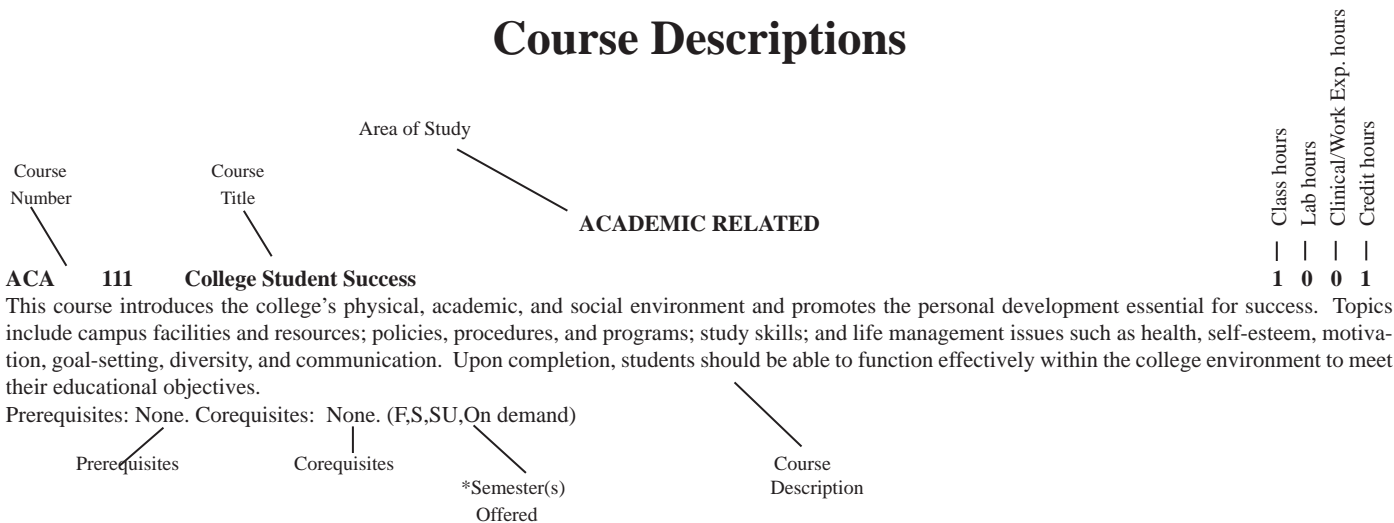


# Course Descriptions



Prerequisites and Corequisites are based on minimum course requirements listed in the NCCCS Common Course Library and/or other course and program requirements established by Catawba Valley Community College.

\*Coding System:

F - Fall S - Spring SU - Summer

On Demand - Course will be offered when sufficient students are available as well as an instructor.

(Coll/Tran) - Denotes College Transfer course.

## ACADEMIC RELATED

**ACA 111 College Student Success 1 0 0 1**  
 This course introduces the college’s physical, academic, and social environment and promotes the personal development essential for success. Topics include campus facilities and resources; policies, procedures, and programs; study skills; and life management issues such as health, self-esteem, motivation, goal-setting, diversity, and communication. Upon completion, students should be able to function effectively within the college environment to meet their educational objectives.  
 Prerequisites: None. Corequisites: None. (F,S,SU)

**ACA 122 College Transfer Success (Coll/Tran) 1 0 0 1**  
 This course provides information and strategies necessary to develop clear academic and professional goals beyond the community college experience. Topics include the CAA, college culture, career exploration, gathering information on senior institutions, strategic planning, critical thinking, and communications skills for a successful academic transition. Upon completion, students should be able to develop an academic plan to transition successfully to senior institutions.  
 Prerequisites: None. Corequisites: None. (F,S)

## ACCOUNTING

**ACC 120 Prin of Financial Accounting (Coll/Tran) 3 2 0 4**  
 This course introduces business decision-making accounting information systems. Emphasis is placed on analyzing, summarizing, reporting, and interpreting financial information. Upon completion, students should be able to prepare financial statements, understand the role of financial information in decision-making and address ethical considerations.  
 Prerequisites: None. Corequisites: CTS 080. (F,S)

**ACC 121 Prin of Managerial Accounting (Coll/Tran) 3 2 0 4**  
 This course includes a greater emphasis on managerial and cost accounting skills. Emphasis is placed on managerial accounting concepts for external and internal analysis, reporting and decision-making. Upon completion, students should be able to analyze and interpret transactions relating to managerial concepts including product-costing systems.  
 Prerequisites: ACC 120. Corequisites: None. (S)

**ACC 129 Individual Income Taxes 2 2 0 3**  
 This course introduces the relevant laws governing individual income taxation. Topics include tax law, electronic research and methodologies, and the use of technology for preparation of individual tax returns. Upon completion, students should be able to analyze basic tax scenarios, research applicable tax law, and complete various individual tax forms.  
 Prerequisites: None. Corequisites: None. (F)

**ACC 130 Business Income Taxes 2 2 0 3**  
 This course introduces the relevant laws governing business and fiduciary income taxes. Topics include tax law relating to business organizations, electronic research and methodologies, and the use of technology for the preparation of business tax returns. Upon completion, students should be able to analyze basic tax scenarios, research applicable tax law, and complete various business tax forms.  
 Prerequisites: None. Corequisites: None.

**ACC 140 Payroll Accounting 1 2 0 2**  
 This course covers federal and state laws pertaining to wages, payroll taxes, payroll tax forms, and journal and general ledger transactions. Emphasis is placed on computing wages; calculating social security, income, and unemployment taxes; preparing appropriate payroll tax forms; and journalizing/posting transactions. Upon completion, students should be able to analyze data, make appropriate computations, complete forms, and prepare accounting entries using appropriate technology.  
 Prerequisites: ACC 120. Corequisites: None. (S)

**ACC 150 Acct Software Appl 1 2 0 2**  
 This course introduces microcomputer applications related to accounting systems. Topics include general ledger, accounts receivable, accounts payable, inventory, payroll, and correcting, adjusting, and closing entries. Upon completion, students should be able to use a computer accounting package to solve accounting problems. This course is offered only in a distant format (Internet).  
 Prerequisites: ACC 120. Corequisites: None. (S)

**ACC 220 Intermediate Accounting I 3 2 0 4**  
 This course is a continuation of the study of accounting principles with in-depth coverage of theoretical concepts and financial statements. Topics include generally accepted accounting principles and an extensive analyses of financial statements. Upon completion, students should be able to demonstrate competence in the conceptual framework underlying financial accounting, including the application of financial standards.  
 Prerequisites: ACC 120. Corequisites: None. (F)

**ACC 221 Intermediate Acct II** 3 2 0 4  
This course is a continuation of ACC 220. Emphasis is placed on special problems which may include leases, bonds, investments, ratio analyses, present value applications, accounting changes, and corrections. Upon completion, students should be able to demonstrate an understanding of the principles involved and display an analytical problem-solving ability for the topics covered. Prerequisites: ACC 220. Corequisites: None. (S)

**ACC 225 Cost Accounting** 3 0 0 3  
This course introduces the nature and purposes of cost accounting as an information system for planning and control. Topics include direct materials, direct labor, factory overhead, process, job order, and standard cost systems. Upon completion, students should be able to demonstrate an understanding of the principles involved and display an analytical problem-solving ability for the topics covered. Prerequisites: ACC 121. Corequisites: None. (F)

**ACC 240 Gov & Not-for-Profit Acct** 3 0 0 3  
This course introduces principles and procedures applicable to governmental and not-for-profit organizations. Emphasis is placed on various budgetary accounting procedures and fund accounting. Upon completion, students should be able to demonstrate an understanding of the principles involved and display an analytical problem-solving ability for the topics covered. Prerequisites: ACC 121. Corequisites: None. (S)

**ACC 269 Audit & Assurance Servcs** 3 0 0 3  
This course introduces selected topics pertaining to the objectives, theory and practices in engagements providing auditing and other assurance services. Topics will include planning, conducting and reporting, with emphasis on the related professional ethics and standards. Upon completion, students should be able to demonstrate an understanding of the types of professional services, the related professional standards, and engagement methodology. Prerequisites: ACC 220. Corequisites: None. (S)

#### AIR CONDITIONING, HEATING & REFRIGERATION

**AHR 110 Intro to Refrigeration** 2 6 0 5  
This course introduces the basic refrigeration process used in mechanical refrigeration and air conditioning systems. Topics include terminology, safety, and identification and function of components; refrigeration cycle; and tools and instrumentation used in mechanical refrigeration systems. Upon completion, students should be able to identify refrigeration systems and components, explain the refrigeration process, and use the tools and instrumentation of the trade. Prerequisites: RED 080 or appropriate placement test score. Corequisites: CTS 080 or appropriate test score. (F)

**AHR 111 HVACR Electricity** 2 2 0 3  
This course introduces electricity as it applies to HVACR equipment. Emphasis is placed on power sources, interaction of electrical components, wiring of simple circuits, and the use of electrical test equipment. Upon completion, students should be able to demonstrate good wiring practices and the ability to read simple wiring diagrams. Prerequisites: RED 080 or appropriate placement test score. Corequisites: CTS 080 or appropriate test score. (F)

**AHR 112 Heating Technology** 2 4 0 4  
This course covers the fundamentals of heating including oil, gas, and electric heating systems. Topics include safety, tools and instrumentation, system operating characteristics, installation techniques, efficiency testing, electrical power, and control systems. Upon completion, students should be able to explain the basic oil, gas, and electrical heating systems and describe the major components of a heating system. Prerequisites: RED 080 or appropriate placement test score. Corequisites: CTS 080 or appropriate test score. (F)

**AHR 113 Comfort Cooling** 2 4 0 4  
This course covers the installation procedures, system operations, and maintenance of residential and light commercial comfort cooling systems. Topics include terminology, component operation, and testing and repair of equipment used to control and produce assured comfort levels. Upon completion, students should be able to use psychometrics, manufacturer specifications, and test instruments to determine proper system operation. Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (S)

**AHR 114 Heat Pump Technology** 2 4 0 4  
This course covers the principles of air source and water source heat pumps. Emphasis is placed on safety, modes of operation, defrost systems, refrigerant charging, and system performance. Upon completion, students should be able to understand and analyze system performance and perform routine service procedures. Prerequisites: AHR 110 or AHR 113. Corequisites: None. (S)

**AHR 130 HVAC Controls** 2 2 0 3  
This course covers the types of controls found in residential and commercial comfort systems. Topics include electrical and electronic controls, control schematics and diagrams, test instruments, and analysis and troubleshooting of electrical systems. Upon completion, students should be able to diagnose and repair common residential and commercial comfort system controls. Prerequisites: AHR 111 or ELC 111. Corequisites: None. (S)

**AHR 151 HVAC Duct Systems I** 1 3 0 2  
This course introduces the techniques used to lay out and fabricate duct work commonly found in HVAC systems. Emphasis is placed on the skills required to fabricate duct work. Upon completion, students should be able to lay out and fabricate simple duct work. Prerequisites: None. Corequisites: None. (F)

**AHR 160 Refrigerant Certification** 1 0 0 1  
This course covers the requirements for the EPA certification examinations. Topics include small appliances, high pressure systems, and low pressure systems. Upon completion, students should be able to demonstrate knowledge of refrigerants and be prepared for the EPA certification examinations. Prerequisites: None. Corequisites: None. (S)

**AHR 180 HVACR Customer Relations** 1 0 0 1  
This course introduces common business and customer relation practices that may be encountered in HVACR. Topics include business practices, appearance of self and vehicle, ways of handling customer complaints, invoices, telephone communications, and warranties. Upon completion, students should be able to present themselves to customers in a professional manner, understand how the business operates, complete invoices, and handle complaints. Prerequisites: None. Corequisites: None. (F,S)

**AHR 210 Residential Building Code** 1 2 0 2  
This course covers the residential building codes that are applicable to the design and installation of HVAC systems. Topics include current residential codes as applied to HVAC design, service, and installation. Upon completion, students should be able to demonstrate the correct usage of residential building codes that apply to specific areas of the HVAC trade. Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (S)

**AHR 211 Residential System Design** 2 2 0 3  
This course introduces the principles and concepts of conventional residential heating and cooling system design. Topics include heating and cooling load estimating, basic psychometrics, equipment selection, duct system selection, and system design. Upon completion, students should be able to design a basic residential heating and cooling system. Prerequisites: RED 080 or appropriate placement test score. Corequisites: CTS 080 or appropriate test score. (F)

#### ANTHROPOLOGY

**ANT 220 Cultural Anthropology (Coll/Tran)** 3 0 0 3  
This course introduces the nature of human culture. Emphasis is placed on cultural theory, methods of fieldwork, and cross-cultural comparisons in the areas of ethnology, language, and the cultural past. Upon completion, students should be able to demonstrate an understanding of basic cultural processes and how cultural data are collected and analyzed. Prerequisites: RED 090 or appropriate placement test score. Corequisites: None. (On demand)

**ANT 221 Comparative Cultures (Coll/Tran)** 3 0 0 3  
This course provides an ethnographic survey of societies around the world covering their distinctive cultural characteristics and how these relate to cultural change. Emphasis is placed on the similarities and differences in social institutions such as family, economics, politics, education, and religion. Upon completion, students should be able to demonstrate knowledge of a variety of cultural adaptive strategies. Prerequisites: None. Corequisites: None. (F,S)

**ANT 230 Physical Anthropology** (Coll/Tran) **3 0 0 3**  
This course introduces the scientific study of human evolution and adaptation. Emphasis is placed on evolutionary theory, population genetics, biocultural adaptation and human variation, as well as non-human primate evolution, morphology, and behavior. Upon completion, students should be able to demonstrate an understanding of the biological and cultural processes which have resulted in the formation of the human species.  
Prerequisites: RED 090 or appropriate placement test score.  
Corequisites: None. (On demand)

## ARABIC

**ARA 111 Elementary Arabic I** (Coll/Tran) **3 0 0 3**  
This course introduces the fundamental elements of the modern standard Arabic language within the cultural context of Arabic-speaking people. Emphasis is placed on the development of basic listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written Arabic and demonstrate cultural awareness. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. (On demand)  
Prerequisites: None. Corequisites: ARA 181.

**ARA 112 Elementary Arabic II** (Coll/Tran) **3 0 0 3**  
This course includes the basic fundamental elements of the modern standard Arabic language within the cultural context of Arabic-speaking people. Emphasis is placed on the progressive development of listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written Arabic and demonstrate further cultural awareness. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. (On demand)  
Prerequisites: ARA 111 must pass with a grade of "C" or higher.  
Corequisites: ARA 182.

**ARA 181 Arabic Lab I** (Coll/Tran) **0 2 0 1**  
This course provides an opportunity to enhance acquisition of the fundamental elements of the modern standard Arabic language. Emphasis is placed on the development of basic listening, speaking, reading, and writing skills through the use of supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written Arabic and to demonstrate cultural awareness. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. (On demand)  
Prerequisites: None. Corequisites: ARA 111.

**ARA 182 Arabic Lab II** (Coll/Tran) **0 2 0 1**  
This course provides an opportunity to enhance acquisition of the fundamental elements of the modern standard Arabic language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written Arabic and demonstrate cultural awareness. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. (On demand)  
Prerequisites: ARA 181 must pass with a grade of "C" or higher.  
Corequisites: ARA 112.

## ARCHITECTURE

**ARC 111 Intro to Arch Technology** **1 6 0 3**  
This course introduces basic architectural drafting techniques, lettering, use of architectural and engineer scales, and sketching. Topics include orthographic, axonometric, and oblique drawing techniques using architectural plans, elevations, sections, and details; reprographic techniques; and other related topics. Upon completion, students should be able to prepare and print scaled drawings within minimum architectural standards.  
Prerequisites: RED 080 or appropriate placement test score.  
Corequisites: ARC 112. (F)

**ARC 112 Constr Matls & Methods** **3 2 0 4**  
This course introduces construction materials and their methodologies. Topics include construction terminology, materials and their properties, manufacturing

processes, construction techniques, and other related topics. Upon completion, students should be able to detail construction assemblies and identify construction materials and properties.  
Prerequisites: RED 080 or appropriate placement test score.  
Corequisites: ARC 111. (F)

**ARC 113 Residential Arch Tech** **1 6 0 3**  
This course covers intermediate residential working drawings. Topics include residential plans, elevations, sections, details, schedules, and other related topics. Upon completion, students should be able to prepare a set of residential working drawings that are within accepted architectural standards.  
Prerequisites: ARC 111; RED 080 or appropriate placement test score.  
Corequisites: ARC 112. (S)

**ARC 114 Architectural CAD** **1 3 0 2**  
This course introduces basic architectural CAD techniques. Topics include basic commands and system hardware and software. Upon completion, students should be able to prepare and plot architectural drawings to scale within accepted architectural standards.  
Prerequisites: ARC 111; RED 080 or appropriate placement test score.  
Corequisites: ARC 114A. (S)

**ARC 114A Architectural CAD Lab** **0 3 0 1**  
This course provides a laboratory setting to enhance architectural CAD skills. Emphasis is placed on further development of commands and system operation. Upon completion, students should be able to prepare and plot scaled architectural drawings.  
Prerequisites: RED 080 or appropriate placement test score.  
Corequisites: ARC 114. (S)

**ARC 119 Structural Drafting** **2 2 0 3**  
This course introduces basic concepts associated with sizing and detailing structural assemblies. Topics include vocabulary, span-to-depth ratios, code requirements, shop drawings, and other related topics. Upon completion, students should be able to perform simple calculations and prepare shop drawings and preliminary structural plans.  
Prerequisites: ARC 113, MAT 121; RED 080 or appropriate placement test score. Corequisites: None. (F)

**ARC 131 Building Codes** **2 2 0 3**  
This course covers the methods of researching building codes for specific projects. Topics include residential and commercial building codes. Upon completion, students should be able to determine the code constraints governing residential and commercial projects.  
Prerequisites: ARC 112; RED 080 or appropriate placement test score.  
Corequisites: None. (S)

**ARC 132 Specifications and Contracts** **2 0 0 2**  
This course covers the development of written specifications and the implications of different contractual arrangements. Topics include specification development, contracts, bidding material research, and agency responsibilities. Upon completion, students should be able to write a specification section and demonstrate the ability to interpret contractual responsibilities.  
Prerequisites: ARC 112; RED 080 or appropriate placement test score.  
Corequisites: None. (S)

**ARC 211 Light Constr Technology** **1 6 0 3**  
This course covers working drawings for light construction. Topics include plans, elevations, sections, and details; schedules; and other related topics. Upon completion, students should be able to prepare a set of working drawings which are within accepted architectural standards.  
Prerequisites: ARC 111, ARC 112, ARC 114; RED 080 or appropriate placement test score. Corequisites: None. (F)

**ARC 213 Design Project** **2 6 0 4**  
This course provides the opportunity to design and prepare a set of contract documents within an architectural setting. Topics include schematic design, design development, construction documents, and other related topics. Upon completion, students should be able to prepare a set of commercial contract documents.  
Prerequisites: ARC 111, ARC 112, ARC 114, ARC 211; RED 080 or appropriate placement test score. Corequisites: None. (S)

**ARC 220 Adv Architect CAD** 1 3 0 2  
This course provides file management, productivity, and CAD customization skills. Emphasis is placed on developing advanced proficiency techniques. Upon completion, students should be able to create prototype drawings and symbol libraries, compose sheets with multiple details, and use advanced drawing and editing commands.  
Prerequisites: ARC 114; RED 080 or appropriate placement test score.  
Corequisites: None. (F)

**ARC 230 Environmental Systems** 3 3 0 4  
This course introduces plumbing, mechanical (HVAC), and electrical systems for the architectural environment. Topics include basic plumbing, mechanical, and electrical systems for residential and/or commercial buildings with an introduction to selected code requirements. Upon completion, students should be able to develop schematic drawings for plumbing, mechanical, and electrical systems and perform related calculations.  
Prerequisites: ARC 111; MAT 121 or MAT 151 or MAT 161 or MAT 171 or MAT 175; RED 080 or appropriate placement test score. Corequisites: None. (S)

**ARC 235 Architectural Portfolio** 2 3 0 3  
This course covers the methodology for the creation of an architectural portfolio. Topics include preparation of marketing materials and a presentation strategy using conventional and/or digital design media. Upon completion, students should be able to produce an architectural portfolio of selected projects.  
Prerequisites: ARC 111, ARC 114; RED 080 or appropriate placement test score. Corequisites: None. (S)

**ARC 240 Site Planning** 2 2 0 3  
This course introduces the principles of site planning, grading plans, and earthwork calculations. Topics include site analysis, site work, site utilities, cut and fill, soil erosion control, and other related topics. Upon completion, students should be able to prepare site development plans and details and perform cut and fill calculations.  
Prerequisites: ARC 111; RED 080 or appropriate placement test score. Corequisites: ARC 211. (F)

**ARC 250 Survey of Architecture** 3 0 0 3  
This course introduces the historical trends in architectural form. Topics include historical and current trends in architecture. Upon completion, students should be able to demonstrate an understanding of significant historical and current architectural styles.  
Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (F)

## ART

**ART 111 Art Appreciation** (Coll/Tran) 3 0 0 3  
This course introduces the origins and historical development of art. Emphasis is placed on the relationship of design principles to various art forms, including but not limited to, sculpture, painting, and architecture. Upon completion, students should be able to identify and analyze a variety of artistic styles, periods, and media.  
Prerequisites: None. Corequisites: None. (F, S, Su)

**ART 114 Art History Survey I** (Coll/Tran) 3 0 0 3  
This course covers the development of art forms from ancient times to the Renaissance. Emphasis is placed on content, terminology, design, and style. Upon completion, students should be able to demonstrate an historical understanding of art as a product reflective of human social development.  
Prerequisites: None. Corequisites: None. (On demand)

**ART 130 Basic Drawing** (Coll/Tran) 0 4 0 2  
This course introduces basic drawing techniques and is designed to increase observation skills. Emphasis is placed on the fundamentals of drawing. Upon completion, students should be able to demonstrate various methods and their application to representational imagery.  
Prerequisites: None. Corequisites: None. (On demand)

**ART 131 Drawing I** (Coll/Tran) 0 6 0 3  
This course introduces the language of drawing and the use of various drawing materials. Emphasis is placed on drawing techniques, media, and graphic principles. Upon completion, students should be able to demonstrate competence in the use of graphic form and various drawing processes.  
Prerequisites: None. Corequisites: None. (On demand)

**ART 132 Drawing II** (Coll/Tran) 0 6 0 3  
This course continues instruction in the language of drawing and the use of various materials. Emphasis is placed on experimentation in the use of drawing techniques, media, and graphic materials. Upon completion, students should be able to demonstrate increased competence in the expressive use of graphic form and techniques.  
Prerequisites: ART 131. Corequisites: None. (On demand)

**ART 140 Basic Painting** (Coll/Tran) 0 4 0 2  
This course introduces the mechanics of painting. Emphasis is placed on the exploration of painting media through fundamental techniques. Upon completion, students should be able to demonstrate a basic understanding and application of painting.  
Prerequisites: None. Corequisites: None. (On demand)

**ART 171 Computer Art I** (Coll/Tran) 0 6 0 3  
This course introduces the use of the computer as a tool for solving visual problems. Emphasis is placed on fundamentals of computer literacy and design through bit-mapped image manipulation. Upon completion, students should be able to demonstrate an understanding of paint programs, printers, and scanners to capture, manipulate, and output images.  
Prerequisites: None. Corequisites: None. (On demand)

**ART 231 Printmaking I** (Coll/Tran) 0 6 0 3  
This course introduces printmaking: its history, development techniques, and processes. Emphasis is placed on basic applications with investigation into image source and development. Upon completion, students should be able to produce printed images utilizing a variety of methods.  
Prerequisites: None. Corequisites: None. (On demand)

**ART 232 Printmaking II** (Coll/Tran) 0 6 0 3  
This course includes additional methods and printmaking processes. Emphasis is placed on the printed image as related to method, source, and concept. Upon completion, students should be able to produce expressive images utilizing both traditional and innovative methods.  
Prerequisites: ART 231. Corequisites: None. (On demand)

**ART 240 Painting I** (Coll/Tran) 0 6 0 3  
This course introduces the language of painting and the use of various painting materials. Emphasis is placed on the understanding and use of various painting techniques, media, and color principles. Upon completion, students should be able to demonstrate competence in the use of creative processes directed toward the development of expressive form.  
Prerequisites: None. Corequisites: None. (On demand)

**ART 241 Painting II** (Coll/Tran) 0 6 0 3  
This course provides a continuing investigation of the materials, processes, and techniques of painting. Emphasis is placed on the exploration of expressive content using a variety of creative processes. Upon completion, students should be able to demonstrate competence in the expanded use of form and variety.  
Prerequisites: ART 240. Corequisites: None. (On demand)

**ART 264 Digital Photography I** (Coll/Tran) 1 4 0 3  
This course introduces digital photographic equipment, theory and processes. Emphasis is placed on camera operation, composition, computer photo manipulation and creative expression. Upon completion, students should be able to successfully expose, digitally manipulate, and print a well-conceived composition.  
Prerequisites: None. Corequisites: None. (Su)

**ART 271 Computer Art II** (Coll/Tran) 0 6 0 3  
This course includes advanced computer imaging techniques. Emphasis is placed on creative applications of digital technology. Upon completion, students should be able to demonstrate command of computer systems and applications to express their personal vision.  
Prerequisites: ART 171. Corequisites: None. (On demand)

**ART 274 Lettering Design** (Coll/Tran) 0 6 0 3  
This course introduces a variety of lettering forms and covers the manual development of these forms using a variety of materials. Emphasis is placed on developing correct size, design, weight, and proportion in a variety of type styles. Upon completion, students should be able to demonstrate competence in the rendering of various lettering styles, and their application in effective graphic design.  
Prerequisites: None. Corequisites: None. (On demand)

**ART 281 Sculpture I (Coll/Tran) 0 6 0 3**

This course provides an exploration of the creative and technical methods of sculpture with focus on the traditional processes. Emphasis is placed on developing basic skills as they pertain to three-dimensional expression in various media. Upon completion, students should be able to show competence in variety of sculptural approaches.

