours. Variable credit. May be repeated with different topics. Prerequisite: permission of the dean of The Honors College. Appropriate prerequisite or corequisites may be demanded. An in-depth study of selected topics. May be cross listed with departmental courses. See the Schedule of Classes for specific topics to be offered each semester.

HONR 399. Honors Module. 1.5 Hour.

Five-week course; 3 lecture hours. 1.5 credits per module. Prerequisite: permission of the dean of The Honors College. Intensive studies of topics from a wide spectrum of disciplines are undertaken. Each module is a self-contained unit. See the Schedule of Classes for specific topics to be offered each semester.

HONR 492. Honors Independent Study. 0.5-4 Hours.

Semester course; variable hours. Variable credits. Maximum of 4 credits per semester. Maximum total of 9 credits over all semesters. Prerequisites: junior or senior standing, and approval of Honors College dean and instructor/tutor. Intensive study under supervision of a faculty member in an area not covered in depth or contained in the regular curriculum.

HONR 493. Honors College Internship. 1-3 Hours.

Semester course; 1-3 field experience hours. 1-3 credits (50 hours per credit). May be taken for a maximum of 3 credits per semester with a maximum of 6 credits total. Enrollment restricted to junior or senior students in the Honors College with approval of internship coordinator. Designed to provide students with real-world experience in the public, private and not-for-profit sectors. Graded as pass/fail.

HONR 494. Honors College Senior Capstone. 4 Hours.

Semester course; 4 independent study hours. 4 credits. Prerequisites: HONR 170; HONR 200 or UNIV 200; and HONR 250. Enrollment is restricted to seniors in the Honors College with a 3.2 grade point average in honors courses. Each student will participate, either individually or as part of a cohort, in preparing a project proposal approved by the course coordinator. This course will entail the planning and execution of a scholarly project where understanding of research techniques, effective oral and written communication and knowledge of relevant literature and theories are clearly demonstrated.

HONR 495. Honors College Senior Capstone: Proposal Writing. 2 Hours.

Semester course; 2 independent study hours. 2 credits. Prerequisites: HONR 170; HONR 200 or UNIV 200; and HONR 250. Enrollment is restricted to seniors in the Honors College with a cumulative 3.2 GPA in honors courses. This course is a part one of a two-semester sequence where each student will participate, either individually or as a part of a cohort, in preparing a project proposal approved by the course coordinator.

HONR 496. Honors College Senior Capstone: Practicum. 2 Hours.

Semester course; 2 independent study hours. 2 credits. Prerequisite: HONR 495. Enrollment is restricted to seniors in the Honors College with a cumulative 3.2 GPA in honors courses. This course is part two of a two-semester sequence where each student will participate, either individually or as a part of a cohort, in implementing a project proposal approved by the course coordinator.

LEAD (LDRS)**LDRS 200. Profiles in Leadership. 1 Hour.**

Semester course; 1 lecture hour. 1 credit. Restricted to students in the Emerging Leaders Program or an approved program-in-residence. This seminar will introduce students to leadership by exploring a variety of historical and contemporary leaders and discussing the impact of their leadership on the world. Students will also discuss the ways in which their own leadership development can contribute to their success both in the classroom and in their communities.

LDRS 201. Leadership Identity. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Course restricted to students enrolled in VCU LEAD. This seminar will expose students to foundational principles of the leadership phenomenon, explore the role of the leader in the leadership process and promote self-understanding and leadership efficacy. Students will learn the ways in which leadership identity is developed and will discover and reflect upon their own leadership identity.

LDRS 202. Leadership Context. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: LDRS 201. This seminar will provide an overview of the different contexts in which leadership occurs. Students will examine leadership pathways that are available through the VCU LEAD program and choose a pathway for in-depth exploration.

LDRS 301. Leadership Engagement. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisites: LDRS 202 and UNIV 270. This seminar will focus intensely on the student's experience in the leadership practicum as both a leader and a follower. Students will analyze the ways in which leadership theory and principles learned in the classroom applied to their experience and how their preparation and self-efficacy as a leader contributed to their success.

LDRS 302. Culminating Leadership Seminar. 1 Hour.

Semester course; 1 lecture hour. 1 credit. Prerequisite: LDRS 301. This culminating seminar integrates all aspects of the VCU LEAD program. Students will examine the different contexts in which they experienced leadership from the perspective of both leader and follower. The student will clearly illustrate their expertise, capability and self-efficacy as a leader through a folio of their experience.

LDRS 491. Special Topics in Leadership. 1-3 Hours.

Semester course; 1-3 variable hours. 1-3 credits. Enrollment requires admission to VCU LEAD and permission of instructor. An in-depth study of a selected topic related to leadership. See the Schedule of Classes for specific topics to be offered each semester. If several topics of different content are offered, students may elect to take more than one.

LDRS 492. Independent Study in Leadership. 1-3 Hours.

Semester course; 1-3 variable hours. 1-3 credits. Enrollment requires admission to VCU LEAD and permission of instructor. Intensive study supervision of a faculty member in an area not covered in-depth or contained in other VCU LEAD (LDRS) courses and/or independent investigation and research of leadership problems through readings, data collection and analysis. Written interim and final reports required.