Prerequisites: None. Corequisites: None. (On demand)

**ART 282 Sculpture II (Coll/Tran) 0 6 0 3**

This course builds on the visual and technical skills learned in ART 281. Emphasis is placed on developing original solutions to sculptural problems in a variety of media. Upon completion, students should be able to express individual ideas using the techniques and materials of sculpture.

Prerequisites: ART 281. Corequisites: None. (On demand)

**ART 283 Ceramics I (Coll/Tran) 0 6 0 3**

This course provides an introduction to three-dimensional design principles using the medium of clay. Emphasis is placed on fundamentals of forming, surface design, glaze application, and firing. Upon completion, students should be able to demonstrate skills in slab and coil construction, simple wheel forms, glaze technique, and creative expression.

Prerequisites: None. Corequisites: None. (On demand)

**ART 284 Ceramics II (Coll/Tran) 0 6 0 3**

This course covers advanced hand building and wheel techniques. Emphasis is placed on creative expression, surface design, sculptural quality, and glaze effect. Upon completion, students should be able to demonstrate a high level of technical competence in forming and glazing with a development of three-dimensional awareness.

Prerequisites: ART 283. Corequisites: None. (On demand)

**ASTRONOMY****AST 151 General Astronomy I (Coll/Tran) 3 0 0 3**

This course introduces the science of modern astronomy with a concentration on the solar system. Emphasis is placed on the history and physics of astronomy and an introduction to the solar system, including the planets, comets, and meteors. Upon completion, students should be able to demonstrate a general understanding of the solar system. As Astronomy is a branch of physics, an emphasis will be placed on the physics concepts underlying topics covered in this course.

Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050; RED 090; or appropriate placement test scores. Corequisites: AST 151A. (F,S)

**AST 151A General Astronomy I Lab (Coll/Tran) 0 2 0 1**

The course is a laboratory to accompany AST 151. Emphasis is placed on laboratory experiences which enhance the materials presented in AST 151 and which provide practical experience. Upon completion, students should be able to demonstrate a general understanding of the solar system. Some day and evening observations will be required.

Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050; RED 090; or appropriate placement test scores. Corequisites: AST 151. (F,S)

**AST 152 General Astronomy II (Coll/Tran) 3 0 0 3**

This course is a continuation of AST 151 with primary emphasis beyond the solar system. Topics include the sun, stars, galaxies, and the larger universe, including cosmology. Upon completion, students should be able to demonstrate a working knowledge of astronomy. As Astronomy is a branch of physics, an emphasis will be placed on the physics concepts underlying topics covered in this course.

Prerequisites: AST 151 must pass with a grade of "C" or higher, DMA 060, DMA 070, DMA 080. Corequisites: AST 152A. (S)

**AST 152A General Astronomy II Lab (Coll/Tran) 0 2 0 1**

The course is a laboratory to accompany AST 152. Emphasis is placed on laboratory experiences which enhance the materials presented in AST 152 and which provide practical experience. Upon completion, students should be able to demonstrate a working knowledge of astronomy. Some day and evening observations will be required.

Prerequisites: AST 151 must pass with a grade of "C" or higher, DMA 060, DMA 070, DMA 080. Corequisites: AST 152. (S)

**AUTOMOTIVE****AUT 116 Engine Repair 2 3 0 3**

This course covers the theory, construction, inspection, diagnosis, and repair of internal combustion engines and related systems. Topics include fundamental operating principles of engines and diagnosis, inspection, adjustment, and repair of automotive engines using appropriate service information. Upon completion, students should be able to perform basic diagnosis, measurement and repair of automotive engines using appropriate tools, equipment, procedures, and service information.

Prerequisites: RED 080 or appropriate placement test score. Corequisites: AUT 116A, TRN 110. (F)

**AUT 116A Engine Repair Lab 0 3 0 1**

This course is an optional lab to be used as an alternative to co-op placement in meeting the NATEF standards for total hours. Topics include diagnosis, inspection, adjustment, and repair of automotive engines using appropriate service information. Upon completion, students should be able to perform basic diagnosis, measurement and repair of automotive engines using appropriate tools, equipment, procedures, and service information.

Prerequisites: None. Corequisites: AUT 116. (F)

**AUT 141 Suspension & Steering Sys 2 3 0 3**

This course covers principles of operation, types, and diagnosis/repair of suspension and steering systems to include steering geometry. Topics include manual and power steering systems and standard and electronically controlled suspension and steering systems. Upon completion, students should be able to service and repair steering and suspension components, check and adjust alignment angles, repair tires, and balance wheels.

Prerequisites: RED 080 or appropriate placement test score.

Corequisites: AUT 141A, TRN 110. (F)

**AUT 141A Suspension & Steering Lab 0 3 0 1**

This course is an optional lab to be used as an alternative to co-op placement in meeting the NATEF standards for total hours. Topics include manual and power steering systems and standard and electronically controlled suspension and steering systems. Upon completion, students should be able to service and repair steering and suspension components, check and adjust alignment angles, repair tires, and balance wheels.

Prerequisites: None. Corequisites: AUT 141. (F)

**AUT 151 Brake Systems 2 3 0 3**

This course covers principles of operation and types, diagnosis, service, and repair of brake systems. Topics include drum and disc brakes involving hydraulic, vacuum boost, hydra-boost, electrically powered boost, and anti-lock and parking brake systems. Upon completion, students should be able to diagnose, service, and repair various automotive braking systems.

Prerequisites: RED 080 or appropriate placement test score.

Corequisites: AUT 151A, TRN 110. (S)

**AUT 151A Brake Systems Lab 0 3 0 1**

This course is an optional lab to be used as an alternative to co-op placement in meeting the NATEF standards for total hours. Topics include drum and disc brakes involving hydraulic, vacuum-boost, hydra-boost, electrically powered boost, and anti-lock, parking brake systems and emerging brake systems technologies. Upon completion, students should be able to diagnose, service, and repair various automotive braking systems.

Prerequisites: None. Corequisites: AUT 151. (S)

**AUT 163 Adv Auto Electricity 2 3 0 3**

This course covers electronic theory, wiring diagrams, test equipment, and diagnosis, repair, and replacement of electronics, lighting, gauges, horn, wiper, accessories, and body modules. Topics include networking and module communication, circuit construction, wiring diagrams, circuit testing, and troubleshooting. Upon completion, students should be able to properly use wiring diagrams, diagnose, test, and repair wiring, lighting, gauges, accessories, modules, and electronic concerns.

Prerequisites: TRN 120. Corequisites: AUT 163A. (S)

**AUT 163A Adv Auto Electricity Lab 0 3 0 1**

This course is an optional lab to be used as an alternative to co-op placement in meeting the NATEF standards for total hours. Topics include networking and module communication, circuit construction, wiring diagrams, circuit testing, troubleshooting and emerging electrical/electronic systems technologies. Upon completion, students should be able to properly use wiring diagrams, diagnose, test, and repair wiring, lighting, gauges, accessories, modules, and electronic concerns.

Prerequisites: None. Corequisites: AUT 163. (S)

**AUT 181 Engine Performance 1 2 3 0 3**

This course covers the introduction, theory of operation, and basic diagnostic procedures required to restore engine performance to vehicles equipped with complex engine control systems. Topics include an overview of engine operation, ignition components and systems, fuel delivery, injection components and systems and emission control devices. Upon completion, students should be able to describe operation and diagnose/repair basic ignition, fuel and emission related driveability problems using appropriate test equipment/service information.

Prerequisites: None. Corequisites: AUT 181A, TRN 110. (F)

**AUT 181A Engine Performance 1 Lab 0 3 0 1**

This course is an optional lab to be used as an alternative to co-op placement in meeting the NATEF standards for total hours. Topics include overviews of engine operation, ignition components and systems, fuel delivery, injection components and systems and emission control devices and emerging engine performance technologies. Upon completion, students should be able to describe operation and diagnose/repair basic ignition, fuel and emission related driveability problems using appropriate test equipment/service information.

Prerequisites: None. Corequisites: AUT 181. (F)

**AUT 183 Engine Performance 2 2 6 0 4**

This course covers study of the electronic engine control systems, the diagnostic process used to locate engine performance concerns and procedures used to restore normal operation. Topics will include currently used fuels and fuel systems, exhaust gas analysis, emission control components and systems, OBD II (on-board diagnostics) and inter-related electrical/electronic systems. Upon completion, students should be able to diagnose and repair complex engine performance concerns using appropriate test equipment and service information.

Prerequisites: AUT 181. Corequisites: None. (S)

**AUT 212 Auto Shop Management 3 0 0 3**

This course covers the principles of management essential to decision-making, communication, authority, and leadership. Topics include shop supervision, shop organization, customer relations, cost effectiveness and work place ethics. Upon completion, students should be able to describe basic automotive shop operation from a management standpoint.

Prerequisites: CTS 080, RED 080 or appropriate placement test score. Corequisites: None. (F)

**AUT 221 Auto Transm/Transaxles 2 3 0 3**

This course covers operation, diagnosis, service, and repair of automatic transmissions/transaxles. Topics include hydraulic, pneumatic, mechanical, and electrical/electronic operation of automatic drive trains and the use of appropriate service tools and equipment. Upon completion, students should be able to explain operational theory, diagnose and repair automatic drive trains.

Prerequisites: RED 080 or appropriate placement test score.

Corequisites: AUT 221A, TRN 110. (S)

**AUT 221A Auto Transm/Transax Lab 0 3 0 1**

This course is an optional lab to be used as an alternative to co-op placement in meeting the NATEF standards for total hours. Topics include hydraulic, pneumatic, mechanical, and electrical/electronic operation of automatic drive trains and the use of appropriate service tools and equipment. Upon completion, students should be able to diagnose and repair automatic drive trains.

Prerequisites: None. Corequisites: AUT 221. (S)

**AUT 231 Man Trans/Axles/Drtrains 2 3 0 3**

This course covers the operation, diagnosis, and repair of manual transmissions/transaxles, clutches, driveshafts, axles, and final drives. Topics include theory of torque, power flow, and manual drive train service and repair using appropriate

service information, tools, and equipment. Upon completion, students should be able to explain operational theory, diagnose and repair manual drive trains.

Prerequisites: RED 080 or appropriate placement test score.

Corequisites: AUT 231A, TRN 110. (S)

**AUT 231A Man Trans/Ax/Drtrains Lab 0 3 0 1**

This course is an optional lab for the program that needs to meet NATEF hour standards but does not have a co-op component in the program. Topics include manual drive train diagnosis, service and repair using appropriate service information, tools, and equipment. Upon completion, students should be able to diagnose and repair manual drive trains.

Prerequisites: None. Corequisites: AUT 231. (F,S)

**AUT 281 Adv Engine Performance 2 2 0 3**

This course utilizes service information and specialized test equipment to diagnose and repair power train control systems. Topics include computerized ignition, fuel and emission systems, related diagnostic tools and equipment, data communication networks, and service information. Upon completion, students should be able to perform diagnosis and repair.

Prerequisites: AUT 163, AUT 183. Corequisites: None. (F)

**BIOLOGY****BIO 111 General Biology I (Coll/Tran) 3 3 0 4**

This course introduces the principles and concepts of biology. Emphasis is placed on basic biological chemistry, cell structure and function, metabolism and energy transformation, genetics, evolution, classification, and other related topics. Upon completion, students should be able to demonstrate understanding of life at the molecular and cellular levels.

Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050 or appropriate placement test score; RED 090 or appropriate placement test score. Corequisites: None. (F,S,On demand)

**BIO 112 General Biology II (Coll/Tran) 3 3 0 4**

This course is a continuation of BIO 111. Emphasis is placed on organisms, biodiversity, plant and animal systems, ecology, and other related topics. Upon completion, students should be able to demonstrate comprehension of life at the organismal and ecological levels.

Prerequisites: BIO 111 must pass with a grade of "C" or higher.

Corequisites: None. (F,S,On demand)

**BIO 120 Introductory Botany (Coll/Tran) 3 3 0 4**

This course provides an introduction to the classification, relationships, structure, and function of plants. Topics include reproduction and development of seed and non-seed plants, levels of organization, form and function of systems, and a survey of major taxa. Upon completion, students should be able to demonstrate comprehension of plant form and function, including selected taxa of both seed and non-seed plants.

Prerequisites: BIO 110 or BIO 111 (must pass with a grade of "C" or higher).

Corequisites: None. (S)

**BIO 130 Introductory Zoology (Coll/Tran) 3 3 0 4**

This course provides an introduction to the classification, relationships, structure, and function of major animal phyla. Emphasis is placed on levels of organization, reproduction and development, comparative systems, and a survey of selected phyla. Upon completion, students should be able to demonstrate comprehension of animal form and function including comparative systems of selected groups.

Prerequisites: BIO 110 or BIO 111 (must pass with a grade of "C" or higher).

Corequisites: None. (F)

**BIO 140 Environmental Biology (Coll/Tran) 3 0 0 3**

This course introduces environmental processes and the influence of human activities upon them. Topics include ecological concepts, population growth, natural resources, and a focus on current environmental problems from scientific, social, political, and economic perspectives. Upon completion, students should be able to demonstrate an understanding of environmental interrelationships and of contemporary environmental issues.

Prerequisites: BIO 111 must pass with a grade of "C" or higher.

Corequisites: BIO 140A. (On demand)

**BIO 140A Environmental Biology Lab** (Coll/Tran) **0 3 0 1**  
This course provides a laboratory component to complement BIO 140. Emphasis is placed on laboratory and field experience. Upon completion, students should be able to demonstrate a practical understanding of environmental interrelationships and of contemporary environmental issues. Prerequisites: None. Corequisites: BIO 140. (On demand)

**BIO 143 Field Biology Minicourse** (Coll/Tran) **1 2 0 2**  
This course introduces the biological and physical components of a field environment. Emphasis is placed on a local field environment with extended field trips to other areas. Upon completion, students should be able to demonstrate an understanding of the biological and physical components of the specific biological environment. Prerequisites: None. Corequisites: None. (On demand)

**BIO 145 Ecology** (Coll/Tran) **3 3 0 4**  
This course provides an introduction to ecological concepts using an ecosystems approach. Topics include energy flow, nutrient cycling, succession, population dynamics, community structure, and other related topics. Upon completion, students should be able to demonstrate comprehension of basic ecosystem structure and dynamics. Prerequisites: None. Corequisites: None. (On demand)

**BIO 146 Regional Natural History** (Coll/Tran) **3 3 0 4**  
This course is an interdisciplinary and historical analysis of the natural resources of the region. Emphasis is placed on geology, climate, forest systems, watersheds, water resources, and fish and wildlife resources of the region. Upon completion, students should be able to demonstrate comprehension of the natural history and the integration of the natural resources of the region. Prerequisites: None. Corequisites: None. (On demand)

**BIO 155 Nutrition** (Coll/Tran) **3 0 0 3**  
This course covers the biochemistry of foods and nutrients with consideration of the physiological effects of specialized diets for specific biological needs. Topics include cultural, religious, and economic factors that influence a person's acceptance of food, as well as nutrient requirements of the various life stages. Upon completion, students should be able to identify the functions and sources of nutrients, the mechanisms of digestion, and the nutritional requirements of all age groups. Prerequisites: None. Corequisites: None. (On demand)

**BIO 163 Basic Anat & Physiology** (Coll/Tran) **4 2 0 5**  
This course provides a basic study of the structure and function of the human body. Topics include a basic study of the body systems as well as an introduction to homeostasis, cells, tissues, nutrition, acid-base balance, and electrolytes. Upon completion, students should be able to demonstrate a basic understanding of the fundamental principles of anatomy and physiology and their interrelationships. Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040; RED 080 or appropriate placement test scores. Corequisites: None. (F,S,On demand)

**BIO 168 Anatomy and Physiology I** (Coll/Tran) **3 3 0 4**  
This course provides a comprehensive study of the anatomy and physiology of the human body. Topics include body organization, homeostasis, cytology, histology, and the integumentary, skeletal, muscular, and nervous systems and special senses. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships. Successful completion of high school chemistry (C), or a higher level chemistry course is recommended prior to taking BIO 168. Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040; RED 090 or appropriate placement test scores. Corequisites: None. (F,S,On demand)

**BIO 169 Anatomy and Physiology II** (Coll/Tran) **3 3 0 4**  
This course provides a continuation of the comprehensive study of the anatomy and physiology of the human body. Topics include the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems as well as metabolism, nutrition, acid-base balance, and fluid and electrolyte balance. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships. Prerequisites: BIO 168 must pass with a grade of "C" or higher. Corequisites: None. (F,S,On demand)

**BIO 175 General Microbiology** (Coll/Tran) **2 2 0 3**  
This course covers principles of microbiology with emphasis on microorganisms and human disease. Topics include an overview of microbiology and aspects of medical microbiology, identification and control of pathogens, disease transmission, host resistance, and immunity. Upon completion, students should be able to demonstrate knowledge of microorganisms and the disease process as well as aseptic and sterile techniques. Prerequisites: BIO 110 or BIO 111 (must pass with a grade of "C" or higher); or BIO 163 or BIO 168. Corequisites: None. (F,S,On demand)

**BIO 221 Botany I** (Coll/Tran) **3 3 0 4**  
This course provides an introduction to the higher vascular plants. Topics include the structure, function, growth, life cycles, reproduction, and economic importance. Upon completion, students should be able to describe the biology and value of the higher vascular plants. Prerequisites: BIO 112. Corequisites: None. (On demand)

**BIO 222 Botany II** **3 3 0 4**  
This course includes a survey of the plant kingdom complete with a plant collection and field work. Emphasis is placed on ecology and the taxonomy of higher plants. Upon completion, students should be able to classify common plants. Prerequisites: BIO 112. Corequisites: None. (On demand)

**BIO 224 Local Flora Spring** (Coll/Tran) **1 2 0 2**  
This course provides an introduction to the identification of native plants. Emphasis is placed on spring wild flowers. Upon completion, students should be able to identify a variety of spring wild flowers and native plants. Prerequisites: None. Corequisites: None. (On demand)

**BIO 225 Local Flora Summer** (Coll/Tran) **1 2 0 2**  
This course provides an introduction to the identification of native plants. Emphasis is placed on summer wild flowers. Upon completion, students should be able to identify a variety of summer wild flowers and native plants. Prerequisites: None. Corequisites: None. (On demand)

**BIO 226 Local Flora Fall** (Coll/Tran) **1 2 0 2**  
This course provides an introduction to the identification of native plants. Emphasis is placed on fall wild flowers. Upon completion, students should be able to identify a variety of fall wild flowers and native plants. Prerequisites: None. Corequisites: None. (On demand)

**BIO 227 Winter Plant ID** (Coll/Tran) **1 2 0 2**  
This course provides an introduction to the identification of native plants. Emphasis is placed on plants in their winter condition. Upon completion, students should be able to identify a variety of native plants in their winter condition. Prerequisites: None. Corequisites: None. (On demand)

**BIO 230 Entomology** (Coll/Tran) **3 3 0 4**  
This course covers the biology of insects. Topics include harmful and beneficial insects, their identification, classification, life cycles, behavior, distribution, economic importance, and the methods involved in collection and preservation. Upon completion, students should be able to identify common insects and describe their biology and ecology. Prerequisites: BIO 112 must pass with a grade of "C" or higher. Corequisites: None. (On demand)

**BIO 231 Invertebrate Zoology** **3 3 0 4**  
This course introduces the principles of invertebrate animal biology. Emphasis is placed on the diversity, comparative anatomy, reproduction, development, behavior, ecology, evolution, and the importance of the major invertebrate phyla. Upon completion, students should be able to demonstrate knowledge of life at the invertebrate level. Prerequisites: BIO 112. Corequisites: None. (On demand)

**BIO 232 Vertebrate Zoology** (Coll/Tran) **3 3 0 4**  
This course introduces the principles of animal biology of the chordate phylum. Emphasis is placed on the diversity, morphology, reproduction, development, behavior, ecology, evolution, and importance of the chordates. Upon completion, students should be able to demonstrate increased knowledge and comprehension of zoology as it applies to life. Prerequisites: BIO 112. Corequisites: None. (On demand)

**BIO 250 Genetics** (Coll/Tran) **3 3 0 4**  
This course covers principles of prokaryotic and eukaryotic cell genetics. Emphasis is placed on the molecular basis of heredity, chromosome structure, patterns of Mendelian and non-Mendelian inheritance, evolution, and biotechnological applications. Upon completion, students should be able to recognize and describe genetic phenomena and demonstrate knowledge of important genetic principles. Prerequisites: BIO 112. Corequisites: None. (On demand)

**BIO 275 Microbiology** (Coll/Tran) **3 3 0 4**  
This course covers principles of microbiology and the impact these organisms have on man and the environment. Topics include the various groups of microorganisms, their structure, physiology, genetics, microbial pathogenicity, infectious diseases, immunology, and selected practical applications. Upon completion, students should be able to demonstrate knowledge and skills including microscopy, aseptic technique, staining, culture methods, and identification of microorganisms. Prerequisites: BIO 110 or BIO 112 or BIO 163 or BIO 168 (must pass with a grade of "C" or higher). Corequisites: None. (F,S,On demand)

**BIO 280 Biotechnology** (Coll/Tran) **2 3 0 3**  
This course provides experience in selected laboratory procedures. Topics include proper laboratory techniques in biology and chemistry. Upon completion, students should be able to identify laboratory techniques and instrumentation in basic biotechnology. Prerequisites: BIO 111 or CHM 151 (must pass with a grade of "C" or higher). Corequisites: None. (On demand)

#### BLUEPRINT READING

**BPR 111 Blueprint Reading** **1 2 0 2**  
This course introduces the basic principles of blueprint reading. Topics include line types, orthographic projections, dimensioning methods, and notes. Upon completion, students should be able to interpret basic blueprints and visualize the features of a part. Prerequisites: None. Corequisites: None. (F,S)

#### BUSINESS

**BUS 110 Introduction to Business** (Coll/Tran) **3 0 0 3**  
This course provides a survey of the business world. Topics include the basic principles and practices of contemporary business. Upon completion, students should be able to demonstrate an understanding of business concepts as a foundation for studying other business subjects. Prerequisites: None. Corequisites: None. (F)

**BUS 115 Business Law I** (Coll/Tran) **3 0 0 3**  
This course introduces the ethics and legal framework of business. Emphasis is placed on contracts, negotiable instruments, Uniform Commercial Code, and the working of the court systems. Upon completion, students should be able to apply ethical issues and laws covered to selected business decision-making situations. Prerequisites: None. Corequisites: None. (S)

**BUS 116 Business Law II** **3 0 0 3**  
This course continues the study of ethics and business law. Emphasis is placed on bailments, sales, risk-bearing, forms of business ownership, and copyrights. Upon completion, students should be able to apply ethical issues and laws covered to selected business decision-making situations. Prerequisites: BUS 115. Corequisites: None. (On demand)

**BUS 121 Business Math** **2 2 0 3**  
This course covers fundamental mathematical operations and their application to business problems. Topics include payroll, pricing, interest and discount, commission, taxes, and other pertinent uses of mathematics in the field of business. Upon completion, students should be able to apply mathematical concepts to business. Some of the above topics may not be covered if the same material is covered in other required courses. Prerequisites: None. Corequisites: None. (S)

**BUS 125 Personal Finance** **3 0 0 3**  
This course provides a study of individual and family financial decisions. Emphasis is placed on building useful skills in buying, managing finances, increasing resources, and coping with current economic conditions. Upon completion, students should be able to develop a personal financial plan. Prerequisites: None. Corequisites: None. (On demand)

**BUS 137 Principles of Management** (Coll/Tran) **3 0 0 3**  
This course is designed to be an overview of the major functions of management. Emphasis is placed on planning, organizing, controlling, directing, and communicating. Upon completion, students should be able to work as contributing members of a team utilizing these functions of management. Prerequisites: None. Corequisites: None. (F)

**BUS 139 Entrepreneurship I** **3 0 0 3**  
This course provides an introduction to the principles of entrepreneurship. Topics include self-analysis of entrepreneurship readiness, the role of entrepreneur in economic development, legal problems, organizational structure, sources of financing, budgeting, and cash flow. Upon completion, students should have an understanding of the entrepreneurial process and issues faced by entrepreneurs. Prerequisites: None. Corequisites: None. (F)

**BUS 153 Human Resource Management** **3 0 0 3**  
This course introduces the functions of personnel/human resource management within an organization. Topics include equal opportunity and the legal environment, recruitment and selection, performance appraisal, employee development, compensation planning, and employee relations. Upon completion, students should be able to anticipate and resolve human resource concerns. Prerequisites: None. Corequisites: None. (On demand)

**BUS 225 Business Finance** **2 2 0 3**  
This course provides an overview of business financial management. Emphasis is placed on financial statement analysis, time value of money, management of cash flow, risk and return, and sources of financing. Upon completion, students should be able to interpret and apply the principles of financial management. Prerequisites: ACC 120. Corequisites: None. (F)

**BUS 230 Small Business Management** **3 0 0 3**  
This course introduces the challenges of entrepreneurship including the startup and operation of a small business. Topics include market research techniques, feasibility studies, site analysis, financing alternatives, and managerial decision making. Upon completion, students should be able to develop a small business plan. Prerequisites: None. Corequisites: None. (On demand)

**BUS 238 Integrated Management** **3 0 0 3**  
This course provides a management simulation exercise in which students make critical managerial decisions based upon the situations that arise in operating competitive business enterprises. Topics include operations management, forecasting, budgeting, purchasing, facility layout, aggregate planning, and work improvement techniques. Upon completion, students should be able to perform the variety of analytical and decision-making requirements that will be faced in a business. Prerequisites: BUS 137. Corequisites: None. (S)

**BUS 240 Business Ethics** **3 0 0 3**  
This course introduces contemporary and controversial ethical issues that face the business community. Topics include moral reasoning, moral dilemmas, law and morality, equity, justice and fairness, ethical standards, and moral development. Upon completion, students should be able to demonstrate an understanding of their moral responsibilities and obligations as members of the workforce and society. Prerequisites: None. Corequisites: None. (S)

**BUS 245 Entrepreneurship II** **3 0 0 3**  
This course is designed to allow the student to develop a business plan. Topics include the need for a business plan, sections of the plan, writing the plan, and how to find assistance in preparing the plan. Upon completion, students should be able to design and implement a business plan based on sound entrepreneurship principles. Prerequisites: BUS 139. Corequisites: None. (S)



**BUS 253 Leadership and Mgt Skills 3 0 0 3**

This course includes a study of the qualities, behaviors, and personal styles exhibited by leaders. Emphasis is placed on coaching, counseling, team building, and employee involvement. Upon completion, students should be able to identify and exhibit the behaviors needed for organizational effectiveness. Prerequisites: None. Corequisites: None. (S)

**BUS 260 Business Communication 3 0 0 3**

This course is designed to develop skills in writing business communications. Emphasis is placed on business reports, correspondence, and professional presentations. Upon completion, students should be able to communicate effectively in the work place.

Prerequisites: ENG 111. Corequisites: None. (F)

**BUS 285 Business Management Issues 2 2 0 3**

This course covers contemporary issues that affect successful businesses and their managers and employees. Emphasis is placed on using case studies and exercises to develop analytical and problem-solving skills, ethics, quality management concepts, team skills, and effective communication. Upon completion, students should be able to apply the specific knowledge and skills covered to become more effective managers and employees.

Prerequisites: BUS 137. Corequisites: None.

**CYBER CRIME****CCT 110 Intro to Cyber Crime 3 0 0 3**

This course introduces and explains the various types of offenses that qualify as cyber crime activity. Emphasis is placed on identifying cyber crime activity and the response to these problems from both the private and public domains. Upon completion, students should be able to accurately describe and define cyber crime activities and select an appropriate response to deal with the problem. Students will demonstrate their proficiency with the use of computer technology and applications, such as Microsoft Word, Excel, and Power point. Prerequisites: None. Corequisites: None. (F)

**CCT 112 Ethics & High Technology 3 0 0 3**

This course covers ethical considerations and accepted standard practices applicable to technological investigations and computer privacy issues relative to the cyber crime investigator. Topics include illegal and unethical investigative activities, end-justifying-the-means issues, and privacy issues of massive personal database information gathered by governmental sources. Upon completion, students should be able to examine their own value system and apply ethical considerations in identifiable cyber crime investigations. Prerequisites: None. Corequisites: None. (F)

**CCT 121 Computer Crime Invest 3 2 0 4**

This course introduces the fundamental principles of computer crime investigation processes. Topics include crime scene/incident processing, information gathering techniques, data retrieval, collection and preservation of evidence, preparation of reports and court presentations. Upon completion, students should be able to identify cyber crime activity and demonstrate proper investigative techniques to process the scene and assist in case prosecution.

Prerequisites: None. Corequisites: None. (S)

**CCT 231 Technology Crimes & Law 3 0 0 3**

This course covers the applicable technological laws dealing with the regulation of cyber security and criminal activity. Topics include an examination of state, federal and international laws regarding cyber crime with an emphasis on both general and North Carolina statutes. Upon completion, students should be able to identify the elements of cyber crime activity and discuss the trends evolving laws. Prerequisites: None. Corequisites: None. (F)

**CCT 240 Data Recovery Techniques 2 3 0 3**

This course introduces the unique skills and methodologies necessary to assist in the investigation and prosecution of cyber crimes. Topics include hardware and software issues, recovering erased files, overcoming encryption, advanced imaging, transient data, Internet issues and testimony considerations. Upon completion, students should be able to recover digital evidence, extract information for criminal investigation and legally seize criminal evidence.

Prerequisites: CCT 121, NOS 110. Corequisites: None. (F)

**CCT 250 Netwk Vulnerabilities I 2 2 0 3**

This course introduces students to penetration testing, network vulnerabilities, and hacking. Topics include an overview of traditional network security, system hardening, and known weaknesses. Upon completion, students should be able to evaluate weaknesses of traditional and wireless networks for the purpose of incident response, reconstruction, and forensic investigation. Additionally, students will be able to assess and secure common network vulnerabilities.

Prerequisites: NET 110. Corequisites: None. (F)

**CCT 285 Trends in Cyber Crime 2 2 0 3**

This course covers and explores advances and developments in cyber crime technologies. Emphasis is placed on computer forensics tools, information protection and security, threat response, and professional development. Upon completion, students should be able to articulate understanding of the current state of the industry as well as emerging technologies for cyber crime technology. Students will be able to identify the regulatory and legal environment encountered in common business environments and develop risk assessments based on those regulations.

Prerequisites: CCT 110. Corequisites: None. (S)

**CCT 289 Capstone Project 1 6 0 3**

This course provides experience in cyber crime investigations or technology security audits in either the public or private domain. Emphasis is placed on student involvement with businesses or agencies dealing with technology security issues or computer crime activities. Upon completion, students should be able to successfully analyze, retrieve erased evidence and testify in mock proceedings against these criminal entrepreneurs. Students will be able to evaluate and identify risk mitigation strategies and prepare plans for business security and/or continuity.

Prerequisites: CCT 231 or CCT 220. Corequisites: None. (S)

**COMPUTER ENGINEERING TECHNOLOGY****CET 111 Computer Upgrade/Repair I 2 3 0 3**

This course covers repairing, servicing, and upgrading computers and peripherals in preparation for industry certification. Topics include CPU/memory/bus identification, disk subsystems, hardware/software installation/configuration, common device drivers, data recovery, system maintenance, and other related topics. Upon completion, students should be able to safely repair and/or upgrade computer systems to perform within specifications.

Prerequisites: CIS 110; RED 080 or appropriate placement test score.

Corequisites: None. (On demand)

**CET 211 Computer Upgrade/Repair II 2 3 0 3**

This course covers concepts of repair, service, and upgrade of computers and peripherals in preparation for industry certification. Topics may include resolving resource conflicts and system bus specifications, configuration and troubleshooting peripherals, operating system configuration and optimization, and other related topics. Upon completion, students should be able to identify and resolve system conflicts and optimize system performance.

Prerequisites: CET 111 or CTS 120; RED 080 or appropriate placement test score. Corequisites: None. (On demand)

**CHINESE****CHI 111 Elementary Chinese I (Coll/Tran) 3 0 0 3**

This course introduces the fundamental elements of the Chinese language within a cultural context. Emphasis is placed on the development of basic listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written Chinese and demonstrate cultural awareness.

Prerequisites: None. Corequisites: CHI 181. (On demand)

**CHI 112 Elementary Chinese II (Coll/Tran) 3 0 0 3**

This course includes the basic fundamentals of the Chinese language within a cultural context of the Chinese people and its history. Emphasis is placed on the progressive development of listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written Chinese and demonstrate further cultural awareness.

Prerequisites: CHI 111 must pass with a grade of "C" or higher.

Corequisites: CHI 182. (On demand)

**CHI 181 Chinese Lab I** (Coll/Tran) **0 2 0 1**  
This course provides an opportunity to enhance acquisition of the fundamental elements of the Chinese language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of various supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written Chinese and demonstrate cultural awareness. Prerequisites: None. Corequisites: CHI 111. (On demand)

**CHI 182 Chinese Lab II** (Coll/Tran) **0 2 0 1**  
This course provides an opportunity to enhance acquisition of the fundamental elements of the Chinese language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of various supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written Chinese and demonstrate cultural awareness. Prerequisites: CHI 181 must pass with a grade of "C" or higher. Corequisites: CHI 112. (On demand)

## CHEMISTRY

**CHM 130 Gen, Org, & Biochemistry** (Coll/Tran) **3 0 0 3**  
This course provides a survey of basic facts and principles of general, organic, and biochemistry. Topics include measurement, molecular structure, nuclear chemistry, solutions, acid-base chemistry, gas laws, and the structure, properties, and reactions of major organic and biological groups. Upon completion, students should be able to demonstrate an understanding of fundamental chemical concepts. Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, or appropriate placement test scores; RED 090 or appropriate placement test scores. Corequisites: CHM 130A. (F,S,On demand)

**CHM 130A Gen, Org, & Biochemistry Lab** (Coll/Tran) **0 2 0 1**  
This course is a laboratory for CHM 130. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 130. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical principles presented in CHM 130. Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, or appropriate placement test scores; RED 090 or appropriate placement test scores. Corequisites: CHM 130. (F,S,On demand)

**CHM 131 Introduction to Chemistry** (Coll/Tran) **3 0 0 3**  
This course introduces the fundamental concepts of inorganic chemistry. Topics include measurement, matter and energy, atomic and molecular structure, nuclear chemistry, stoichiometry, chemical formulas and reactions, chemical bonding, gas laws, solutions, and acids and bases. Upon completion, students should be able to demonstrate a basic understanding of chemistry as it applies to other fields. Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, or appropriate placement test scores; RED 090 or appropriate placement test scores. Corequisites: CHM 131A. (F,S)

**CHM 131A Introduction to Chemistry Lab** (Coll/Tran) **0 3 0 1**  
This course is a laboratory to accompany CHM 131. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 131. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical principles presented in CHM 131. Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, or appropriate placement test scores;. Corequisites: CHM 131. (F,S)

**CHM 132 Organic and Biochemistry** (Coll/Tran) **3 3 0 4**  
This course provides a survey of major functional classes of compounds in organic and biochemistry. Topics include structure, properties, and reactions of the major organic and biological molecules and basic principles of metabolism. Upon completion, students should be able to demonstrate an understanding of fundamental chemical concepts needed to pursue studies in related professional fields. Prerequisites: CHM 131 and CHM 131A (must pass with a grade of "C" or higher); or CHM 151 must pass with a grade of "C" or higher. Corequisites: None. (S)

**CHM 151 General Chemistry I** (Coll/Tran) **3 3 0 4**  
This course covers fundamental principles and laws of chemistry. Topics include measurement, atomic and molecular structure, periodicity, chemical reactions, chemical bonding, stoichiometry, thermochemistry, gas laws, and solutions. Upon completion, students should be able to demonstrate an understanding of fundamental chemical laws and concepts as needed in CHM 152. Successful completion of high school chemistry (C), or a higher level chemistry course is recommended prior to taking CHM 151. Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, DMA 060, DMA 080 or appropriate placement test scores; RED 090 or appropriate placement test scores. Corequisites: None. (F,S,On demand)

**CHM 152 General Chemistry II** (Coll/Tran) **3 3 0 4**  
This course provides a continuation of the study of the fundamental principles and laws of chemistry. Topics include kinetics, equilibrium, ionic and redox equations, acid-base theory, electrochemistry, thermodynamics, introduction to nuclear and organic chemistry, and complex ions. Upon completion, students should be able to demonstrate an understanding of chemical concepts as needed to pursue further study in chemistry and related professional fields. Prerequisites: CHM 151 must pass with a grade of "C" or higher. Corequisites: MAT 161 or higher. (F,S)

**CHM 251 Organic Chemistry I** (Coll/Tran) **3 3 0 4**  
This course provides a systematic study of the theories, principles, and techniques of organic chemistry. Topics include nomenclature, structure, properties, reactions, and mechanisms of hydrocarbons, alkyl halides, alcohols, and ethers; further topics include isomerization, stereochemistry, and spectroscopy. Upon completion, students should be able to demonstrate an understanding of the fundamental concepts of covered organic topics as needed in CHM 252. Prerequisites: CHM 152 must pass with a grade of "C" or higher. Corequisites: None. (F)

**CHM 252 Organic Chemistry II** (Coll/Tran) **3 3 0 4**  
This course provides continuation of the systematic study of the theories, principles, and techniques of organic chemistry. Topics include nomenclature, structure, properties, reactions, and mechanisms of aromatics, aldehydes, ketones, carboxylic acids and derivatives, amines and heterocyclics; multi-step synthesis will be emphasized. Upon completion, students should be able to demonstrate an understanding of organic concepts as needed to pursue further study in chemistry and related professional fields. Prerequisites: CHM 251 must pass with a grade of "C" or higher. Corequisites: None. (S)

**CHM 261 Quantitative Analysis** (Coll/Tran) **2 6 0 4**  
This course introduces classical methods of chemical analysis with an emphasis on laboratory techniques. Topics include statistical data treatment; stoichiometric and equilibrium calculations; and titrimetric, gravimetric, acid-base, oxidation-reduction, and compleximetric methods. Upon completion, students should be able to perform classical quantitative analytical procedures. Prerequisites: CHM 152. Corequisites: None. (On demand)

**CHM 263 Analytical Chemistry** (Coll/Tran) **3 4 0 5**  
This course covers the knowledge and laboratory skills needed to perform chemical analysis. Emphasis is placed on developing laboratory techniques used in the separation, identification, and quantification of selected substances. Upon completion, students should be able to perform laboratory techniques employed in substance identification and volumetric analysis and interpret the results. Prerequisites: CHM 132. Corequisites: None. (On demand)

**CHM 271 Biochemical Principles** (Coll/Tran) **3 0 0 3**  
The course covers fundamental principles of biochemistry. Topics include structures, properties, reactions, and mechanisms of biomacromolecules including amino acids, peptides, proteins, carbohydrates and nucleic acids, enzymatic metabolic pathways, and biochemical genetics. Upon completion, students should be able to demonstrate an understanding of fundamental biochemical processes. Prerequisites: CHM 252. Corequisites: None. (On demand)

**CHM 271A Biochemical Principles Laboratory (Coll/Tran) 0 3 0 1**

This course is a laboratory for CHM 271. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 271. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical principles presented in CHM 271.

Prerequisites: CHM 252. Corequisites: CHM 271. (On demand)

**INFORMATION SYSTEMS****CIS 110 Introduction to Computers (Coll/Tran) 2 2 0 3**

This course introduces computer concepts, including fundamental functions and operations of the computer. Topics include identification of hardware components, basic computer operations, security issues, and use of software applications. Upon completion, students should be able to demonstrate an understanding of the role and function of computers and use the computer to solve problems.

Prerequisites: CTS 080; RED 080 or appropriate placement test score.  
Corequisites: None. (F,S,U)

**CIS 111 Basic PC Literacy 1 2 0 2**

This course provides an overview of computer concepts. Emphasis is placed on the use of personal computers and software applications for personal and fundamental workplace use. Upon completion, students should be able to demonstrate basic personal computer skills.

Prerequisites: CTS 080; RED 080; or appropriate test scores.  
Corequisites: None. (F,S)

**CIS 115 Intro to Prog & Logic (Coll/Tran) 2 3 0 3**

This course introduces computer programming and problem solving in a structured program logic environment. Topics include language syntax, data types, program organization, problem solving methods, algorithm design, and logic control structures. Upon completion, students should be able to manage files with operating system commands, use top-down algorithm design, and implement algorithmic solutions in a programming language.

Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, or MAT 121 or MAT 161 or MAT 171 or MAT 175 or appropriate placement test score. Corequisites: None. (F)

**CIS 277 Network Design & Imp 2 2 0 3**

This course focuses on the design, analysis, and integration of network operating system. Topics include determination of a directory tree structure and object placement, creation of time synchronization strategy, security, and routing services. Upon completion, students should be able to implement a network design strategy, develop a migration strategy, and create a network implementation schedule.

Prerequisites: None. Corequisites: None. (S)

**CIVIL ENGINEERING****CIV 230 Construction Estimating 2 3 0 3**

This course covers quantity take-offs of labor, materials, and equipment and calculation of direct and overhead costs for a construction project. Topics include the interpretation of working drawings and specifications, types of contracts and estimates, building codes, bidding techniques and procedures, and estimating software. Upon completion, students should be able to prepare a detailed cost estimate and bid documents for a construction project.

Prerequisites: ARC 111; and CIS 110 or CIS 111. Corequisites: None. (F)

**CRIMINAL JUSTICE****CJC 100 Basic Law Enforcement Training 9 30 0 19**

This course covers the basic skills and knowledge needed for entry-level employment as a law enforcement officer in North Carolina. Topics are divided into general units of study: legal, patrol duties, law enforcement communications, investigations, practical application and sheriff-specific. Upon successful completion, the student will be able to demonstrate competence in topics and areas required for the state comprehensive certification examination. This is a certificate-level course.

Prerequisites: Completion of admission process for BLET.

Corequisites: None. (F,S)

**CJC 111 Intro to Criminal Justice (Coll/Tran) 3 0 0 3**

This course introduces the components and processes of the criminal justice system. Topics include history, structure, functions, and philosophy of the criminal justice system and their relationship to life in our society. Upon completion, students should be able to define and describe the major system components and their interrelationships and evaluate career options.

Prerequisites: None. Corequisites: None. (F)

**CJC 112 Criminology 3 0 0 3**

This course introduces deviant behavior as it relates to criminal activity. Topics include theories of crime causation; statistical analysis of criminal behavior; past, present, and future social control initiatives; and other related topics. Upon completion, students should be able to explain and discuss various theories of crime causation and societal response.

Prerequisites: None. Corequisites: None. (S)

**CJC 113 Juvenile Justice 3 0 0 3**

This course covers the juvenile justice system and related juvenile issues. Topics include an overview of the juvenile justice system, treatment and prevention programs, special areas and laws unique to juveniles, and other related topics. Upon completion, students should be able to identify/discuss juvenile court structure/procedures, function and jurisdiction of juvenile agencies, processing/detention of juveniles, and case disposition.

Prerequisites: None. Corequisites: None. (F)

**CJC 114 Investigative Photography 1 2 0 2**

This course covers the operation of digital photographic equipment and its application to criminal justice. Topics include the use of digital cameras, storage of digital images, the retrieval of digital images and preparation of digital images as evidence. Upon completion, students should be able to demonstrate and explain the role and use of digital photography, image storage and retrieval in criminal investigations.

Prerequisites: None. Corequisites: None. (F)

**CJC 121 Law Enforcement Operations (Coll/Tran) 3 0 0 3**

This course introduces fundamental law enforcement operations. Topics include the contemporary evolution of law enforcement operations and related issues. Upon completion, students should be able to explain theories, practices, and issues related to law enforcement operations.

Prerequisites: None. Corequisites: None. (S)

**CJC 131 Criminal Law 3 0 0 3**

This course covers the history/evolution/principles and contemporary applications of criminal law. Topics include sources of substantive law, classification of crimes, parties to crime, elements of crimes, matters of criminal responsibility, and other related topics. Upon completion, students should be able to discuss the sources of law and identify, interpret, and apply the appropriate statutes/elements.

Prerequisites: None. Corequisites: None. (F)

**CJC 132 Court Procedure & Evidence 3 0 0 3**

This course covers judicial structure/process/procedure from incident to disposition, kinds and degrees of evidence, and the rules governing admissibility of evidence in court. Topics include consideration of state and federal courts, arrest, search and seizure laws, exclusionary and statutory rules of evidence, and other related issues. Upon completion, students should be able to identify and discuss procedures necessary to establish a lawful arrest/search, proper judicial procedures, and the admissibility of evidence.

Prerequisites: None. Corequisites: None. (F)

**CJC 141 Corrections (Coll/Tran) 3 0 0 3**

This course covers the history, major philosophies, components, and current practices and problems of the field of corrections. Topics include historical evolution, functions of the various components, alternatives to incarceration, treatment programs, inmate control, and other related topics. Upon completion, students should be able to explain the various components, processes, and functions of the correctional system.

Prerequisites: None. Corequisites: None. (S)

**CJC 144 Crime Scene Processing 2 3 0 3**

This course introduces the theories and practices of crime scene processing and investigating. Topics include legal considerations at the crime scene, processing indoor and outdoor scenes, recording, note taking, collection and preservation of evidence and submission to the crime laboratory. Upon completion, the student should be able to evaluate and search various crime scenes and demonstrate the appropriate techniques.

Prerequisites: None. Corequisites: None. (S)

**CJC 146 Trace Evidence 2 3 0 3**

This course provides a study of trace evidence as it relates to forensic science. Topics include collection, packaging, and preservation of trace evidence from crime scenes such as bombings, fires and other scenes. Upon completion, students should be able to demonstrate the fundamental concepts of trace evidence collection, preservation and submission to the crime laboratory.

Prerequisites: None. Corequisites: None. (F)

**CJC 151 Intro to Loss Prevention 3 0 0 3**

This course introduces the concepts and methods related to commercial and private security systems. Topics include the historical, philosophical, and legal basis of security, with emphasis on security surveys, risk analysis, and associated functions. Upon completion, students should be able to demonstrate and understand security systems, risk management, and the laws relative to loss prevention.

Prerequisites: None. Corequisites: None. (S)

**CJC 160 Terrorism: Underlying Issues 3 0 0 3**

This course identifies the fundamental reasons why America is a target for terrorists, covering various domestic/international terrorist groups and ideologies from a historical aspect. Emphasis is placed upon recognition of terrorist crime scene; weapons of mass destruction; chemical, biological, and nuclear terrorism; and planning consideration involving threat assessments. Upon completion, the student should be able to identify and discuss the methods used in terrorists' activities and complete a threat assessment for terrorists' incidents.

Prerequisites: None. Corequisites: None. (F)

**CJC 212 Ethics & Comm Relations 3 0 0 3**

This course covers ethical considerations and accepted standards applicable to criminal justice organizations and professionals. Topics include ethical systems; social change, values, and norms; cultural diversity; citizen involvement in criminal justice issues; and other related topics. Upon completion, students should be able to apply ethical considerations to the decision-making process in identifiable criminal justice situations.

Prerequisites: None. Corequisites: None. (S)

**CJC 215 Organization & Administration 3 0 0 3**

This course introduces the components and functions of organization and administration as it applies to the agencies of the criminal justice system. Topics include operations/functions of organizations; recruiting, training, and retention of personnel; funding and budgeting; communications; span of control and discretion; and other related topics. Upon completion, students should be able to identify and discuss the basic components and functions of a criminal justice organization and its administrative operations.

Prerequisites: None. Corequisites: None. (F)

**CJC 221 Investigative Principles 3 2 0 4**

This course introduces the theories and fundamentals of the investigative process. Topics include crime scene/incident processing, information gathering techniques, collection/preservation of evidence, preparation of appropriate reports, court presentations, and other related topics. Upon completion, students should be able to identify, explain, and demonstrate the techniques of the investigative process, report preparation, and courtroom presentation.

Prerequisites: None. Corequisites: None. (S)

**CJC 222 Criminalistics 3 0 0 3**

This course covers the functions of the forensic laboratory and its relationship to successful criminal investigations and prosecutions. Topics include advanced crime scene processing, investigative techniques, current forensic technologies, and other related topics. Upon completion, students should be able to identify and collect relevant evidence at simulated crime scenes and request appropriate laboratory analysis of submitted evidence.

Prerequisites: None. Corequisites: None. (S)

**CJC 225 Crisis Intervention 3 0 0 3**

This course introduces critical incident intervention and management techniques as they apply to operational criminal justice practitioners. Emphasis is placed on the victim/offender situation as well as job-related high stress, dangerous, or problem-solving citizen contacts. Upon completion, students should be able to provide insightful analysis of emotional, violent, drug-induced, and other critical and/or stressful incidents that require field analysis and/or resolution.

Prerequisites: None. Corequisites: None. (S)

**CJC 231 Constitutional Law 3 0 0 3**

The course covers the impact of the Constitution of the United States and its amendments on the criminal justice system. Topics include the structure of the Constitution and its amendments, court decisions pertinent to contemporary criminal justice issues, and other related topics. Upon completion, students should be able to identify/discuss the basic structure of the United States Constitution and the rights/procedures as interpreted by the courts.

Prerequisites: None. Corequisites: None. (F)

**CJC 245 Friction Ridge Analysis 2 3 0 3**

This course introduces the basic elements of fingerprint technology and techniques applicable to the criminal justice field. Topics include the history and meaning of fingerprints, pattern types and classification, filing sequence, searching and referencing. Upon completion, students should be able to discuss and demonstrate the fundamental techniques of basic fingerprint technology.

Prerequisites: None. Corequisites: None. (F)

**CJC 246 Adv Friction Ridge Analysis 2 3 0 3**

This course introduces the theories and processes of advanced friction ridge analysis. Topics include evaluation of friction ridges, chart preparation, comparative analysis for valued determination rendering proper identification, chemical enhancement and AFIS preparation and usage. Upon completion, students must show an understanding of proper procedures for friction ridge analysis through written testing and practical exercises.

Prerequisites: CJC 245. Corequisites: None. (S)

**CJC 250 Forensic Biology I 2 2 0 3**

This course covers important biological principles that are applied in the crime laboratory. Topics include forensic toxicology, forensic serology, microscopy, and DNA typing analysis, with an overview of organic and inorganic analysis. Upon completion, students should be able to articulate how a crime laboratory processes physical evidence submitted by law enforcement agencies.

Prerequisites: None. Corequisites: None. (S)

**CJC 251 Forensic Chemistry I 3 2 0 4**

This course provides a study of the fundamental concepts of chemistry as it relates to forensic science. Topics include physical and chemical properties of substances, metric measurements, chemical changes, elements, compounds, gases, and atomic structure. Upon completion, students should be able to demonstrate an understanding of the fundamental concepts of forensic chemistry.

Prerequisites: None. Corequisites: None. (S)

## COOPERATIVE EDUCATION

• Specific programs may require additional prerequisites and/or corequisites for cooperative education courses. Please see your advisor.

### **COE 110 World of Work 1 0 0 1**

This course covers basic knowledge necessary for gaining and maintaining employment. Topics include job search skills, work ethic, meeting employer expectations, workplace safety, and human relations. Upon completion, students should be able to successfully make the transition from school to work. Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (On demand)

### **COE 111 Co-op Work Experience I 0 0 10 1**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Prerequisites: None. Corequisites: None. (F,S,SU)

### **COE 112 Co-op Work Experience I 0 0 20 2**

This course provides work experience with a college approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Prerequisites: None. Corequisites: None. (F,S,SU)

### **COE 113 Co-op Work Experience I 0 0 30 3**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Prerequisites: None. Corequisites: None. (F,S,SU)

### **COE 114 Co-op Work Experience I 0 0 40 4**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Prerequisites: None. Corequisites: None. (F,S,SU)

### **COE 115 Work Exp Seminar I 1 0 0 1**

This course provides information for career development through emphasis on self-exploration and awareness of the world of work. Upon completion, students are capable of career decision making and planning. Prerequisites: None. Corequisites: COE 111 or COE 112 or COE 113 or COE 114. (F,S,SU)

### **COE 121 Co-op Work Experience II 0 0 10 1**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Prerequisites: COE 111 or COE 112 or COE 113 or COE 114. Corequisites: None. (F,S,SU)

### **COE 122 Co-op Work Experience II 0 0 20 2**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Prerequisites: COE 111 or COE 112 or COE 113 or COE 114. Corequisites: None. (F,S,SU)

### **COE 123 Co-op Work Experience II 0 0 30 3**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Prerequisites: COE 111 or COE 112 or COE 113 or COE 114. Corequisites: None. (F,S,SU)

### **COE 124 Co-op Work Experience II 0 0 40 4**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Prerequisites: COE 111 or COE 112 or COE 113 or COE 114. Corequisites: None. (F,S,SU)

### **COE 125 Work Exp Seminar II 1 0 0 1**

This course provides information for career development through emphasis on self-exploration and awareness of the world of work. Upon completion, students are capable of career decision making and planning. Prerequisites: COE 115. Corequisites: COE 121 or COE 122 or COE 123 or COE 124. (F,S,SU)

### **COE 131 Co-op Work Experience III 0 0 10 1**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Prerequisites: Select one (1) required course from, COE 111, COE 112, COE 113, COE 114; and Select one (1) required course from, COE 121, COE 122, COE 123, COE 124. Corequisites: None. (F,S,SU)

### **COE 132 Co-op Work Experience III 0 0 20 2**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Prerequisites: Select one (1) required course from, COE 111, COE 112, COE 113, COE 114; and Select one (1) required course from, COE 121, COE 122, COE 123, COE 124. Corequisites: None. (F,S,SU)

### **COE 133 Co-op Work Experience III 0 0 30 3**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Prerequisites: None. Corequisites: None. (On demand)

### **COE 134 Co-op Work Experience III 0 0 40 4**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Prerequisites: None. Corequisites: None. (On demand)

### **COE 135 Work Exp Seminar III 1 0 0 1**

This course provides information for career development through emphasis on self-exploration and awareness of the world of work. Upon completion, students are capable of career decision making and planning. Prerequisites: COE 115, COE 125. Corequisites: COE 131 or COE 132. (F,S,SU)

**COE 211 Co-op Work Experience IV 0 0 10 1**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Prerequisites: Select one (1) required course from, COE 111, COE 112, COE 113, COE 114, **and** Select one (1) required course from, COE 121, COE 122, COE 123, COE 124; and COE 131 **or** COE 132. Corequisites: None. (F,S,SU)

**COE 212 Co-op Work Experience IV 0 0 20 2**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Prerequisites: Select one (1) required course from, COE 111, COE 112, COE 113, COE 114, **and** Select one (1) required course from, COE 121, COE 122, COE 123, COE 124; and COE 131 **or** COE 132. Corequisites: None. (F,S,SU)

**COE 213 Co-op Work Experience IV 0 0 30 3**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Prerequisites: None. Corequisites: None. (On demand)

**COE 214 Co-op Work Experience IV 0 0 40 4**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Prerequisites: None. Corequisites: None. (On demand)

**COE 221 Co-op Work Experience V 0 0 10 1**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Prerequisites: None. Corequisites: None. (On demand)

**COE 222 Co-op Work Experience V 0 0 20 2**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Prerequisites: None. Corequisites: None. (On demand)

**COE 223 Co-op Work Experience V 0 0 30 3**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Prerequisites: None. Corequisites: None. (On demand)

**COE 224 Co-op Work Experience V 0 0 40 4**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Prerequisites: None. Corequisites: None. (On demand)

**COE 231 Co-op Work Experience VI 0 0 10 1**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students

should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Prerequisites: None. Corequisites: None. (On demand)

**COE 232 Co-op Work Experience VI 0 0 20 2**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Prerequisites: None. Corequisites: None. (On demand)

**COE 233 Co-op Work Experience VI 0 0 30 3**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Prerequisites: None. Corequisites: None. (On demand)

**COE 234 Co-op Work Experience VI 0 0 40 4**

This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Prerequisites: None. Corequisites: None. (On demand)

## COMMUNICATION

**COM 110 Introduction to Communication (Coll/Tran) 3 0 0 3**

This course provides an overview of the basic concepts of communication and the skills necessary to communicate in various contexts. Emphasis is placed on communication theories and techniques used in interpersonal group, public, intercultural, and mass communication situations. Upon completion, students should be able to explain and illustrate the forms and purposes of human communication in a variety of contexts.

Prerequisites: None. Corequisites: ENG 111. (F,S,SU)

**COM 120 Intro Interpersonal Com (Coll/Tran) 3 0 0 3**

This course introduces the practices and principles of interpersonal communication in both dyadic and group settings. Emphasis is placed on the communication process, perception, listening, self-disclosure, speech apprehension, ethics, nonverbal communication, conflict, power, and dysfunctional communication relationships. Upon completion, students should be able to demonstrate interpersonal communication skills, apply basic principles of group discussion, and manage conflict in interpersonal communication situations.

Prerequisites: None. Corequisites: None. (On demand)

**COM 231 Public Speaking (Coll/Tran) 3 0 0 3**

This course provides instruction and experience in preparation and delivery of speeches within a public setting and group discussion. Emphasis is placed on research, preparation, delivery, and evaluation of informative, persuasive, and special occasion public speaking. Upon completion, students should be able to prepare and deliver well-organized speeches and participate in group discussion with appropriate audiovisual support.

Prerequisites: None. Corequisites: ENG 111. (S)

## COSMETOLOGY

**COS 111 Cosmetology Concepts I 4 0 0 4**

This course introduces basic cosmetology concepts. Topics include safety, first aid, sanitation, bacteriology, anatomy, diseases and disorders, hygiene, product knowledge, chemistry, ethics, manicures, and other related topics. Upon completion, students should be able to safely and competently apply cosmetology concepts in the salon setting.

Prerequisite: None. Corequisite: COS 112. (F)

**COS 111AB Cosmetology Concepts I-AB** 2 0 0 2  
This course introduces basic cosmetology concepts. Topics include safety, first aid, sanitation, bacteriology, anatomy, diseases and disorders, hygiene, product knowledge, chemistry, ethics, manicures, and other related topics. Upon completion, students should be able to safely and competently apply cosmetology concepts in the salon setting.  
Prerequisite: None. Corequisite: COS 112AB. (F)

**COS 111BB Cosmetology Concepts I-BB** 2 0 0 2  
This course introduces basic cosmetology concepts. Topics include safety, first aid, sanitation, bacteriology, anatomy, diseases and disorders, hygiene, product knowledge, chemistry, ethics, manicures, and other related topics. Upon completion, students should be able to safely and competently apply cosmetology concepts in the salon setting.  
Prerequisites: None. Corequisites: COS 112BB. (S)

**COS 112 Salon I** 0 24 0 8  
This course introduces basic salon services. Topics include scalp treatments, shampooing, rinsing, hair color, design, haircutting, permanent waving, pressing, relaxing, wigs, and other related topics. Upon completion, students should be able to safely and competently demonstrate salon services.  
Prerequisites: None. Corequisites: COS 111. (S)

**COS 112AB Salon I-AB** 0 12 0 4  
This course introduces basic salon services. Topics include scalp treatments, shampooing, rinsing, hair color, design, haircutting, permanent waving, pressing, relaxing, wigs, and other related topics. Upon completion, students should be able to safely and competently demonstrate salon services.  
Prerequisites: None. Corequisites: COS 111AB. (F)

**COS 112BB Salon I-BB** 0 12 0 4  
This course introduces basic salon services. Topics include scalp treatments, shampooing, rinsing, hair color, design, haircutting, permanent waving, pressing, relaxing, wigs, and other related topics. Upon completion, students should be able to safely and competently demonstrate salon services.  
Prerequisites: None. Corequisites: COS 111BB. (S)

**COS 113 Cosmetology Concepts II** 4 0 0 4  
This course covers more comprehensive cosmetology concepts. Topics include safety, product knowledge, chemistry, manicuring, chemical restructuring, and hair coloring. Upon completion, students should be able to safely and competently apply these cosmetology concepts in the salon setting.  
Prerequisites: None. Corequisites: COS 114, ENG 102. (S)

**COS 113AB Cosmetology Concepts II-AB** 2 0 0 2  
This course covers more comprehensive cosmetology concepts. Topics include safety, product knowledge, chemistry, manicuring, chemical restructuring, and hair coloring. Upon completion, students should be able to safely and competently apply these cosmetology concepts in the salon setting.  
Prerequisites: ENG 102, PSY 150. Corequisites: COS 114AB. (F)

**COS 113BB Cosmetology Concepts II-BB** 2 0 0 2  
This course covers more comprehensive cosmetology concepts. Topics include safety, product knowledge, chemistry, manicuring, chemical restructuring, and hair coloring. Upon completion, students should be able to safely and competently apply these cosmetology concepts in the salon setting.  
Prerequisites: None. Corequisites: COS 114BB. (S)

**COS 114 Salon II** 0 24 0 8  
This course provides experience in a simulated salon setting. Topics include basic skin care, manicuring, nail application, scalp treatments, shampooing, rinsing, hair color, design, haircutting, chemical restructuring, pressing, wigs, and other related topics. Upon completion, students should be able to safely and competently demonstrate these salon services.  
Prerequisites: None. Corequisites: COS 113, ENG 102. (S)

**COS 114AB Salon II-AB** 0 12 0 4  
This course provides experience in a simulated salon setting. Topics include basic skin care, manicuring, nail application, scalp treatments, shampooing, rinsing, hair color, design, haircutting, chemical restructuring, pressing, wigs, and other related topics. Upon completion, students should be able to safely and competently demonstrate these salon services.  
Prerequisites: ENG 102, PSY 150. Corequisites: COS 113AB. (F)

**COS 114BB Salon II-BB** 0 12 0 4  
This course provides experience in a simulated salon setting. Topics include basic skin care, manicuring, nail application, scalp treatments, shampooing, rinsing, hair color, design, haircutting, chemical restructuring, pressing, wigs, and other related topics. Upon completion, students should be able to safely and competently demonstrate these salon services.  
Prerequisites: None. Corequisites: COS 113BB. (S)

**COS 115 Cosmetology Concepts III** 4 0 0 4  
This course covers more comprehensive cosmetology concepts. Topics include safety, product knowledge, salon management, salesmanship, skin care, electricity/light therapy, wigs, thermal hair styling, lash and brow tinting, superfluous hair removal, and other related topics. Upon completion, students should be able to safely and competently apply these cosmetology concepts in the salon setting.  
Prerequisites: None. Corequisites: COS 116. (SU)

**COS 115AB Cosmetology Concepts III-AB** 2 0 0 2  
This course covers more comprehensive cosmetology concepts. Topics include safety, product knowledge, salon management, salesmanship, skin care, electricity/light therapy, wigs, thermal hair styling, lash and brow tinting, superfluous hair removal, and other related topics. Upon completion, students should be able to safely and competently apply these cosmetology concepts in the salon setting.  
Prerequisites: None. Corequisites: COS 116AB. (F)

**COS 115BB Cosmetology Concepts III-BB** 2 0 0 2  
This course covers more comprehensive cosmetology concepts. Topics include safety, product knowledge, salon management, salesmanship, skin care, electricity/light therapy, wigs, thermal hair styling, lash and brow tinting, superfluous hair removal, and other related topics. Upon completion, students should be able to safely and competently apply these cosmetology concepts in the salon setting.  
Prerequisites: None. Corequisites: COS 116BB. (S)

**COS 116 Salon III** 0 12 0 4  
This course provides comprehensive experience in a simulated salon setting. Emphasis is placed on intermediate-level of skin care, manicuring, scalp treatments, shampooing, hair color, design, haircutting, chemical restructuring, pressing, and other related topics. Upon completion, students should be able to safely and competently demonstrate these salon services.  
Prerequisites: None. Corequisites: COS 115. (SU)

**COS 116AB Salon III-AB** 0 6 0 2  
This course provides comprehensive experience in a simulated salon setting. Emphasis is placed on intermediate-level of skin care, manicuring, scalp treatments, shampooing, hair color, design, haircutting, chemical restructuring, pressing, and other related topics. Upon completion, students should be able to safely and competently demonstrate these salon services.  
Prerequisites: None. Corequisites: COS 115AB. (F)

**COS 116BB Salon III-BB** 0 6 0 2  
This course provides comprehensive experience in a simulated salon setting. Emphasis is placed on intermediate-level of skin care, manicuring, scalp treatments, shampooing, hair color, design, haircutting, chemical restructuring, pressing, and other related topics. Upon completion, students should be able to safely and competently demonstrate these salon services.  
Prerequisites: None. Corequisites: COS 115BB. (S)

**COS 117 Cosmetology Concepts IV** 2 0 0 2  
This course covers advanced cosmetology concepts. Topics include chemistry and hair structure, advanced cutting and design, and an overview of all cosmetology concepts in preparation for the licensing examination. Upon completion, students should be able to demonstrate an understanding of these cosmetology concepts and meet program completion requirements.  
Prerequisites: None. Corequisites: COS 118 and PSY 150. (F)

**COS 117AB Cosmetology Concepts IV-AB** 1 0 0 1  
This course covers advanced cosmetology concepts. Topics include chemistry and hair structure, advanced cutting and design, and an overview of all cosmetology concepts in preparation for the licensing examination. Upon completion, students should be able to demonstrate an understanding of these cosmetology concepts and meet program completion requirements.  
Prerequisites: None. Corequisites: COS 118AB. (F)

**COS 117BB Cosmetology Concepts IV-BB** 1 0 0 1  
This course covers advanced cosmetology concepts. Topics include chemistry and hair structure, advanced cutting and design, and an overview of all cosmetology concepts in preparation for the licensing examination. Upon completion, students should be able to demonstrate an understanding of these cosmetology concepts and meet program completion requirements.  
Prerequisites: None. Corequisites: COS 118BB. (S)

**COS 118 Salon IV** 0 21 0 7  
This course provides advanced experience in a simulated salon setting. Emphasis is placed on efficient and competent delivery of all salon services in preparation for the licensing examination and employment. Upon completion, students should be able to demonstrate competence in program requirements and the areas covered on the Cosmetology Licensing Examination and meet entry-level employment requirements.  
Prerequisites: COS 114, COS 116. Corequisites: COS 117. (F)

**COS 118AB Salon IV-AB** 0 12 0 4  
This course provides advanced experience in a simulated salon setting. Emphasis is placed on efficient and competent delivery of all salon services in preparation for the licensing examination and employment. Upon completion, students should be able to demonstrate competence in program requirements and the areas covered on the Cosmetology Licensing Examination and meet entry-level employment requirements.  
Prerequisites: None. Corequisites: COS 117AB. (F)

**COS 118BB Salon IV-BB** 0 9 0 3  
This course provides advanced experience in a simulated salon setting. Emphasis is placed on efficient and competent delivery of all salon services in preparation for the licensing examination and employment. Upon completion, students should be able to demonstrate competence in program requirements and the areas covered on the Cosmetology Licensing Examination and meet entry-level employment requirements.  
Prerequisites: None. Corequisites: COS 117BB. (S)

## COMPUTER SCIENCE

**CSC 120 Computing Fundamentals I** (Coll/Tran) 3 2 0 4  
This course provides the essential foundation for the discipline of computing and a program of study in computer science, including the role of the professional. Topics include algorithm design, data abstraction, searching and sorting algorithms, and procedural programming techniques. Upon completion, students should be able to solve problems, develop algorithms, specify data types, perform sorts and searches, and use an operating system.  
Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, DMA 060, DMA 070, DMA 080, or MAT 121 or MAT 161 or MAT 171 or MAT 175 or appropriate placement test score. Corequisites: None. (F,S)

**CSC 130 Computing Fundamentals II** (Coll/Tran) 3 2 0 4  
This course provides in-depth coverage of the discipline of computing and the role of the professional. Topics include software design methodologies, analysis of algorithm and data structures, searching and sorting algorithms, and file organization methods. Upon completion, students should be able to use software design methodologies and choice of data structures and understand social/ethical responsibilities of the computing professional.  
Prerequisites: CSC 120. Corequisites: None. (S)

**CSC 134 C++ Programming** (Coll/Tran) 2 3 0 3  
This course introduces computer programming using the C++ programming language with object-oriented programming principles. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger. Upon completion, students should be able to design, code, test and debug at a beginning level.  
Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050 or appropriate placement test score. Corequisites: None. (F,S)

**CSC 138 RPG Programming** 2 3 0 3  
This course introduces computer programming using the RPG programming language with structured programming principles. Topics include input/output operations, iteration, arithmetic operations, arrays, pointers, filters, and other related topics. Upon completion, students should be able to design, code, test and debug at a beginning level.  
Prerequisites: None. Corequisites: None. (F)

**CSC 139 Visual BASIC Prog** (Coll/Tran) 2 3 0 3  
This course introduces computer programming using the Visual BASIC programming language with object-oriented programming principles. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger. Upon completion, students should be able to design, code, test and debug at a beginning level.  
Prerequisites: None. Corequisites: None. (S)

**CSC 141 Visual C++ Prog** 2 3 0 3  
This course introduces computer programming using the Visual C++ programming language with object-oriented programming principles. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger. Upon completion, students should be able to design, code, test, debug, and implement objects using the appropriate environment at a beginning level.  
Prerequisites: None. Corequisites: None. (S)

**CSC 151 JAVA Programming** (Coll/Tran) 2 3 0 3  
This course introduces computer programming using the JAVA programming language with object-oriented programming principles. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger.  
Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050 or appropriate placement test score. Corequisites: None. (On demand)

**CSC 220 Machine Implem of Algor** (Coll/Tran) 3 2 0 4  
This course covers the organization and operation of real computer systems at the assembly language level. Topics include mapping of statements and constructs onto machine instruction sequences, internal data types and structures representation, numerical computation, and iterative approximation methods. Upon completion, students should be able to analyze computer system organization, implement procedural language elements, and describe the programming language translation process.  
Prerequisites: CSC 120. Corequisites: MAT 271. (On demand)

**CSC 234 Adv C++ Programming** 2 3 0 3  
This course is a continuation of CSC 134 using the C++ programming language with standard programming principles. Emphasis is placed on advanced arrays/tables, file management/processing techniques, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design, code, test, debug and document programming solutions.  
Prerequisites: CSC 134. Corequisites: None. (On demand)

**CSC 238 Adv RPG Programming** 2 3 0 3  
This course is a continuation of CSC 138 using the RPG programming language with structured programming principles. Emphasis is placed on advanced arrays/tables, file management/processing techniques, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design, code, test, debug and document programming solutions.  
Prerequisites: CSC 138. Corequisites: None. (S)

**CSC 239 Adv Visual BASIC Prog** (Coll/Tran) 2 3 0 3  
This course is a continuation of CSC 139 using the Visual BASIC programming language with object-oriented programming principles. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger. Upon completion, students should be able to design, code, test, debug, and implement objects using the appropriate environment.  
Prerequisites: CSC 139. Corequisites: None. (S)

**CSC 289 Programming Capstone Project** 1 4 0 3  
This course provides an opportunity to complete a significant programming project from the design phase through implementation with minimal instructor support. Emphasis is placed on project definition, testing, presentation, and implementation. Upon completion, students should be able to complete a project from the definition phase through implementation.  
Prerequisites: CTS 285. Corequisites: None.



**COMPUTER INFORMATION TECHNOLOGY****CTS 080 Computing Fundamentals 2 3 0 3**

This course covers fundamental functions and operations of the computer. Topics include identification of components and basic computer operations including introduction to operating systems, the Internet, web browsers, and communication using World Wide Web. Upon completion, students should be able to operate computers, access files, print documents and perform basic applications operations. Prerequisites: None. Corequisites: None. (F,S)

**CTS 115 Info Sys Business Concept 3 0 0 3**

This course introduces the role of IT in managing business processes and the need for business process and IT alignment. Emphasis is placed on industry need for understanding business challenges and developing/managing information systems to contribute to the decision making process based on these challenges. Upon completion, students should be able to demonstrate knowledge of the 'hybrid business manager' and the potential offered by new technology and systems.

Prerequisites: None. Corequisites: None. (S)

**CTS 120 Hardware/Software Support 2 3 0 3**

This course covers the basic hardware of a personal computer, including installation, operations and interactions with software. Topics include component identification, memory-system, peripheral installation and configuration, preventive maintenance, hardware diagnostics/repair, installation and optimization of system software, commercial programs, system configuration, and device-drivers. Upon completion, students should be able to select appropriate computer equipment and software, upgrade/maintain existing equipment and software, and troubleshoot/repair non-functioning personal computers. Prerequisites: CIS 110 or CIS 111. Corequisites: None. (F,S)

**CTS 130 Spreadsheet 2 2 0 3**

This course introduces basic spreadsheet design and development. Topics include writing formulas, using functions, enhancing spreadsheets, creating charts, and printing. Upon completion, students should be able to design and print basic spreadsheets and charts.

Prerequisites: CIS 110 or CIS 111 or OST 137. Corequisites: None. (F)

**CTS 210 Computer Ethics 3 0 0 3**

This course introduces the student to current legal and ethical issues in the computer/engineering field. Topics include moral reasoning, ethical standards, intellectual property, social issues, encryption, software piracy, constitutional issues, and public policy in related matters. Upon completion, students should be able to demonstrate an understanding of the moral and social responsibilities and public policy issues facing an industry.

Prerequisites: CIS 110 or CIS 111 or NET 110. Corequisites: None. (S)

**CTS 285 Systems Analysis & Design 3 0 0 3**

This course introduces established and evolving methodologies for the analysis, design, and development of an information system. Emphasis is placed on system characteristics, managing projects, prototyping, CASE/OOM tools, and systems development life cycle phases. Upon completion, students should be able to analyze a problem and design an appropriate solution using a combination of tools and techniques.

Prerequisites: CIS 115. Corequisites: None. (F)

**CTS 286 Network Support 2 2 0 3**

This course provides experience using CD ROM and on-line research tools and hands-on experience for advanced hardware support and troubleshooting. Emphasis is placed on troubleshooting network adapter cards and cabling, network storage devices, the DOS workstation, and network printing. Upon completion, students should be able to analyze, diagnose, research, and fix network hardware problems.

Prerequisites: NOS 230 or NOS 231. Corequisites: None. (S)

**CTS 289 System Support Project 1 4 0 3**

This course provides an opportunity to complete a significant support project with minimal instructor assistance. Emphasis is placed on written and oral communication skills, project definition, documentation, installation, testing, presentation, and user training. Upon completion, students should be able to complete a project from the definition phase through implementation.

Prerequisites: CTS 285. Corequisites: None. (S)

**DATABASE MANAGEMENT TECHNOLOGY****DBA 110 Database Concepts 2 3 0 3**

This course introduces database design and creation using a DBMS product. Emphasis is placed on data dictionaries, normalization, data integrity, data modeling, and creation of simple tables, queries, reports, and forms. Upon completion, students should be able to design and implement normalized database structures by creating simple database tables, queries, reports, and forms. Prerequisites: None. Corequisites: None. (F)

**DBA 115 Database Applications 2 2 0 3**

This course applies concepts learned in DBA 110 to a specific DBMS. Topics include manipulating multiple tables, advanced queries, screens and reports, linking, and command files. Upon completion, students should be able to create multiple table systems that demonstrate updates, screens, and reports representative of industry requirements.

Prerequisites: DBA 110. Corequisites: None. (S)

**DBA 120 Database Programming I 2 2 0 3**

This course is designed to develop SQL programming proficiency. Emphasis is placed on data definition, data manipulation, and data control statements as well as on report generation. Upon completion, students should be able to write programs which create, update, and produce reports.

Prerequisites: DBA 115. Corequisites: None. (F)

**DBA 220 Oracle DB Programming II 2 2 0 3**

This course is designed to enhance programming skills developed in DBA 120. Topics include application development with GUI front-ends and embedded programming. Upon completion, students should be able to develop an Oracle DBMS application which includes a GUI front-end and report generation.

Prerequisites: DBA 120. Corequisites: None

**DANCE****DAN 110 Dance Appreciation (Coll/Tran) 3 0 0 3**

This course for non-dance majors surveys diverse dance forms and the religious and cultural values that shape them. Topics include dances from Europe, Africa, Asia, and America. Upon completion, students should be able to demonstrate an understanding of the diverse forms and values that dance embraces.

Prerequisites: None. Corequisites: None. (On demand)

**DAN 124 Jazz Dance I 0 3 0 1**

This course provides the fundamentals of elementary jazz technique. Emphasis is placed on body placement, stretching, jazz movements, and syncopated rhythms. Upon completion, students should be able to demonstrate significant progress in fundamental jazz dance technique and simple center combinations.

Prerequisites: None. Corequisites: None. (On demand)

**DAN 125 Jazz Dance II 0 3 0 1**

This course is the second in a series and provides an expansion of elementary/intermediate jazz dance. Emphasis is placed on "Cool Jazz," theatrical jazz styles, and extended sequences of movement (routines). Upon completion, students should be able to demonstrate moderate mastery of elementary/intermediate-level jazz dance and be able to perform routines.

Prerequisites: DAN 124. Corequisites: None. (On demand)

**DAN 130 Ballet I 0 4 0 2**

This course introduces the elementary elements of ballet technique. Emphasis is placed on simple positions, body placement, classroom discipline, and the Dalcroze method of counting music. Upon completion, students should be able to recognize the names and rhythms of basic steps and be able to perform those movements at barre and in center.

Prerequisites: None. Corequisites: None. (On demand)

**DAN 140 Modern Dance I 0 4 0 2**

This course introduces the elementary elements of modern dance technique. Emphasis is placed on floor, barre, and center floor exercises. Upon completion, students should be able to exhibit a basic understanding and skill in performing elementary modern dance technique.

Prerequisites: None. Corequisites: None. (On demand)

**DAN 141 Modern Dance II** 0 4 0 2  
This course is the second in a series of elementary modern dance technique. Emphasis is placed on motor skill development and simple combinations in center floor. Upon completion, students should be able to exhibit moderate technical skill in elementary modern dance technique.  
Prerequisites: None. Corequisites: None. (On demand)

**DAN 211 Dance History I** (Coll/Tran) 3 0 0 3  
This course provides an in-depth study of world dance from pre-history to 1800. Emphasis is placed on examining the dance and dancers of diverse cultures including Africa, Asia, and Europe. Upon completion, students should be able to analyze the common need to dance and the forms, religions, and cultural values it embodies.  
Prerequisites: None. Corequisites: None. (On demand)

**DAN 212 Dance History II** (Coll/Tran) 3 0 0 3  
This course provides an in-depth study of world dance from 1800 to the present. Emphasis is placed on Western theatrical dance (ballet, modern dance, tap, and jazz) and the personalities that shaped it. Upon completion, students should be able to analyze culturally diverse dance forms and their cross-pollination which have produced the "pan world dance of today."  
Prerequisite: None. Corequisites: None. (On demand)

**DAN 225 Choreography I** 1 4 0 3  
This course introduces the fundamental techniques of modern dance choreography. Emphasis is placed on improvisation and development of movement phrases. Upon completion, students should be able to create simple movements, improvise upon them, and develop longer movement phrases to create short dances.  
Prerequisites: DAN 140. Corequisites: None. (On demand)

**DAN 264 Dance Production** 0 9 0 3  
This course covers creation, rehearsal, and performance, before a live audience, of a new or reconstructed work by faculty, guest artist, or repertory. Emphasis is placed on movement, memory skills, role development, accepted professional behavior, and ability to project the choreographer's intent. Upon completion, students should be able to demonstrate through performance a basic knowledge of the artistic and technical aspects of performing before a live audience.  
Prerequisites: None. Corequisites: None. (On demand)

## DENTAL HYGIENE

**DEN 110 Orofacial Anatomy** 2 2 0 3  
This course introduces the structures of the head, neck, and oral cavity. Topics include tooth morphology, head and neck anatomy, histology, and embryology. Upon completion, students should be able to relate the identification of normal structures and development to the practice of dental assisting and dental hygiene.  
Prerequisites: Enrollment in the Dental Hygiene program. Corequisites: None. (F)

**DEN 111 Infection/Hazard Control** 2 0 0 2  
This course introduces the infection and hazard control procedures necessary for the safe practice of dentistry. Topics include microbiology, practical infection control, sterilization and monitoring, chemical disinfectants, aseptic technique, infectious diseases, OSHA standards, and applicable North Carolina laws. Upon completion, students should be able to understand infectious diseases, disease transmission, infection control procedures, biohazard management, OSHA standards, and applicable North Carolina laws.  
Prerequisites: Enrollment in the Dental Hygiene program. Corequisites: None. (F)

**DEN 112 Dental Radiography** 2 3 0 3  
This course provides a comprehensive view of the principles and procedures of radiology as they apply to dentistry. Topics include techniques in exposing, processing, and evaluating radiographs, as well as radiation safety, quality assurance, and legal issues. Upon completion, students should be able to demonstrate proficiency in the production of diagnostically acceptable radiographs using appropriate safety precautions.  
Prerequisites: Enrollment in the Dental Hygiene program. Corequisites: None. (S)

**DEN 120 Dental Hyg Preclinic Lec** 2 0 0 2  
This course introduces preoperative and clinical dental hygiene concepts. Emphasis is placed on the assessment phase of patient care as well as the theory

of basic dental hygiene instrumentation. Upon completion, students should be able to collect and evaluate patient data at a basic level and demonstrate basic knowledge of dental hygiene instrumentation.  
Prerequisites: Enrollment in the Dental Hygiene program. Corequisites: DEN 121. (F)

**DEN 121 Dental Hygiene Precl Lab** 0 6 0 2  
This course provides the opportunity to perform clinical dental hygiene procedures discussed in DEN 120. Emphasis is placed on clinical skills in patient assessment and instrumentation techniques. Upon completion, students should be able to demonstrate the ability to perform specific preclinical procedures.  
Prerequisites: Enrollment in the Dental Hygiene program.  
Corequisites: DEN 120. (F)

**DEN 123 Nutrition/Dental Health** 2 0 0 2  
This course introduces basic principles of nutrition with emphasis on nutritional requirements and their application to individual patient needs. Topics include the study of the food pyramid, nutrient functions, Recommended Daily Allowances, and related psychological principles. Upon completion, students should be able to recommend and counsel individuals on their food intake as related to their dental health.  
Prerequisites: Enrollment in the Dental Hygiene program. Corequisites: None. (S)

**DEN 124 Periodontology** 2 0 0 2  
This course provides an in-depth study of the periodontium, periodontal pathology, periodontal monitoring, and the principles of periodontal therapy. Topics include periodontal anatomy and a study of the etiology, classification, and treatment modalities of periodontal diseases. Upon completion, students should be able to describe, compare, and contrast techniques involved in periodontal/maintenance therapy, as well as patient care management.  
Prerequisites: DEN 110. Corequisites: None. (SU)

**DEN 130 Dental Hygiene Theory I** 2 0 0 2  
This course is a continuation of the didactic dental hygiene concepts necessary for providing an oral prophylaxis. Topics include deposits/removal, instrument sharpening, patient education, fluorides, planning for dental hygiene treatment, charting, and clinical records and procedures. Upon completion, students should be able to demonstrate knowledge needed to complete a thorough oral prophylaxis.  
Prerequisites: DEN 120. Corequisites: DEN 131. (S)

**DEN 131 Dental Hygiene Clinic I** 0 0 9 3  
This course continues skill development in providing an oral prophylaxis. Emphasis is placed on treatment of the recall patients with gingivitis or light deposits. Upon completion, students should be able to assess these patients' needs and complete the necessary dental hygiene treatment.  
Prerequisites: DEN 121. Corequisites: DEN 130. (S)

**DEN 140 Dental Hygiene Theory II** 1 0 0 1  
This course provides a continuation of the development, theory, and practice of patient care. Topics include modification of treatment for special needs patients, advanced radiographic interpretation, and ergonomics. Upon completion, students should be able to differentiate necessary treatment modifications, effective ergonomic principles, and radiographic abnormalities.  
Prerequisites: DEN 130. Corequisites: DEN 141. (SU)

**DEN 141 Dental Hygiene Clinic II** 0 0 6 2  
This course continues skill development in providing an oral prophylaxis. Emphasis is placed on treatment of patients with early periodontal disease and subgingival deposits. Upon completion, students should be able to assess these patients' needs and complete the necessary dental hygiene treatment.  
Prerequisites: DEN 131. Corequisites: DEN 140. (SU)

**DEN 220 Dental Hygiene Theory III** 2 0 0 2  
This course provides a continuation in developing the theories and practices of patient care. Topics include periodontal debridement, pain control, subgingival irrigation, air polishing, and case presentations. Upon completion, students should be able to demonstrate knowledge of methods of treatment and management of periodontally compromised patients.  
Prerequisites: DEN 140. Corequisites: DEN 221. (F)

**DEN 221 Dental Hygiene Clinic III** 0 0 12 4  
This course continues skill development in providing an oral prophylaxis. Emphasis is placed on treatment of patients with moderate to advanced periodontal involvement and moderate deposits. Upon completion, students should be able to assess these patients' needs and complete the necessary dental hygiene treatment.  
Prerequisites: DEN 141. Corequisites: DEN 220. (F)

**DEN 222 General & Oral Pathology** 2 0 0 2  
This course provides a general knowledge of oral pathological manifestations associated with selected systemic and oral diseases. Topics include developmental and degenerative diseases, selected microbial diseases, specific and nonspecific immune and inflammatory responses with emphasis on recognizing abnormalities. Upon completion, students should be able to differentiate between normal and abnormal tissues and refer unusual findings to the dentist for diagnosis.  
Prerequisites: BIO 163 or BIO 168. Corequisites: None. (S)

**DEN 223 Dental Pharmacology** 2 0 0 2  
This course provides basic drug terminology, general principles of drug actions, dosages, routes of administration, adverse reactions, and basic principles of anesthesiology. Emphasis is placed on knowledge of drugs in overall understanding of patient histories and health status. Upon completion, students should be able to recognize that each patient's general health or drug usage may require modification of the treatment procedures.  
Prerequisites: Enrollment in the Dental Hygiene program.  
Corequisites: BIO 163 or BIO 168. (F)

**DEN 224 Materials and Procedures** 1 3 0 2  
This course introduces the physical properties of materials and related procedures used in dentistry. Topics include restorative and preventive materials, fabrication of casts and appliances, and chairside functions of the dental hygienist. Upon completion, students should be able to demonstrate proficiency in the laboratory and/or clinical application of routinely used dental materials and chairside functions.  
Prerequisites: DEN 111. Corequisites: None. (S)

**DEN 230 Dental Hygiene Theory IV** 1 0 0 1  
This course provides an opportunity to increase knowledge of the profession. Emphasis is placed on dental specialties and completion of a case presentation. Upon completion, students should be able to demonstrate knowledge of various disciplines of dentistry and principles of case presentations.  
Prerequisites: DEN 220. Corequisites: DEN 231. (S)

**DEN 231 Dental Hygiene Clinic IV** 0 0 12 4  
This course continues skill development in providing an oral prophylaxis. Emphasis is placed on periodontal maintenance and on treating patients with moderate to advanced/refractory periodontal disease. Upon completion, students should be able to assess these patients' needs and complete the necessary dental hygiene treatment.  
Prerequisites: DEN 221. Corequisites: DEN 230. (S)

**DEN 232 Community Dental Health** 2 0 3 3  
This course provides a study of the principles and methods used in assessing, planning, implementing, and evaluating community dental health programs. Topics include epidemiology, research methodology, biostatistics, preventive dental care, dental health education, program planning, and financing and utilization of dental services. Upon completion, students should be able to assess, plan, implement, and evaluate a community dental health program.  
Prerequisites: Enrollment in the Dental Hygiene program. Corequisites: None. (F)

**DEN 233 Professional Development** 2 0 0 2  
This course includes professional development, ethics, and jurisprudence with applications to practice management. Topics include conflict management, state laws, résumés, interviews, and legal liabilities as health care professionals. Upon completion, students should be able to demonstrate the ability to practice dental hygiene within established ethical standards and state laws.  
Prerequisites: Enrollment in the Dental Hygiene program. Corequisites: None. (S)

## DRAFTING

**DFT 111 Technical Drafting I** 1 3 0 2  
This course introduces basic drafting skills, equipment, and applications. Topics include sketching, measurements, lettering, dimensioning, geometric construction, orthographic projections and pictorial drawings, sections, and auxiliary views. Upon completion, students should be able to understand and

apply basic drawing principles and practices.  
Prerequisites: RED 080 or appropriate placement test score.  
Corequisites: DFT 111A. (S)

**DFT 111A Technical Drafting I Lab** 0 3 0 1  
This course provides a laboratory setting to enhance basic drafting skills. Emphasis is placed on practical experiences that enhance the topics presented in DFT 111. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in DFT 111.  
Prerequisites: RED 080 or appropriate placement test score.  
Corequisites: DFT 111. (S)

**DFT 117 Technical Drafting** 1 2 0 2  
This course introduces basic drafting practices for non-drafting majors. Emphasis is placed on instrument use and care, shape and size description, sketching, and pictorials. Upon completion, students should be able to produce drawings of assigned parts.  
Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (F)

**DFT 151 CAD I** 2 3 0 3  
This course introduces CAD software as a drawing tool. Topics include drawing, editing, file management, and plotting. Upon completion, students should be able to produce and plot a CAD drawing.  
Prerequisites: RED 080 or appropriate placement test score.  
Corequisites: None. (F,S)

**DFT 152 CAD II** 2 3 0 3  
This course introduces extended CAD applications. Emphasis is placed upon intermediate applications of CAD skills. Upon completion, students should be able to use extended CAD applications to generate and manage drawings.  
Prerequisites: RED 080 or appropriate placement test score.  
Corequisites: None. (F)

**DFT 170 Engineering Graphics (Coll/Tran)** 2 2 0 3  
This course introduces basic engineering graphics skills and applications. Topics include sketching, selection and use of current methods and tools, and the use of engineering graphics applications. Upon completion, students should be able to demonstrate an understanding of basic engineering graphics principles and practices.  
Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (S)

## DRAMA/THEATRE

**DRA 111 Theatre Appreciation (Coll/Tran)** 3 0 0 3  
This course provides a study of the art, craft, and business of the theatre. Emphasis is placed on the audience's appreciation of the work of the playwright, director, actor, designer, producer, and critic. Upon completion, students should be able to demonstrate a vocabulary of theatre terms and to recognize the contributions of various theatre artists.  
Prerequisites: None. Corequisites: None. (F,S,SU)

**DRA 112 Literature of the Theatre (Coll/Tran)** 3 0 0 3  
This course provides a survey of dramatic works from the classical Greek through the present. Emphasis is placed on the language of drama, critical theory, and background as well as on play reading and analysis. Upon completion, students should be able to articulate, orally and in writing, their appreciation and understanding of dramatic works.  
Prerequisites: None. Corequisites: None. (On demand)

**DRA 115 Theatre Criticism (Coll/Tran)** 3 0 0 3  
This course is designed to develop a critical appreciation of the theatre from the viewpoint of the audience/consumer. Emphasis is placed on viewing, discussing, and evaluating selected theatre performance, either live or on film/video. Upon completion, students should be able to express their critical judgments both orally and in writing.  
Prerequisites: DRA 111. Corequisites: None. (On demand)

**DRA 120 Voice for Performance (Coll/Tran)** 3 0 0 3  
This course provides guided practice in the proper production of speech for the theatre. Emphasis is placed on improving speech, including breathing, articulation, pronunciation, and other vocal variables. Upon completion, students should be able to demonstrate effective theatrical speech.  
Prerequisites: None. Corequisites: None. (F)

**DRA 122 Oral Interpretation** (Coll/Tran) **3 0 0 3**  
This course introduces the dramatistic study of literature through performance. Emphasis is placed on analysis and performance of poetry, drama, and prose fiction. Upon completion, students should be able to embody and discuss critically the speakers inherent in literature.  
Prerequisites: None. Corequisites: None. (On demand)

**DRA 124 Readers Theatre** (Coll/Tran) **3 0 0 3**  
This course provides a theoretical and applied introduction to the medium of readers theatre. Emphasis is placed on the group performance considerations posed by various genres of literature. Upon completion, students should be able to adapt and present a literary script following the conventions of readers theatre.  
Prerequisites: None. Corequisites: None. (On demand)

**DRA 126 Storytelling** (Coll/Tran) **3 0 0 3**  
This course introduces the art of storytelling and the oral traditions of folk literature. Topics include the history of storytelling, its value and purpose, techniques of the storyteller, and methods of collecting verbal art. Upon completion, students should be able to present and discuss critically stories from the world's repertory of traditional lore.  
Prerequisites: None. Corequisites: None. (On demand)

**DRA 128 Children's Theatre** (Coll/Tran) **3 0 0 3**  
This course introduces the philosophy and practice involved in producing plays for young audiences. Topics include the selection of age-appropriate scripts and the special demands placed on directors, actors, designers, and educators in meeting the needs of young audiences. Upon completion, students should be able to present and critically discuss productions for children.  
Prerequisites: None. Corequisites: None. (On demand)

**DRA 130 Acting I** (Coll/Tran) **0 6 0 3**  
This course provides an applied study of the actor's craft. Topics include role analysis, training the voice, and body concentration, discipline, and self-evaluation. Upon completion, students should be able to explore their creativity in an acting ensemble.  
Prerequisites: None. Corequisites: None. (F)

**DRA 131 Acting II** (Coll/Tran) **0 6 0 3**  
This course provides additional hands-on practice in the actor's craft. Emphasis is placed on further analysis, characterization, growth, and training for acting competence. Upon completion, students should be able to explore their creativity in an acting ensemble.  
Prerequisites: DRA 130. Corequisites: None. (S)

**DRA 132 Stage Movement** (Coll/Tran) **2 2 0 3**  
This course provides an applied study of selected principles of stage movement for actors. Topics include improvisation, mime, stage combat, clowning, choreography, and masks. Upon completion, students should be able to focus properly on stage, to create characters, and to improvise scenes, perform mimes, fight, clown, juggle, and waltz.  
Prerequisites: None. Corequisites: DRA 111. (On demand)

**DRA 135 Acting for the Camera I** (Coll/Tran) **1 4 0 3**  
This course provides an applied study of the camera actor's craft. Topics include commercial, dramatic, and print performance styles. Upon completion, students should be able to explore their creativity in on-camera performance.  
Prerequisites: None. Corequisites: None. (On demand)

**DRA 136 Acting for the Camera II** (Coll/Tran) **1 4 0 3**  
This course provides additional hands-on study of the camera actor's craft. Emphasis is placed on more advanced camera acting theories, auditioning techniques, daytime drama, feature film, and print advertisement performance styles. Upon completion, students should be able to explore their creativity in on-camera performance.  
Prerequisites: DRA 135. Corequisites: None. (On demand)

**DRA 140 Stagecraft I** (Coll/Tran) **0 6 0 3**  
This course introduces the theory and basic construction of stage scenery and properties. Topics include stage carpentry, scene painting, stage electrics, properties, and backstage organization. Upon completion, students should be able to pursue vocational and avocational roles in technical theatre.  
Prerequisites: None. Corequisites: None. (F)

**DRA 141 Stagecraft II** (Coll/Tran) **0 6 0 3**  
This course provides additional hands-on practice in the elements of stagecraft. Emphasis is placed on the design and implementation of the arts and crafts of technical theatre. Upon completion, students should be able to pursue vocational or avocational roles in technical theatre.  
Prerequisites: DRA 140. Corequisites: None. (On demand)

**DRA 142 Costuming** (Coll/Tran) **2 2 0 3**  
This course covers the techniques of costume construction and crafts processes. Emphasis is placed on learning costuming techniques, using equipment and materials, and finishing production-appropriate costumes. Upon completion, students should be able to demonstrate an understanding of pattern drafting, construction techniques, and costume fitting procedures.  
Prerequisites: None. Corequisites: None. (On demand)

**DRA 145 Stage Make-up** (Coll/Tran) **1 2 0 2**  
This course covers the research, design, selection of materials, and application of stage make-up, prosthetics, wigs, and hairpieces. Emphasis is placed on the development of techniques, style, and presentation of the finished make-up. Upon completion, students should be able to create and apply make-up, prosthetics, and hairpieces.  
Prerequisites: None. Corequisites: None. (S)

**DRA 150 Stage Management** (Coll/Tran) **3 0 0 3**  
This course covers the skills necessary for a stage manager of school or professional productions. Emphasis is placed on scheduling, rehearsal documentation and management, personnel, paperwork, and organization. Upon completion, students should be able to effectively stage-manage entertainment productions.  
Prerequisites: DRA 140. Corequisites: None. (On demand)

**DRA 170 Play Production I** (Coll/Tran) **0 9 0 3**  
This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production.  
Prerequisites: None. Corequisites: None. (F,S)

**DRA 171 Play Production II** (Coll/Tran) **0 9 0 3**  
This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production.  
Prerequisites: DRA 170. Corequisites: None. (F,S)

**DRA 211 Theatre History I** (Coll/Tran) **3 0 0 3**  
This course covers the development of theatre from its origin to the closing of the British theatre in 1642. Topics include the history, aesthetics, and representative dramatic literature of the period. Upon completion, students should be able to trace the evolution of theatre and recognize the styles and types of world drama.  
Prerequisites: None. Corequisites: None. (F)

**DRA 212 Theatre History II** (Coll/Tran) **3 0 0 3**  
This course covers the development of theatre from 1660 through the diverse influences which shaped the theatre of the twentieth century. Topics include the history, aesthetics, and representative dramatic literature of the period. Upon completion, students should be able to trace the evolution of theatre and recognize the styles and types of world drama.  
Prerequisites: None. Corequisites: None. (S)

**DRA 240 Lighting for the Theatre** (Coll/Tran) **2 2 0 3**  
This course is an applied study of theatre lighting and is designed to train theatre technicians. Emphasis is placed on lighting technology including the mechanics of lighting and light control equipment by practical work with lighting equipment. Upon completion, students should be able to demonstrate competence with lighting equipment.  
Prerequisites: None. Corequisites: None. (On demand)

**DRA 260 Directing** (Coll/Tran) **0 6 0 3**  
This course provides an analysis and application of the techniques of theatrical directing. Topics include script selection, analysis, casting, rehearsal planning, blocking, stage business, tempo, and technical considerations. Upon completion, students should be able to plan, execute, and critically discuss a student-directed production.  
Prerequisites: DRA 130. Corequisites: DRA 140. (F)

**DRA 270 Play Production III** (Coll/Tran) **0 9 0 3**  
This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production.  
Prerequisites: DRA 171. Corequisites: None. (F,S)

**DRA 271 Play Production IV** (Coll/Tran) **0 9 0 3**  
This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production.  
Prerequisites: DRA 270. Corequisites: None. (F,S)

### ECONOMICS

**ECO 251 Prin of Microeconomics** (Coll/Tran) **3 0 0 3**  
This course introduces economic analysis of individual, business, and industry in the market economy. Topics include the price mechanism, supply and demand, optimizing economic behavior, costs and revenue, market structures, factor markets, income distribution, market failure, and government intervention. Upon completion, students should be able to identify and evaluate consumer and business alternatives in order to efficiently achieve economic objectives.  
Prerequisites: None. Corequisites: None. (F)

**ECO 252 Prin of Macroeconomics** (Coll/Tran) **3 0 0 3**  
This course introduces economic analysis of aggregate employment, income, and prices. Topics include major schools of economic thought; aggregate supply and demand; economic measures, fluctuations, and growth; money and banking; stabilization techniques; and international trade. Upon completion, students should be able to evaluate national economic components, conditions, and alternatives for achieving socioeconomic goals.  
Prerequisites: None. Corequisites: None. (On demand)

### ELECTRONEURODIAGNOSTIC TECHNOLOGY

**EDT 110 Neuroscience/Pathol Cond** **4 0 0 4**  
This course covers the anatomy and physiology of the nervous system as well as those disease processes which affect nervous system components. Topics include anatomy, physiology, and pathology of the neuron, brain, spinal cord, peripheral nerves, and the special senses. Upon completion, students should be able to understand the structure and function of the nervous system and how this structure/function is affected by specific diseases.  
Prerequisites: None. Corequisites: None. (F)

**EDT 111 Laboratory Management** **1 0 0 1**  
This course provides the skills and knowledge necessary to effectively manage and/or function as a team player in an electroneurodiagnostics department. Topics include the role of an effective manager, the role of a team player, techniques for scheduling, record keeping/storage, and creation/implementation of department policies. Upon completion, students should be able to understand those skills necessary to manage an electroneurodiagnostics department, both independently and as a team worker.  
Prerequisites: None. Corequisites: None. (F)

**EDT 111A EDT Laboratory Basics** **0 2 0 1**  
This course is designed to be offered as a supplemental lab for the EDT 111 course. Emphasis is placed on interview skills, system of electrode placement, and the role of effective communication in the EDT department. Upon completion, students should be able to demonstrate basic competencies in preparation for performing electroneurodiagnostic testing.  
Prerequisites: None. Corequisites: EDT 111. (F)

**EDT 112 Instrument/Record Methods** **3 0 0 3**  
This course covers theories of electrode placement, various instrumentation components used in neurological testing, and optimal recording techniques based on patient status. Topics include the International 10-20 System of electrode placement, electrode types/applications, electronics applicable to neurological testing, instrument controls, montages, and polarity/localization. Upon completion, students should be able to understand the theories underlying optimal utilization of electrodes and instrumentation for neurological testing.  
Prerequisites: None. Corequisites: None. (S)

**EDT 113 Clinical Correlates** **2 0 0 2**  
This course covers normal and abnormal neurological test findings associated with the anatomy/physiology/pathology covered in EDT 100. Topics include normal and abnormal neurological test results, artifacts, and activation procedures utilizing teaching records from affiliated laboratories. Upon completion, students should be able to identify patterns and artifacts on neurological tests in order that optimal recording strategies may be utilized.  
Prerequisites: None. Corequisites: None. (S)

**EDT 114 Special Procedures** **3 0 0 3**  
This course provides a basic understanding of special testing procedures used in neurological diagnosis. Topics include foundations of evoked potentials, nerve conduction studies, operating room monitoring, ambulatory EEGs, long-term video monitoring, polysomnography, and various radiological procedures. Upon completion, students should be able to demonstrate an understanding of the principles of various special procedures used in neurological diagnosis.  
Prerequisites: EDT 112. Corequisites: None. (F)

**EDT 115 EDT Laboratory Practice** **0 6 0 2**  
This course provides a practical application of theories covered in previous EDT courses. Emphasis is placed on practical skill development in neurological testing, appropriate patient rapport, infection control, and electrical safety guidelines, using mock situations. Upon completion, students should be able to conduct optimal neurological testing in mock situations.  
Prerequisites: None. Corequisites: None. (S)

**EDT 116 EDT Clinical Experience** **0 0 36 12**  
This course provides clinical experience in a hospital neurology department under the supervision of a qualified technologist. Emphasis is placed on qualified interaction between patients/families and hospital personnel and optimal skill level development in neurological testing. Upon completion, students should be able to conduct themselves professionally in a hospital setting and conduct optimal neurological studies as ordered by physicians.  
Prerequisites: None. Corequisites: None. (S)

**EDT 118 EDT Laboratory Practice II** **0 9 0 3**  
This course is a continuation of EDT 115. Emphasis is placed on practical skills developed in neurological testing, to include the basic EEG along with special testing procedures. Upon completion, students should be able to conduct neurological testing in mock situations.  
Prerequisites: EDT 115. Corequisites: EDT 114. (F)

### EDUCATION

**EDU 216 Foundations of Education** (Coll/Tran) **4 0 0 4**  
This course introduces the American educational system and the teaching profession. Topics include historical and philosophical foundations of education, contemporary educational, structural, legal, and financial issues, and experiences in public school classrooms. Upon completion, students should be able to relate classroom observations to the roles of teachers and schools and the process of teacher education.  
Prerequisites: ENG 090, RED 090 or ENG 095. Corequisites: None. (On demand)

**EDU 119 Intro to Early Child Educ** **4 0 0 4**  
This course covers the foundations of the education profession, the diverse educational settings for young children, professionalism and planning developmentally appropriate programs for children. Topics include historical foundations, program types, career options, professionalism, and creating inclusive environments and curriculum that are responsive to the needs of children and families. Upon completion, students should be able design career plans and develop appropriate schedules, environments and activity plans appropriate for all children.  
Prerequisites: None. Corequisites: None. (F,S)

**EDU 131 Child, Family, & Commun** 3 0 0 3  
This course covers the development of partnerships between families, inclusive programs for children/schools that serve young children with and without disabilities, and the community. Emphasis is placed on requisite skills and benefits for successfully establishing, supporting, and maintaining respectful collaborative relationships between today's diverse families, centers/schools, and community resources. Upon completion, students should be able to describe appropriate relationships with parents/caretakers, center/school colleagues, and community agencies that enhance the educational experiences/well-being of all children. Prerequisites: ENG 080, RED 080 or appropriate placement test score. Corequisites: None. (F)

**EDU 144 Child Development I** (Coll/Tran) 3 0 0 3  
This course covers the theories of child development, developmental sequences, and factors that influence children's development, from conception through pre-school for all children. Emphasis is placed on sequences in physical/motor, social, emotional, cognitive, and language development and the multiple influences on development and learning of the whole child. Upon completion, students should be able to identify typical and atypical developmental characteristics, plan experiences to enhance development, and describe appropriate interaction techniques and environments. Prerequisites: ENG 080, RED 080 or appropriate placement test score. Corequisites: None. (F)

**EDU 145 Child Development II** (Coll/Tran) 3 0 0 3  
This course includes the theories of child development, needs, milestones, and factors that influence development, from preschool through middle childhood. Emphasis is placed on developmental sequences in physical/motor, emotional/social, cognitive, and language domains and the impact of multiple influences on development and learning. Upon completion, students should be able to compare/contrast typical/atypical developmental characteristics, explain environmental factors that impact development, and identify strategies for enhancing development. Prerequisites: ENG 080, RED 080 or appropriate placement test score. Corequisites: None. (S)

**EDU 146 Child Guidance** (Coll/Tran) 3 0 0 3  
This course introduces principles and practical techniques including the design of learning environments for providing developmentally appropriate guidance for all children, including those at risk. Emphasis is placed on observation skills, cultural influences, underlying causes of behavior, appropriate expectations, development of self control and the role of communication and guidance. Upon completion, students should be able to demonstrate direct/indirect strategies for preventing problem behaviors, teaching appropriate/acceptable behaviors, negotiation, setting limits and recognizing at risk behaviors. Prerequisites: ENG 080, RED 080 or appropriate placement test score. Corequisites: None. (S)

**EDU 151 Creative Activities** 3 0 0 3  
This course covers planning, creation and adaptation of developmentally supportive learning environments with attention to curriculum, interactions, teaching practices and learning materials. Emphasis is placed on creating and adapting integrated, meaningful, challenging and engaging developmentally supportive learning experiences in art, music, movement, and dramatics for all children. Upon completion, students should be able to create, manage, adapt implement and evaluate developmentally supportive learning materials, experiences and environments. Prerequisites: ENG 080, RED 080. Corequisites: None. (F)

**EDU 153 Health, Safety, & Nutrit** 3 0 0 3  
This course covers promoting and maintaining the health and well-being of all children. Topics include health and nutritional guidelines, common childhood illnesses, maintaining safe and healthy learning environments, recognition and reporting of abuse and neglect and state regulations. Upon completion, students should be able to demonstrate knowledge of health, safety, and nutritional needs, safe learning environments, and adhere to state regulations. Prerequisites: ENG 080, RED 080. Corequisites: None. (S, SU)

**EDU 216 Foundations of Education** (Coll/Tran) 4 0 0 4  
This course introduces the American educational system and the teaching profession. Topics include historical and philosophical foundations of education, contemporary educational, structural, legal, and financial issues, and experiences in public school classrooms. Upon completion, students should be able to relate classroom observations to the roles of teachers and schools and the process of teacher education. Prerequisites: ENG 090, RED 090 or ENG 095. Corequisites: None. (On Demand)

**EDU 221 Children with Exceptional** (Coll/Tran) 3 0 0 3  
This course introduces children with exceptionalities, their families, support services, inclusive/diverse settings, and educational/family plans based on the foundations of child development. Emphasis is placed on the characteristics of exceptionalities, observation and assessment of children, strategies for adapting the learning environment, and identification of community resources. Upon completion, students should be able to recognize diverse abilities, describe the referral process, and depict collaboration with families/professionals to plan/implement, and promote best practice. Prerequisites: ENG 090, RED 090, EDU 144 and EDU 145 or PSY 244 and PSY 245. Corequisites: None. (F)

**EDU 234 Infants, Toddlers, & Twos** 3 0 0 3  
This course covers the unique needs and rapid changes that occur in the first three years of life and the inter-related factors that influence development. Emphasis is placed on recognizing and supporting developmental milestones through purposeful strategies, responsive care routines and identifying elements of quality, inclusive early care and education. Upon completion, students should be able to demonstrate respectful relationships that provide a foundation for healthy infant/toddler/twos development, plan/select activities/materials, and partner with diverse families. Prerequisites: ENG 090, EDU 119, RED 090. Corequisites: None. (S)

**EDU 235 School-Age Dev & Program** 3 0 0 3  
This course includes developmentally appropriate practices in group settings for school-age children. Emphasis is placed on principles of development, environmental planning, and positive guidance techniques. Upon completion, students should be able to discuss developmental principles for all children ages five to twelve and plan and implement developmentally-appropriate activities. Prerequisites: ENG 090, RED 090. Corequisites: None. (On demand)

**EDU 251 Exploration Activities** 3 0 0 3  
This course covers discovery experiences in science, math, and social studies. Emphasis is placed on developing concepts for each area and encouraging young children to explore, discover, and construct concepts. Upon completion, students should be able to discuss the discovery approach to teaching, explain major concepts in each area, and plan appropriate experiences for children. Prerequisites: ENG 090, RED 090 or appropriate placement test score. Corequisites: None. (S)

**EDU 259 Curriculum Planning** 3 0 0 3  
This course is designed to focus on curriculum planning for three to five year olds. Topics include philosophy, curriculum models, indoor and outdoor environments, scheduling, authentic assessment, and planning developmentally appropriate experiences. Upon completion, students should be able to evaluate children's development, critique curriculum, plan for individual and group needs, and assess and create quality environments. Prerequisites: ENG 090, EDU 119; RED 090 or appropriate placement test score. Corequisites: None. (F)

**EDU 261 Early Childhood Admin I** 3 0 0 3  
This course introduces principles of basic programming and staffing, budgeting/financial management and marketing, and rules and regulations of diverse early childhood programs. Topics include program structure and philosophy, standards of NC child care programs, finance, funding resources, and staff and organizational management. Upon completion, students should be able to develop components of program/personnel handbooks, a program budget, and demonstrate knowledge of fundamental marketing strategies and NC standards. Prerequisites: ENG 090, RED 090. Corequisites: EDU 119. (F)

**EDU 262 Early Childhood Admin II** 3 0 0 3  
This course focuses on advocacy/leadership, public relations/community outreach and program quality/evaluation for diverse early childhood programs. Topics include program evaluation/accreditation, involvement in early childhood professional organizations, leadership/mentoring, family, volunteer and community involvement and early childhood advocacy. Upon completion, students should be able to define and evaluate all components of early childhood programs, develop strategies for advocacy and integrate community into programs. Prerequisites: ENG 090, RED 090, EDU 261. Corequisites: EDU 119. (S)

**EDU 271 Educational Technology 2 2 0 3**  
This course introduces the use of technology to enhance teaching and learning in all educational settings. Topics include technology concepts, instructional strategies, materials and adaptive technology for children with exceptionalities, facilitation of assessment/evaluation, and ethical issues surrounding the use of technology. Upon completion, students should be able to apply technology enhanced instructional strategies, use a variety of technology resources and demonstrate appropriate technology skills in educational environments. Prerequisites: ENG 090, CTS 080, RED 090 **or** appropriate placement test score. Corequisites: None. (F)

**EDU 275 Effective Teach Train 2 0 0 2**  
This course provides specialized training using an experienced-based approach to learning. Topics include instructional preparation and presentation, student interaction, time management, learning expectations, evaluation, and curriculum principles and planning. Upon completion, students should be able to prepare and present a six-step lesson plan and demonstrate ways to improve students' time-on-task. Prerequisites: ENG 090, RED 090. Corequisites: None. (On demand)

**EDU 280 Language & Literacy Exp 3 0 0 3**  
This course explores the continuum of children's communication development, including verbal and written language acquisition and other forms of communication. Topics include selection of literature and other media, the integration of literacy concepts throughout the classroom environment, inclusive practices and appropriate assessments. Upon completion, students should be able to select, plan, implement and evaluate developmentally appropriate literacy experiences. Prerequisites: ENG 090, RED 090 **or** appropriate placement test score. Corequisites: None.(S)

**EDU 284 Early Child Capstone Prac 1 9 0 4**  
This course is designed to allow students to apply skills in a three star (minimum) or NAEYC accredited or equivalent, quality early childhood environment. Emphasis is placed on designing, implementing and evaluating developmentally appropriate activities and environments for all children; supporting/involving families; and modeling reflective and professional practices. Upon completion, students should be able to demonstrate developmentally appropriate plans/assessments, appropriate guidance techniques and ethical/professional behaviors as indicated by assignments and on-site faculty visits. Prerequisites: ENG 090, RED 090, EDU 119, EDU 144, EDU 145, EDU 146, EDU 151. Corequisites: None (F, S)

## ENGINEERING

**EGR 110 Intro to Engineering Tech 1 2 0 2**  
This course introduces general topics relevant to engineering technology. Topics include career assessment, professional ethics, critical thinking and problem solving, usage of college resources for study and research, and using tools for engineering computations. Upon completion, students should be able to choose a career option in engineering technology and utilize college resources to meet their educational goals. Prerequisites: RED 090 **or** appropriate placement test score. Corequisites: ELC 138. (F)

**EGR 150 Intro to Engineering 1 2 0 2**  
This course is an overview of the engineering profession. Topics include goal setting and career assessment, ethics, public safety, the engineering method and design process, written and oral communication, interpersonal skills and team building, and computer applications. Upon completion, students should be able to understand the engineering process, the engineering profession, and utilize college resources to meet their educational goals. Prerequisites: None. Corequisites: None. (On demand)

**EGR 210 Intro to Elec/Com Eng Lab (Coll/Tran) 1 3 0 2**  
This course provides an overview of electrical and computer engineering, through a lecture and laboratory setting. Topics include fundamental concepts, electronic circuits, digital circuits, communication systems, and signal processing. Upon completion, students should be able to discuss the wide range of fields available to the electrical or computer engineer. Prerequisites: MAT 271, PHY 251. Corequisites: None. (On demand)

**EGR 220 Engineering Statics (Coll/Tran) 3 0 0 3**  
This course introduces the concepts of engineering based on forces in equilibrium. Topics include concentrated forces, distributed forces, forces due to friction, and inertia as they apply to machines, structures, and systems. Upon completion, students should be able to solve problems which require the ability to analyze systems of forces in static equilibrium. Prerequisites: PHY 251. Corequisites: MAT 272. (On demand)

## ELECTRICITY

**ELC 111 Intro to Electricity 2 2 0 3**  
This course introduces the fundamental concepts of electricity and test equipment to non-electrical/electronics majors. Topics include basic DC and AC principles (voltage, resistance, current, impedance); components (resistors, inductors, and capacitors); power; and operation of test equipment. Upon completion, students should be able to construct and analyze simple DC and AC circuits using electrical test equipment. Prerequisites: None. Corequisites:None.

**ELC 112 DC/AC Electricity 3 6 0 5**  
This course introduces the fundamental concepts of and computations related to DC/AC electricity. Emphasis is placed on DC/AC circuits, components, operation of test equipment; and other related topics. Upon completion, students should be able to construct, verify, troubleshoot, and repair DC/AC circuits. Prerequisites: RED 080 **or** appropriate placement test score. Corequisites: DMA 010, DMA 020, DMA 030 **or** appropriate placement test score. (F, S)

**ELC 113 Basic Wiring I 2 6 0 4**  
This course introduces the care/usage of tools and materials used in electrical installations and the requirements of the National Electrical Code. Topics include NEC, electrical safety, and electrical blueprint reading; planning, layout; and installation of electrical distribution equipment; lighting; overcurrent protection; conductors; branch circuits; and conduits. Upon completion, students should be able to properly install conduits, wiring, and electrical distribution equipment associated with basic electrical installations. Prerequisites: RED080**or**appropriate placement test score. Corequisites: None. (F)

**ELC 115 Industrial Wiring 2 6 0 4**  
This course covers layout, planning, and installation of wiring systems in industrial facilities. Emphasis is placed on industrial wiring methods and materials. Upon completion, students should be able to install industrial systems and equipment. Prerequisites: ELC 113; RED 080 **or** appropriate placement test score. Corequisites: None. (S)

**ELC 117 Motors and Controls 2 6 0 4**  
This course introduces the fundamental concepts of motors and motor controls. Topics include ladder diagrams, pilot devices, contractors, motor starters, motors, and other control devices. Upon completion, students should be able to properly select, connect, and troubleshoot motors and control circuits. Prerequisites: ELC112; ELC 132 **or** BPR 111; RED 080 **or** appropriate placement test score. Corequisites: None. (F,S)

**ELC 118 National Electrical Code 1 2 0 2**  
This course covers the use of the current National Electrical Code. Topics include the NEC history, wiring methods, overcurrent protection, materials, and other related topics. Upon completion, students should be able to effectively use the NEC. Prerequisites: RED080**or**appropriate placement test score. Corequisites: None. (F)

**ELC 119 NEC Calculations 1 2 0 2**  
This course covers branch circuit, feeder, and service calculations. Emphasis is placed on sections of the National Electrical Code related to calculations. Upon completion, students should be able to use appropriate code sections to size wire, conduit, and overcurrent devices for branch circuits, feeders, and service. Prerequisites: RED 080 **or** appropriate placement test score. Corequisites: ELC 118. (F, S)

**ELC 128 Intro to PLC 2 3 0 3**  
This course introduces the programmable logic controller (PLC) and its associated applications. Topics include ladder logic diagrams, input/output modules, power supplies, surge protection, selection/installation of controllers, and interfacing of controllers with equipment. Upon completion, students should be able to install PLCs and create simple programs. Prerequisites: RED 080, CTS 080 **or** appropriate placement test score. Corequisites: ELC 117. (S)

**ELC 135 Electrical Machines I 2 2 0 3**

This course covers magnetic circuits, transformers, DC/AC machines, and the three-phase circuit fundamentals including power factor. Topics include magnetic terms and calculations, transformer calculations based on primary or secondary equivalent circuits, and regulation and efficiency calculations. Upon completion, students should be able to perform regulation and efficiency calculations for DC/AC machine circuits.

Prerequisites: ELC 139; RED 080 or appropriate placement test score.  
Corequisites: None. (On demand)

**ELC 136 Electrical Machines II 3 3 0 4**

This course covers DC/AC machine fundamentals including applications and control. Topics include control devices and induction single and polyphase AC motors, DC motors, stepper, and special purpose motors. Upon completion, students should be able to perform regulation and efficiency calculations and apply motor theory to practical control applications.

Prerequisites: ELC 135; RED 080 or appropriate placement test score.  
Corequisites: None. (On demand)

**ELC 138 DC Circuit Analysis 3 3 0 4**

This course introduces DC electricity with an emphasis on circuit analysis, measurements, and operation of test equipment. Topics include DC principles, circuit analysis laws and theorems, components, test equipment operation, circuit simulation, and other related topics. Upon completion, students should be able to interpret circuit schematics; design, construct, and analyze DC circuits; and properly use test equipment.

Prerequisites: RED 090 or appropriate placement test score.  
Corequisites: EGR 110, MAT 121. (F)

**ELC 139 AC Circuit Analysis 3 3 0 4**

This course introduces AC electricity with an emphasis on circuit analysis, measurements, and operation of test equipment. Topics include AC voltages, circuit analysis laws and theorems, reactive components and circuits, transformers, test equipment operation, circuit simulation, and other related topics. Upon completion, students should be able to interpret AC circuit schematics; analyze and troubleshoot AC circuits; and properly use test equipment.

Prerequisites: ELC 138. Corequisites: MAT 122. (S)

**ELC 229 Applications Project 1 3 0 2**

This course provides an individual and/or integrated team approach to a practical project as approved by the instructor. Topics include project selection and planning, implementation and testing, and a final presentation. Upon completion, students should be able to plan and implement an applications-oriented project.

Prerequisites: ELN 132, ELN 133. Corequisites: None. (S)

**ELECTRONICS****ELN 131 Semiconductor Applications 3 3 0 4**

This course introduces the characteristics and applications of semiconductor devices and circuits. Emphasis is placed on analysis, selection, biasing, and applications. Upon completion, students should be able to construct, analyze, verify, and troubleshoot discrete component circuits using appropriate techniques and test equipment.

Prerequisites: ELC 138. Corequisites: None (F, S)

**ELN 132 Linear IC Applications 3 3 0 4**

This course introduces the characteristics and applications of linear integrated circuits. Topics include op-amp circuits, waveform generators, active filters, IC voltage regulators, and other related topics. Upon completion, students should be able to construct, analyze, verify, and troubleshoot linear integrated circuits using appropriate techniques and test equipment.

Prerequisites: ELN 131. Corequisites: None. (F, S)

**ELN 133 Digital Electronics 3 3 0 4**

This course covers combinational and sequential logic circuits. Topics include number systems, Boolean algebra, logic families, MSI and LSI circuits, A/D, D/A converters, and other related topics. Upon completion, students should be able to construct, analyze, verify, and troubleshoot digital circuits using appropriate techniques and test equipment.

Prerequisites: ELN 131. Corequisites: None. (F, S)

**ELN 229 Industrial Electronics 3 3 0 4**

This course covers semiconductor devices used in industrial applications. Topics include the basic theory, application, and operating characteristics of semiconductor devices. Upon completion, students should be able to install and/or troubleshoot these devices for proper operation in an industrial electronic circuit.

Prerequisites: ELC 112. Corequisites: None. (F, S)

**ELN 231 Industrial Controls 2 3 0 3**

This course introduces the fundamental concepts of control of rotating machinery and associated peripheral devices. Topics include rotating machine theory, ladder logic, electromechanical and solid state relays, motor controls, pilot devices, three-phase power systems, and other related topics. Upon completion, students should be able to interpret schematics and demonstrate an understanding of electromechanical and electronic control of rotating machinery.

Prerequisites: ELN 131. Corequisites: None. (On demand)

**ELN 233 Microprocessor Systems 3 3 0 4**

This course covers the application and design of microprocessor control systems. Topics include control and interfacing of systems using AD/DA, serial/parallel I/O, communication protocols, and other related applications. Upon completion, students should be able to design, construct, program, verify, analyze, and troubleshoot fundamental microprocessor interface and control circuits using related equipment.

Prerequisites: ELN 133, CSC 134. Corequisites: None. (S)

**ELN 234 Communication Systems 3 3 0 4**

This course introduces the fundamentals of electronic communication systems. Topics include the frequency spectrum, electrical noise, modulation techniques, characteristics of transmitters and receivers, and digital communications. Upon completion, students should be able to interpret analog and digital communication circuit diagrams, analyze transmitter and receiver circuits, and use appropriate communication test equipment.

Prerequisites: ELN 132. Corequisites: None. (S)

**ELN 235 Data Communication Sys 3 3 0 4**

This course covers data communication systems and the transmission of digital information from source to destination. Topics include data transmission systems, interfaces and modems, protocols, networks, and other related topics. Upon completion, students should be able to demonstrate knowledge of the concepts associated with data communication systems.

Prerequisites: ELN 133. Corequisites: None. (On demand)

**ELN 260 Prog Logic Controllers 3 3 0 4**

This course provides a detailed study of PLC applications, with a focus on design of industrial controls using the PLC. Topics include PLC components, memory organization, math instructions, documentation, input/output devices, and applying PLCs in industrial control systems. Upon completion, students should be able to select and program a PLC system to perform a wide variety of industrial control functions.

Prerequisites: ELN 131. Corequisites: None. (On demand)

**EMERGENCY MEDICAL SCIENCE****EMS 110 EMT-Basic 5 6 0 7**

This course introduces basic emergency medical care. Topics include preparatory, airway, patient assessment, medical emergencies, trauma, infants and children, and operations. Upon completion, students should be able to demonstrate the knowledge and skills necessary to achieve North Carolina State or National Registry EMT-Basic certification.

Prerequisites: Enrollment in EMS program. Corequisites: BIO 169. (F)

**EMS 120 Intermediate Interventions 2 3 0 3**

This course is designed to provide the necessary information for interventions appropriate to the EMT-Intermediate and is required for intermediate certification. Topics include automated external defibrillation, basic cardiac electrophysiology, intravenous therapy, venipuncture, acid-base balance, and fluids and electrolytes. Upon completion, students should be able to properly establish an IV line, obtain venous blood, and correctly interpret arterial blood gases.

Prerequisites: BIO 169, EMS 110. Corequisites: EMS 121, EMS 130, EMS 131. (S)



**EMS 121 EMS Clinical Practicum I 0 0 6 2**  
This course is the initial hospital and field internship, and is required for intermediate and paramedic certification. Emphasis is placed on intermediate-level care. Upon completion, students should be able to demonstrate competence with intermediate level skills.  
Prerequisites: EMS 110. Corequisites: EMS 120, EMS 130, EMS 131. (S)

**EMS 130 Pharmacology I for EMS 1 3 0 2**  
This course introduces the fundamental principles of pharmacology and medication administration and is required for intermediate and paramedic certification. Topics include terminology, pharmacokinetics, pharmacodynamics, weights, measures, drug calculations, legislation, and administration routes. Upon completion, students should be able to accurately calculate drug dosages, properly administer medications, and demonstrate general knowledge of pharmacology.  
Prerequisites: EMS 110; DMA 010, DMA 020, DMA 030, DMA 040 or appropriate placement test score. Corequisites: EMS 120, EMS 131, EMS 121. (S)

**EMS 131 Adv Airway Management 1 2 0 2**  
This course is designed to provide advanced airway management techniques and is required for intermediate and paramedic certification. Topics include respiratory anatomy and physiology, airway, ventilation, adjuncts, surgical intervention, and rapid sequence intubation. Upon completion, students should be able to properly utilize all airway adjuncts and pharmacology associated with airway control and maintenance.  
Prerequisites: EMS 110. Corequisites: EMS 120, EMS 130, EMS 121. (S)

**EMS 140 Rescue Scene Management 1 3 0 2**  
This course introduces rescue scene management and is required for paramedic certification. Topics include response to hazardous material conditions, medical incident command, and extrication of patients from a variety of situations. Upon completion, students should be able to recognize and manage rescue operations based upon initial and follow-up scene assessment. Students are expected to participate in hands-on training and simulated incidents.  
Prerequisites: Enrollment in EMS program. Corequisites: None. (F)

**EMS 150 Emerg Vehicles & EMS Comm 1 3 0 2**  
This course examines the principles governing emergency vehicles, maintenance of emergency vehicles, and EMS communication equipment and is required for paramedic certification. Topics include applicable motor vehicle laws affecting emergency vehicle operation, defensive driving, collision avoidance techniques, communication systems, and information management systems. Upon completion, students should have a basic knowledge of emergency vehicles, maintenance, and communication needs. Actual driving experience utilizing evasive driving maneuvers will be provided based on the availability of a vehicle.  
Prerequisites: Enrollment in EMS program. Corequisites: None. (F)

**EMS 210 Adv Patient Assessment 1 3 0 2**  
This course covers advanced patient assessment techniques and is required for paramedic certification. Topics include initial assessment, medical-trauma history, field impression, complete physical exam process, on-going assessment, and documentation skills. Upon completion, students should be able to utilize basic communication skills and record and report collected patient data.  
Prerequisites: EMS 120, EMS 130, EMS 131, EMS 121.  
Corequisites: None. (SU)

**EMS 220 Cardiology 2 6 0 4**  
This course provides an in-depth study of cardiovascular emergencies and is required for paramedic certification. Topics include anatomy and physiology, pathophysiology, rhythm interpretation, cardiac pharmacology, and patient treatment. Upon completion, students should be able to certify at the Advanced Cardiac Life Support Provider level utilizing American Heart Association guidelines.  
Prerequisites: EMS 120, EMS 130, EMS 131. Corequisites: EMS 231. (F)

**EMS 221 EMS Clinical Practicum II 0 0 9 3**  
This course is a continuation of the hospital and field internship required for paramedic certification. Emphasis is placed on advanced-level care. Upon completion, students should be able to demonstrate continued progress in advanced-level patient care. This course will be completed under the supervision of an assigned preceptor.  
Prerequisites: EMS 121. Corequisites: EMS 250. (SU)

**EMS 231 EMS Clinical Pract III 0 0 9 3**  
This course is a continuation of the hospital and field internship required for paramedic certification. Emphasis is placed on advanced-level care. Upon completion, students should be able to demonstrate continued progress in advanced-level patient care. This course will be completed under the supervision of an assigned preceptor.  
Prerequisites: EMS 221. Corequisites: EMS 220, EMS 270. (F)

**EMS 235 EMS Management 2 0 0 2**  
This course stresses the principles of managing a modern emergency medical service system. Topics include structure and function of municipal governments, EMS grantsmanship, finance, regulatory agencies, system management, legal issues, and other topics relevant to the EMS manager. Upon completion, students should be able to understand the principles of managing emergency medical service delivery systems.  
Prerequisites: Enrollment in EMS program. Corequisites: None. (S)

**EMS 240 Special Needs Patients 1 2 0 2**  
This course includes concepts of crisis intervention and techniques of dealing with special needs patients and is required for paramedic certification. Topics include behavioral emergencies, abuse, assault, challenged patients, personal well-being, home care, and psychotherapeutic pharmacology. Upon completion, students should be able to recognize and manage frequently encountered special needs patients.  
Prerequisites: EMS 120, EMS 121 or EMS130, EMS 131.  
Corequisites: None. (S)

**EMS 241 EMS Clinical Practicum IV 0 0 9 3**  
This course is a continuation of the hospital and field internship required for paramedic certification. Emphasis is placed on advanced-level care. Upon completion, students should be able to provide advanced-level patient care as an entry-level paramedic. This course will be completed under the supervision of an assigned preceptor.  
Prerequisites: EMS 231. Corequisites: EMS 285. (S)

**EMS 250 Advanced Medical Emergencies 2 3 0 3**  
This course provides an in-depth study of medical conditions frequently encountered in the prehospital setting and is required for paramedic certification. Topics include pulmonology, neurology, endocrinology, anaphylaxis, gastroenterology, toxicology, and environmental emergencies integrating case presentation and emphasizing pharmacotherapeutics. Upon completion, students should be able to recognize and manage frequently encountered medical conditions based upon initial patient impression.  
Prerequisites: BIO 169, EMS 120, EMS 130, EMS 131, EMS 121.  
Corequisites: EMS 221. (SU)

**EMS 260 Advanced Trauma Emergencies 1 3 0 2**  
This course provides in-depth study of trauma including pharmacological interventions for conditions frequently encountered in the prehospital setting and is required for paramedic certification. Topics include hemorrhage control, shock, burns, and trauma to head, spine, soft tissue, thoracic, abdominal, and musculoskeletal areas with case presentations utilized for special problem situations. Upon completion, students should be able to recognize and manage trauma situations based upon patient impressions and should meet requirements of BTLS or PHTLS courses.  
Prerequisites: EMS 120, EMS 130, EMS 131, EMS 121.  
Corequisites: EMS 250 and EMS 221. (SU)

**EMS 270 Life Span Emergencies 2 2 0 3**  
This course, required for paramedic certification, covers medical/ethical/legal issues and the spectrum of age-specific emergencies from conception through death. Topics include gynecological, obstetrical, neonatal, pediatric, and geriatric emergencies and pharmacological therapeutics. Upon completion, students should be able to recognize and treat age-specific emergencies and certify at the Pediatric Advanced Life Support Provider level.  
Prerequisites: EMS 120, EMS 130, EMS 131. Corequisites: EMS 231. (F)

**EMS 285 EMS Capstone** 1 3 0 2  
This course provides an opportunity to demonstrate problem-solving skills as a team leader in simulated patient scenarios and is required for paramedic certification. Emphasis is placed on critical thinking, integration of didactic and psychomotor skills, and effective performance in simulated emergency situations. Upon completion, students should be able to recognize and appropriately respond to a variety of EMS-related events. Students will be challenged to perform under adverse conditions which may include but are not limited to inclement weather, faulty equipment, noncooperative patients and insufficient help.  
Prerequisites: EMS 220, EMS 250, EMS 260, EMS 231, EMS 270.  
Corequisites: EMS 241. (S)

## ENGLISH

**ENG 070 Basic Language Skills** 2 2 0 3  
This course introduces the fundamentals of standard written English. Emphasis is placed on effective word choice, recognition of sentences and sentence parts, and basic usage. Upon completion, students should be able to generate sentences that clearly express ideas. This course does not satisfy the developmental reading and writing prerequisite for ENG 111 or ENG 111A.  
Prerequisites: None. Corequisites: None. (F,S)

**ENG 080 Writing Foundations** 3 2 0 4  
This course introduces the writing process and stresses effective sentences. Emphasis is placed on applying the conventions of written English, reflecting standard usage and mechanics in structuring a variety of sentences. Upon completion, students should be able to write correct sentences and a unified, coherent paragraph.  
Prerequisites: ENG 070 or appropriate placement test score.  
Corequisites: None. (F,S,SU)

**ENG 090 Composition Strategies** 3 0 0 3  
This course provides practice in the writing process and stresses effective paragraphs. Emphasis is placed on learning and applying the conventions of standard written English in developing paragraphs within the essay. Upon completion, students should be able to compose a variety of paragraphs and a unified, coherent essay.  
Prerequisites: ENG 080 or appropriate placement test score.  
Corequisites: None. (F,S,SU)

**ENG 090A Comp Strategies Lab** 0 2 0 1  
This writing lab is designed to practice the skills introduced in ENG 090. Emphasis is placed on learning and applying the conventions of standard written English in developing paragraphs within the essay. Upon completion, students should be able to compose a variety of paragraphs and a unified, coherent essay.  
Prerequisites: ENG 080 or appropriate placement test score.  
Corequisites: ENG 090. (F,S,SU)

**ENG 102 Applied Communications II** 3 0 0 3  
This course is designed to enhance writing and speaking skills for the workplace. Emphasis is placed on generating short writings such as job application documents, memoranda, and reports and developing interpersonal communication skills with employees and the public. Upon completion, students should be able to prepare effective, short, and job-related written and oral communications.  
Prerequisites: RED 080 or appropriate placement test score.  
Corequisites: None. (F,S)

**ENG 111 Expository Writing (Coll/Tran)** 3 0 0 3  
This course is the required first course in a series of two designed to develop the ability to produce clear expository prose. Emphasis is placed on the writing process including audience analysis, topic selection, thesis support and development, editing, and revision. Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English. This course also introduces students to the use of documentation.  
Prerequisites: ENG 090, RED 090; or appropriate placement test score.  
Corequisites: None. (F,S,SU)

**ENG 112 Argument-Based Research (Coll/Tran)** 3 0 0 3  
This course, the second in a series of two, introduces research techniques, documentation styles, and argumentative strategies. Emphasis is placed on analyzing data and incorporating research findings into documented argumentative essays and research projects. Upon completion, students should be able to summarize, paraphrase, interpret, and synthesize information from primary and secondary sources using standard research format and style.  
Prerequisites: ENG 111 must pass with a grade of "C" or higher.  
Corequisites: None. (F,S)

**ENG 113 Literature-Based Research (Coll/Tran)** 3 0 0 3  
This course, the second in a series of two, expands the concepts developed in ENG 111 by focusing on writing that involves literature-based research and documentation. Emphasis is placed on critical reading and thinking and the analysis and interpretation of prose, poetry, and drama: plot, characterization, theme, cultural context, etc. Upon completion, students should be able to construct mechanically-sound, documented essays and research papers that analyze and respond to literary works.  
Prerequisites: ENG 111 must pass with a grade of "C" or higher.  
Corequisites: None. (F,S,SU)

**ENG 114 Prof Research & Reporting (Coll/Tran)** 3 0 0 3  
This course, the second in a series of two, is designed to teach professional communication skills. Emphasis is placed on research, listening, critical reading and thinking, analysis, interpretation, and design used in oral and written presentations. Upon completion, students should be able to work individually and collaboratively to produce well-designed business and professional written and oral presentations.  
Prerequisites: ENG 111 must pass with a grade of "C" or higher.  
Corequisites: None. (F,S,SU)

**ENG 125 Creative Writing I (Coll/Tran)** 3 0 0 3  
This course is designed to provide students with the opportunity to practice the art of creative writing. Emphasis is placed on writing, fiction, poetry, and sketches. Upon completion, students should be able to craft and critique their own writing and critique the writing of others.  
Prerequisites: ENG 111 must pass with a grade of "C" or higher.  
Corequisites: ENG 112 or ENG 113 or ENG 114. (S)

**ENG 126 Creative Writing II (Coll/Tran)** 3 0 0 3  
This course is designed as a workshop approach for advancing imaginative and literary skills. Emphasis is placed on the discussion of style, techniques, and challenges for first publications. Upon completion, students should be able to submit a piece of their writing for publication.  
Prerequisites: ENG 125 must pass with a grade of "C" or higher.  
Corequisites: None.

**ENG 231 American Literature I (Coll/Tran)** 3 0 0 3  
This course covers selected works in American literature from its beginnings to 1865. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts.  
Prerequisites: ENG 112 or ENG 113 or ENG 114 (must pass with a grade of "C" or higher). Corequisites: None. (F,SU)

**ENG 232 American Literature II (Coll/Tran)** 3 0 0 3  
This course covers selected works in American literature from 1865 to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts.  
Prerequisites: ENG 112 or ENG 113 or ENG 114 (must pass with a grade of "C" or higher). Corequisites: None. (S,SU)

**ENG 235 Survey of Film as Lit** 3 0 0 3  
This course provides a study of the medium of film with a focus on the historical impact and the various literary genres of movies. Emphasis is placed on an appreciation of film as a form of literature which demonstrates various elements of fiction (character, setting, theme, etc.). Upon completion, students should be able to analyze film critically in various literary contexts.  
Prerequisites: ENG 113 must pass with a grade of "C" or higher.  
Corequisites: None. (On Demand)

**ENG 241 British Literature I** (Coll/Tran) **3 0 0 3**  
This course covers selected works in British literature from its beginnings to the Romantic Period. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts.  
Prerequisites: ENG 112 or ENG 113 or ENG 114 (must pass with a grade of "C" or higher). Corequisites: None. (F)

**ENG 242 British Literature II** (Coll/Tran) **3 0 0 3**  
This course covers selected works in British literature from the Romantic Period to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts.  
Prerequisites: ENG 112 or ENG 113 or ENG 114 (must pass with a grade of "C" or higher). Corequisites: None. (S)

**ENG 251 Western World Literature I** (Coll/Tran) **3 0 0 3**  
This course provides a survey of selected European works from the Classical period through the Renaissance. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to selected works.  
Prerequisites: ENG 112 or ENG 113 or ENG 114 (must pass with a grade of "C" or higher). Corequisites: None. (F)

**ENG 252 Western World Literature II** (Coll/Tran) **3 0 0 3**  
This course provides a survey of selected European works from the Neoclassical period to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to selected works.  
Prerequisites: ENG 112 or ENG 113 or ENG 114 (must pass with a grade of "C" or higher).  
Corequisites: None. (On demand)

**ENG 273 African-American Literature** (Coll/Tran) **3 0 0 3**  
This course provides a survey of the development of African-American literature from its beginnings to the present. Emphasis is placed on historical and cultural context, themes, literary traditions, and backgrounds of the authors. Upon completion, students should be able to interpret, analyze, and respond to selected texts.  
Prerequisites: ENG 112 or ENG 113 or ENG 114 (must pass with a grade of "C" or higher). Corequisites: None.

**ENG 275 Science Fiction** (Coll/Tran) **3 0 0 3**  
This course covers the relationships between science and literature through analysis of short stories and novels. Emphasis is placed on scientific discoveries that shaped Western culture and our changing view of the universe as reflected in science fiction literature. Upon completion, students should be able to trace major themes and ideas and illustrate relationships between science, worldview, and science fiction literature.  
Prerequisites: ENG 112 or ENG 113 or ENG 114 (must pass with a grade of "C" or higher). Corequisites: None.

#### ENTREPRENEURSHIP

**ETR 215 Law for Entrepreneurs** **3 0 0 3**  
This course introduces students to basic legal concepts specifically relevant to a business start-up venture. Topics include bailments and documents of title, nature and form of sales, risk and property rights, obligations and performance, business organizations, and agency and employment. Upon completion, students should be able to assess the legal responsibilities of a business start-up.  
Prerequisites: None. Corequisites: None. (S)

**ETR 220 Innovation and Creativity** **3 0 0 3**  
This course provides a study of developing and enhancing individual and organizational creativity and innovation. Topics include that innovation needs to be applied to products, services, and processes to increase competitive advantages and add value to businesses. Upon completion, students should be able to apply innovation and creativity principles in the work place.  
Prerequisites: None. Corequisites: None. (F)

**ETR 230 Entrepreneur Marketing** **3 0 0 3**  
This course covers the techniques to correctly research and define the target market to increase sales for start up businesses or to expand current businesses. Topics include how to target market and meet customers' needs with a limited budget in the early stages of the life of a start up business. Upon completion, students should be able to demonstrate an understanding of how to correctly target market for a start-up business with limited resources.  
Prerequisites: None. Corequisites: None. (F)

**ETR 240 Funding for Entrepreneurs** **3 0 0 3**  
This course provides a focus on the financial issues and needs confronting entrepreneurs attempting to grow their businesses by attracting startup and growth capital. Topics include sources of funding including: angel investors, venture capital, IPO's, private placement, banks, suppliers, buyers, partners, and the government. Upon completion, students should be able to demonstrate an understanding of how to effectively finance a business venture.  
Prerequisites: ACC 120. Corequisites: None. (S)

**ETR 270 Entrepreneurship Issues** **3 0 0 3**  
This course introduces current and emerging entrepreneurship issues and opportunities. Topics include franchising, import/export, small business taxes, legal structures, negotiations, contract management, and time management. Upon completion, students should be able to apply a variety of analytical and decision-making requirements to start a new business.  
Prerequisites: None. Corequisites: None. (S)

#### FIRE PROTECTION

**FIP 120 Intro to Fire Protection** **3 0 0 3**  
This course provides an overview of the history, development, methods, systems, and regulations as they apply to the fire protection field. Topics include history, evolution, statistics, suppression, organizations, careers, curriculum, and other related topics. Upon completion, students should be able to demonstrate a broad understanding of the fire protection field.  
Prerequisites: None. Corequisites: None. (F)

**FIP 124 Fire Prevention & Public Ed** **3 0 0 3**  
This course introduces fire prevention concepts as they relate to community and industrial operations. Topics include the development and maintenance of fire prevention programs, educational programs, and inspection programs. Upon completion, students should be able to research, develop, and present a fire safety program to a citizens or industrial group, meeting NFPA 1021.  
Prerequisites: None. Corequisites: None. (F)

**FIP 128 Detection & Investigation** **3 0 0 3**  
This course covers procedures for determining the origin and cause of accidental and incendiary fires. Topics include collection and preservation of evidence, detection and determination of accelerants, courtroom procedure and testimony, and documentation of the fire scene. Upon completion, students should be able to conduct a competent fire investigation and present those findings to appropriate officials or equivalent, meeting NFPA 1021.  
Prerequisites: None. Corequisites: None. (F)

**FIP 132 Building Construction** **3 0 0 3**  
This course covers the principles and practices related to various types of building construction, including residential and commercial, as impacted by fire conditions. Topics include types of construction and related elements, fire resistive aspects of construction materials, building codes, collapse, and other related topics. Upon completion, students should be able to understand and recognize various types of construction as related to fire conditions meeting NFPA 1021.  
Prerequisites: None. Corequisites: None. (F)

**FIP 136 Inspections & Codes** **3 0 0 3**  
This course covers the fundamentals of fire and building codes and procedures to conduct an inspection. Topics include review of fire and building codes, writing inspection reports, identifying hazards, plan reviews, site sketches, and other related topics. Upon completion, students should be able to conduct a fire code compliance inspection and produce a written report, meeting NFPA 1021.  
Prerequisites: None. Corequisites: None. (S)

**FIP 144 Sprinklers & Auto Alarms 2 2 0 3**

This course introduces various types of automatic sprinklers, standpipes, and fire alarm systems. Topics include wet or dry systems, testing and maintenance, water supply requirements, fire detection and alarm systems, and other related topics. Upon completion, students should be able to demonstrate a working knowledge of various sprinkler and alarm systems and required inspection and maintenance. Prerequisites: None. Corequisites: None. (S)

**FIP 148 Fixed & Port Exting Sys 2 2 0 3**

This course provides a study of various types of fixed and portable extinguishing systems, their operation, installation, and maintenance. Topics include applications, testing, and maintenance of Halon, carbon dioxide, dry chemical, and special extinguishing agents in fixed and portable systems. Upon completion, students should be able to identify various types of fixed and portable systems, including their proper application and maintenance. Prerequisites: None. Corequisites: None. (F)

**FIP 152 Fire Protection Law 3 0 0 3**

This course covers fire protection law. Topics include torts, legal terms, contracts, liability, review of case histories, and other related topics. Upon completion, students should be able to discuss laws, codes, and ordinances as they relate to fire protection. Prerequisites: None. Corequisites: None. (S)

**FIP 220 Fire Fighting Strategies 3 0 0 3**

This course provides preparation for command of initial incident operations involving emergencies within both the public and private sector. Topics include incident management, fire-ground tactics and strategies, incident safety, and command/control of emergency operations. Upon completion, students should be able to describe the initial incident system related to operations involving various emergencies in fire/non-fire situations, meeting NFPA 1021. Prerequisites: None. Corequisites: None. (F)

**FIP 224 Fire Instructor I & II 4 0 0 4**

This course covers the knowledge, skills, and abilities needed to train others in fire service operations. Topics include planning, presenting, and evaluating lesson plans, learning styles, use of media, communication, and other related topics. Upon completion, students should be able to meet all requirements of NFPA 1041 and NFPA 1021. Prerequisites: None. Corequisites: None. (S)

**FIP 228 Local Govt Finance 3 0 0 3**

This course introduces local governmental financial principles and practices. Topics include budget preparation and justification, revenue policies, statutory requirements, taxation, audits, and the economic climate. Upon completion, students should be able to comprehend the importance of finance as it applies to the operation of a department. Prerequisites: None. Corequisites: None. (S)

**FIP 229 Fire Dynamics and Combust 3 0 0 3**

This course covers the theories and fundamentals of how and why fires start and spread, and how they are safely controlled. Topics include components of fire, fire sources, fire behavior, properties of combustible solids, classification of hazards, and the use of fire extinguishing agents. Upon completion, students should be able to describe the properties of matter and dynamics of fire, identify fuel sources, and compare suppressants and extinguishment techniques. Prerequisites: None. Corequisites: None. (S)

**FIP 230 Chem of Hazardous Mat I 5 0 0 5**

This course covers the evaluation of hazardous materials. Topics include use of the periodic table, hydrocarbon derivatives, placards and labels, parameters of combustion, and spill and leak mitigation. Upon completion, students should be able to demonstrate knowledge of the chemical behavior of hazardous materials. Prerequisites: None. Corequisites: None. (S)

**FIP 236 Emergency Management 3 0 0 3**

This course covers the four phases of emergency management: mitigation, preparedness, response, and recovery. Topics include organizing for emergency management, coordinating for community resources, public sector liability, and the roles of government agencies at all levels. Upon completion, students should be able to demonstrate a knowledge of comprehensive emergency management and the integrated emergency management system. Prerequisites: None. Corequisites: None. (F)

**FIP 240 Fire Service Supervision 3 0 0 3**

This course covers supervisory skills and practices in the fire protection field. Topics include the supervisor's job, supervision skills, the changing work environment, managing change, organizing for results, discipline and grievances, and safety. Upon completion, students should be able to demonstrate an understanding of the roles and responsibilities of effective fire service supervision, meeting elements of NFPA 1021. Prerequisites: None. Corequisites: None. (S)

**FIP 248 Fire Svc Personnel Adm 3 0 0 3**

This course covers the basics of setting up and administering the personnel functions of fire protection organizations. Emphasis is placed on human resource planning, classification and job analysis, equal opportunity employment, affirmative action, recruitment, retention, development, performance evaluation, and assessment centers. Upon completion, students should be able to demonstrate knowledge of the personnel function as it relates to managing fire protection. Prerequisites: None. Corequisites: None. (S)

**FIP 276 Managing Fire Services 3 0 0 3**

This course provides an overview of fire department operative services. Topics include finance, staffing, equipment, code enforcement, management information, specialized services, legal issues, planning, and other related topics. Upon completion, students should be able to understand concepts and apply fire department management and operations principles, meeting NFPA 1021. Prerequisites: None. Corequisites: None. (F)

**FILM AND VIDEO PRODUCTION****FVP 220 Editing I 2 3 0 3**

This course covers film and video editing from traditional methods to digital non-linear systems and basic film lab and transfer facility procedures. Topics include terminology, technologies, aesthetics, basic picture-only editing skills; and the editor's role augmented by hands-on experience. Upon completion, students should be able to use editing equipment and basic digitizing, logging, and picture only editing skills. Prerequisites: None. Corequisites: None. (On demand)

**FRENCH****FRE 111 Elementary French I (Coll/Tran) 3 0 0 3**

This course introduces the fundamental elements of the French language within a cultural context. Emphasis is placed on the development of basic listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written French and demonstrate cultural awareness. Prerequisites: None. Corequisites: FRE 181. (F)

**FRE 112 Elementary French II (Coll/Tran) 3 0 0 3**

This course is a continuation of FRE 111 focusing on the fundamental elements of the French language within a cultural context. Emphasis is placed on the progressive development of listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written French and demonstrate further cultural awareness.

Prerequisites: FRE 111 must pass with a grade of "C" or higher. Corequisites: FRE 182. (S)

**FRE 181 French Lab 1 (Coll/Tran) 0 2 0 1**

This course provides an opportunity to enhance acquisition of the fundamental elements of the French language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written French and demonstrate cultural awareness. Prerequisites: None. Corequisites: FRE 111. (F)

**FRE 182 French Lab 2 (Coll/Tran) 0 2 0 1**

This course provides an opportunity to enhance acquisition of the fundamental elements of the French language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written French and demonstrate cultural awareness.

Prerequisites: FRE 181 must pass with a grade of "C" or higher.

Corequisites: FRE 112. (S)

**FRE 211 Intermediate French I (Coll/Tran) 3 0 0 3**

This course provides a review and expansion of the essential skills of the French language. Emphasis is placed on the study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future.

Prerequisites: FRE 112 must pass with a grade of "C" or higher.

Corequisites: FRE 281. (On demand)

**FRE 212 Intermediate French II (Coll/Tran) 3 0 0 3**

This course is a continuation of FRE 211. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication.

Prerequisites: FRE 211 must pass with a grade of "C" or higher.

Corequisites: FRE 282. (On demand)

**FRE 281 French Lab 3 (Coll/Tran) 0 2 0 1**

This course provides an opportunity to enhance the review and expansion of the essential skills of the French language. Emphasis is placed on the study of authentic and representative literary and cultural texts through the use of supplementary learning media and materials. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future.

Prerequisites: FRE 182 must pass with a grade of "C" or higher.

Corequisites: FRE 211. (On demand)

**FRE 282 French Lab 4 (Coll/Tran) 0 2 0 1**

This course provides an opportunity to enhance the review and expansion of the essential skills of the French language. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts through the use of supplementary learning media and materials. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication.

Prerequisites: FRE 281 must pass with a grade of "C" or higher.

Corequisites: FRE 212. (On demand)

**GEOLOGY****GEL 111 Introductory Geology (Coll/Tran) 3 2 0 4**

This course introduces basic landforms and geological processes. Topics include rocks, minerals, volcanoes, fluvial processes, geological history, plate tectonics, glaciers, and coastal dynamics. Upon completion, students should be able to describe basic geological processes that shape the earth.

Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050 or appropriate placement test scores. Corequisites: RED 090; or appropriate placement test scores. (F,S)

**GEL 113 Historical Geology (Coll/Tran) 3 2 0 4**

This course covers the geological history of the earth and its life forms. Emphasis is placed on the study of rock strata, fossil groups, and geological time. Upon completion, students should be able to identify major fossil groups and associated rock strata and approximate ages of geological formations.

Prerequisites: GEL 111 or GEL 120 (must pass with a grade of "C" or higher). Corequisites: None.

**GEL 120 Physical Geology (Coll/Tran) 3 2 0 4**

This course provides a study of the structure and composition of the earth's crust. Emphasis is placed on weathering, erosional and depositional processes, mountain building forces, rocks and minerals, and structural changes. Upon completion, students should be able to explain the structure, composition, and

formation of the earth's crust.

Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050 or appropriate placement test score; RED 090 or appropriate placement test score.

Corequisites: None. (F,S,On demand)

**GEL 220 Marine Geology (Coll/Tran) 3 2 0 4**

This course presents a detailed examination of coastal and sea floor geology. Emphasis is placed on coastal and sea floor landforms and processes that shape these features. Upon completion, students should be able to describe the origin and evolution of both coastal and sea floor landforms.

Prerequisites: GEL 111 or GEL 120. Corequisites: None. (On demand)

**GEL 230 Environmental Geology (Coll/Tran) 3 2 0 4**

This course provides insights into geologic forces that cause environmental changes influencing man's activities. Emphasis is placed on natural hazards and disasters caused by geologic forces. Upon completion, students should be able to relate major hazards and disasters to the geologic forces responsible for their occurrence.

Prerequisites: GEL 111 or GEL 120 or PHS 130 (must pass with a grade of "C" or higher); RED 090 or appropriate placement test score.

Corequisites: None. (S)

**GEOGRAPHY****GEO 111 World Regional Geography (Coll/Tran) 3 0 0 3**

This course introduces the regional concept which emphasizes the spatial association of people and their environment. Emphasis is placed on the physical, cultural, and economic systems that interact to produce the distinct regions of the earth. Upon completion, students should be able to describe variations in physical and cultural features of a region and demonstrate an understanding of their functional relationships.

Prerequisites: RED 090 or appropriate placement test score. Corequisites: None. (F,S)

**GEO 112 Cultural Geography (Coll/Tran) 3 0 0 3**

This course is designed to explore the diversity of human cultures and to describe their shared characteristics. Emphasis is placed on the characteristics, distribution, and complexity of earth's cultural patterns. Upon completion, students should be able to demonstrate an understanding of the differences and similarities in human cultural groups.

Prerequisites: RED 090 or appropriate placement test score. Corequisites: None. (On demand)

**GEO 113 Economic Geography (Coll/Tran) 3 0 0 3**

This course covers the patterns and networks of economic interdependence and how they affect human populations. Emphasis is placed on the economic aspects of the production and distribution of goods and services and their impact on the quality of human life. Upon completion, students should be able to describe different economic systems and demonstrate an understanding of the variables that influence economic development.

Prerequisites: RED 090 or appropriate placement test score.

Corequisites: MAT 070 or appropriate placement test score. (On demand)

**GEO 121 North Carolina Geography (Coll/Tran) 3 0 0 3**

This course is a survey of the physical and cultural landscapes of North Carolina. Topics include physical characteristics of North Carolina, settlement patterns, resource use, and cultural variations. Upon completion, students should be able to demonstrate knowledge of the distinct physical and cultural features of North Carolina.

Prerequisites: None. Corequisites: None. (On demand)

**GEO 130 General Physical Geography (Coll/Tran) 3 0 0 3**

This course introduces both the basic physical components that help shape the earth and the study of minerals, rocks, and evolution of landforms. Emphasis is placed on the geographic grid, cartography, weather, climate, mineral composition, fluvial processes, and erosion and deposition. Upon completion, students should be able to identify these components and processes and explain how they interact.

Prerequisites: RED 090 or appropriate placement test score.

Corequisites: None. (On demand)

## GERMAN

**GER 111 Elementary German I** (Coll/Tran) **3 0 0 3**  
This course introduces the fundamental elements of the German language within a cultural context. Emphasis is placed on the development of basic listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written German and demonstrate cultural awareness.  
Prerequisites: None. Corequisites: GER 181. (On demand)

**GER 112 Elementary German II** (Coll/Tran) **3 0 0 3**  
This course is a continuation of GER 111 focusing on the fundamental elements of the German language within a cultural context. Emphasis is placed on the progressive development of listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written German and demonstrate further cultural awareness.  
Prerequisites: GER 111 must pass with a grade of "C" or higher.  
Corequisites: GER 182. (On demand)

**GER 181 German Lab 1** (Coll/Tran) **0 2 0 1**  
This course provides an opportunity to enhance acquisition of the fundamental elements of the German language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written German and demonstrate cultural awareness.  
Prerequisites: None. Corequisites: GER 111. (On demand)

**GER 182 German Lab 2** (Coll/Tran) **0 2 0 1**  
This course provides an opportunity to enhance acquisition of the fundamental elements of the German language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written German and demonstrate cultural awareness.  
Prerequisites: GER 181 must pass with a grade of "C" or higher.  
Corequisites: GER 112. (On demand)

## GRAPHIC ARTS

**GRA 121 Graphic Arts I** **2 4 0 4**  
This course introduces terminology, tools and materials, procedures, and equipment used in graphic arts production. Topics include copy preparation and pre-press production relative to printing. Upon completion, students should be able to demonstrate an understanding of graphic arts production.  
Prerequisites: None. Corequisites: None. (F)

**GRA 151 Computer Graphics I** **1 3 0 2**  
This course introduces the use of hardware and software for production and design in graphic arts. Topics include graphical user interface and current industry uses such as design, layout, typography, illustration, and imaging for production. Upon completion, students should be able to understand and use the computer as a fundamental design and production tool.  
Prerequisites: None. Corequisites: None. (F)

**GRA 152 Computer Graphics II** **1 3 0 2**  
This course covers advanced design and layout concepts utilizing illustration, page layout, and imaging software in graphic arts. Emphasis is placed on enhancing and developing the skills that were introduced in GRA 151. Upon completion, students should be able to select and utilize appropriate software for design and layout solutions.  
Prerequisites: GRA 151. Corequisites: None. (S)

**GRA 153 Computer Graphics III** **1 3 0 2**  
This course is a continuation of GRA 152. Emphasis is placed on advanced computer graphics hardware and software applications. Upon completion, students should be able to demonstrate competence in selection and utilization of appropriate software for specialized applications.  
Prerequisites: GRA 152. Corequisites: None. (F)

**GRA 221 Graphic Arts II** **2 4 0 4**  
This course is a continuation of GRA 121. Topics include multi-color image preparation, pre-press production, control of close/hairline register in image assembly and press operation, and post-press procedures. Upon completion, students should be able to demonstrate competence in all phases of graphic arts production.  
Prerequisites: GRA 121 and GRA 151. Corequisites: None. (S)

**GRA 245 Printing Sales/Service** **3 0 0 3**  
This course covers the operation of a sales, marketing, and service program for a printing company or printing supplier. Topics include marketing, prospecting, telephone sales, customer service, order entry, closing the sale, and answering objections. Upon completion, students should be able to understand the operation of sales and service in printing and printing supply organizations.  
Prerequisites: None. Corequisites: None. (On demand)

**GRA 252 Imaging Techniques** **1 4 0 3**  
This course covers electronic imaging and transfer and display of digital images through various media. Topics include analysis of electronic imaging, including uses, medium, outcome, storage, and display hardware and software. Upon completion, students should be able to demonstrate an understanding of electronic imaging techniques and purposes and complete related assignments.  
Prerequisites: GRA 151 or GRD 151. Corequisites: None. (F)

**GRA 255 Image Manipulation I** **1 3 0 2**  
This course covers applications associated with electronic image manipulation, including color correction, color separation, special effects, and image conversion. Topics include image-capturing hardware, image-processing software, and output options. Upon completion, students should be able to utilize hardware and software to acquire, manipulate, and output images to satisfy design and production.  
Prerequisites: GRA 151 or GRD 151. Corequisites: None. (S)

**GRA 256 Image Manipulation II** **1 3 0 2**  
This course covers electronic color separation and its relationship to multi-color printing. Topics include color theory, separation, color matching, proofing, and output of process and spot color images. Upon completion, students should be able to use hardware and image processing software to produce color separations and proofs for various printing processes.  
Prerequisites: GRA 255. Corequisites: None. (F)

## GRAPHIC DESIGN

**GRD 110 Typography I** **2 2 0 3**  
This course introduces the history and mechanics of type and its application to layout and design. Topics include typographic fundamentals, anatomy, measurements, composition, identification, and terminology. Upon completion, students should be able to demonstrate proficiency in design application, analysis, specification, and creation of typographic elements.  
Prerequisites: None. Corequisites: GRD 121. (F)

**GRD 121 Drawing Fundamentals I** **1 3 0 2**  
This course increases observation skills using basic drawing techniques and media in graphic design. Emphasis is placed on developing the use of graphic design principles, media applications, spatial considerations, drawing styles, and approaches. Upon completion, students should be able to show competence and proficiency in finished works.  
Prerequisites: None. Corequisites: GRD 110. (F)

**GRD 131 Illustration I** **1 3 0 2**  
This course introduces the application of rendering techniques to create illustrations. Emphasis is placed on controlling various media, methods, surfaces, design problems, and the appropriate media selection process. Upon completion, students should be able to produce quality illustrations from conception through finished artwork. The course will concentrate on technique, and subject matter will include product, architecture and fashion.  
Prerequisites: GRD 121. Corequisites: None. (S)

**GRD 141 Graphic Design I 2 4 0 4**

This course introduces the conceptualization process used in visual problem solving. Emphasis is placed on learning the principles of design and on the manipulation and organization of elements. Upon completion, students should be able to apply design principles and visual elements to projects. Prerequisites: None. Corequisites: None. (F)

**GRD 142 Graphic Design II 2 4 0 4**

This course covers the application of visual elements and design principles in advertising and graphic design. Topics include creation of various designs, such as logos, advertisements, posters, outdoor advertising, and publication design. Upon completion, students should be able to effectively apply design principles and visual elements to projects. Prerequisites: GRD 141. Corequisites: None. (S)

**GRD 180 Interactive Design 1 4 0 3**

This course covers skills and techniques used in designing interactive presentations. Emphasis is placed on design, including interface design, color, illustration, scripting, audio, typography, and animated elements. Upon completion, students should be able to design and produce interactive presentations. Prerequisites: GRD 151 or GRA 151. Corequisites: None. (S)

**GRD 241 Graphic Design III 2 4 0 4**

This course is an advanced exploration of various techniques and media for advertising and graphic design. Emphasis is placed on advanced concepts and solutions to complex and challenging graphic design problems. Upon completion, students should be able to demonstrate competence and professionalism in visual problem solving. Prerequisites: GRD 142. Corequisites: None. (F)

**GRD 249 Advanced Design Practice 1 9 0 4**

This course covers advanced techniques used in graphic design. Emphasis is placed on providing solutions to complex design problems. Upon completion, students should be able to demonstrate advanced levels of competence and professionalism in visual problem solving. Prerequisites: GRD 241. Corequisites: None. (S)

**GRD 265 Digital Print Production 1 4 0 3**

This course covers preparation of digital files for output and reproduction. Emphasis is placed on output options, separations, color proofing, and cost and design considerations. Upon completion, students should be able to prepare files and select appropriate output methods for design solutions. Prerequisites: GRA 151, GRA 152. Corequisites: None. (F)

**GRD 271 Multimedia Design I 1 3 0 2**

This course introduces the fundamentals of multimedia design and production for computer-related presentations. Topics include interface design, typography, storyboarding, scripting, simple animation, graphics, digital audiovideo, and copyright issues. Upon completion, students should be able to design and produce multimedia presentations. Prerequisites: GRA 151 or GRD 151. Corequisites: None. (F)

**GRD 280 Portfolio Design 2 4 0 4**

This course covers the organization and presentation of a design/advertising or graphic art portfolio and appropriate related materials. Emphasis is placed on development and evaluation of the portfolio, design and production of a resume' and self-promotional materials, and interview techniques. Upon completion, students should be able to prepare and professionally present an effective portfolio and related self-promotional materials. Prerequisites: GRA 152, GRD 142, and permission of instructor. Corequisites: None. (S)

**HEALTH****HEA 110 Personal Health/Wellness (Coll/Tran) 3 0 0 3**

This course provides an introduction to basic personal health and wellness. Emphasis is placed on current health issues such as nutrition, mental health, and fitness. Upon completion, students should be able to demonstrate an understanding of the factors necessary to the maintenance of health and wellness. Prerequisites: None. Corequisites: None. (F,S)

**HEA 112 First Aid & CPR (Coll/Tran) 1 2 0 2**

This course introduces the basics of emergency first aid treatment. Topics include rescue breathing, CPR, first aid for choking and bleeding, and other first aid procedures. Upon completion, students should be able to demonstrate skills in providing emergency care for the sick and injured until medical help can be obtained. Prerequisites: None. Corequisites: None. (F, or on demand)

**HEA 120 Community Health (Coll/Tran) 3 0 0 3**

This course provides information about contemporary community health and school hygiene issues. Topics include health education and current information about health trends. Upon completion, students should be able to recognize and devise strategies to prevent today's community health problems. Prerequisites: None. Corequisites: None. (F,S)

**HISTORY****HIS 111 World Civilizations I (Coll/Tran) 3 0 0 3**

This course introduces world history from the dawn of civilization to the early modern era. Topics include Eurasian, African, American, and Greco-Roman civilizations and Christian, Islamic and Byzantine cultures. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in pre-modern world civilizations. Prerequisites: None. Corequisites: None. (On demand)

**HIS 112 World Civilizations II (Coll/Tran) 3 0 0 3**

This course introduces world history from the early modern era to the present. Topics include the cultures of Africa, Europe, India, China, Japan, and the Americas. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in modern world civilizations. Prerequisites: None. Corequisites: None. (On demand)

**HIS 121 Western Civilization I (Coll/Tran) 3 0 0 3**

This course introduces western civilization from pre-history to the early modern era. Topics include ancient Greece, Rome, and Christian institutions of the Middle Ages and the emergence of national monarchies in western Europe. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in early western civilization. Prerequisites: RED 090 or appropriate placement test score. Corequisites: None. (F,SU, and On demand)

**HIS 122 Western Civilization II (Coll/Tran) 3 0 0 3**

This course introduces western civilization from the early modern era to the present. Topics include the religious wars, the Industrial Revolution, World Wars I and II, and the Cold War. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in modern western civilization. Prerequisites: RED 090 or appropriate placement test score. Corequisites: None. (S,SU, and On demand)

**HIS 131 American History I (Coll/Tran) 3 0 0 3**

This course is a survey of American history from pre-history through the Civil War era. Topics include the migrations to the Americas, the colonial and revolutionary periods, the development of the Republic, and the Civil War. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in early American history. Prerequisites: RED 090 or appropriate placement test score. Corequisites: None. (F, and On demand)

**HIS 132 American History II (Coll/Tran) 3 0 0 3**

This course is a survey of American history from the Civil War era to the present. Topics include industrialization, immigration, the Great Depression, the major American wars, the Cold War, and social conflict. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in American history since the Civil War. Prerequisites: RED 090 or appropriate placement test score. Corequisites: None. (S, and On demand)

**HIS 141 Genealogy & Local History** (Coll/Tran) **3 0 0 3**  
This course explores the role of the local or family historian. Emphasis is placed on historical or genealogical research techniques including a survey of local, state, and national archival resources. Upon completion, students should be able to conduct genealogical research and do a major research project on local or family history.  
Prerequisites: None. Corequisites: None. (On demand)

**HIS 145 The Second World War** (Coll/Tran) **3 0 0 3**  
This course covers the period of the Second World War from 1919 to 1945. Topics include the Treaty of Versailles, the rise of totalitarian regimes, the origins of the war, the major military campaigns in Europe and the Pacific, and the aftermath. Upon completion, students should be able to analyze significant political, military, socioeconomic, and cultural developments that influenced the Second World War.  
Prerequisites: None. Corequisites: None. (F)

**HIS 151 Hispanic Civilization** (Coll/Tran) **3 0 0 3**  
This course surveys the cultural history of Spain and its impact on the New World. Topics include Spanish and Latin American culture, literature, religion, and the arts. Upon completion, students should be able to analyze the cultural history of Spain and Latin America.  
Prerequisites: RED 090 or appropriate placement test score.  
Corequisites: None. (On demand)

**HIS 161 Science and Technology** (Coll/Tran) **3 0 0 3**  
This course examines the history of science and technology from pre-history to the present. Topics include the origins, impact, and consequences of scientific and technological developments. Upon completion, students should be able to analyze significant developments in the history of science and technology.  
Prerequisites: None. Corequisites: None.

**HIS 162 Women and History** (Coll/Tran) **3 0 0 3**  
This course surveys the experience of women in historical perspective. Topics include the experiences and contributions of women in culture, politics, economics, science, and religion. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural contributions of women in history.  
Prerequisites: None. Corequisites: None. (S)

**HIS 211 Ancient History** (Coll/Tran) **3 0 0 3**  
This course traces the development of the cultural, intellectual, and political foundations of western civilization. Topics include the civilizations of the Near East, the classical Greek and Hellenistic eras, the Roman world, Judaism, and Christianity. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in the ancient world.  
Prerequisites: None. Corequisites: None. (F,S)

**HIS 221 African-American History** (Coll/Tran) **3 0 0 3**  
This course covers African-American history from the Colonial period to the present. Topics include African origins, the slave trade, the Civil War, Reconstruction, the Jim Crow era, the civil rights movement, and contributions of African Americans. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in the history of African Americans.  
Prerequisites: RED 090 or appropriate placement test score.  
Corequisites: None. (On demand)

**HIS 226 The Civil War** (Coll/Tran) **3 0 0 3**  
This course examines the social, political, economic, and ideological forces that led to the Civil War and Reconstruction. Topics include regional conflicts and sectionalism, dissolution of the Union, military campaigns, and the War's socioeconomic impact, aftermath, and consequences. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in the United States during the era of the Civil War.  
Prerequisites: None. Corequisites: None. (S)

**HIS 227 Native American History** (Coll/Tran) **3 0 0 3**  
This course surveys the history and cultures of Native Americans from pre-history to the present. Topics include Native American civilizations, relations with Europeans, and the continuing evolution of Native American cultures. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments among Native Americans.  
Prerequisites: None. Corequisites: None. (On demand)

**HIS 228 History of the South** (Coll/Tran) **3 0 0 3**  
This course covers the origin and development of the South as a distinct region of the United States. Emphasis is placed on Southern identity and its basis in cultural, social, economic, and political developments during the 19th and 20th centuries. Upon completion, students should be able to identify and analyze the major cultural, social, economic, and political developments in the South.  
Prerequisites: None. Corequisites: None. (On demand)

**HIS 232 History of the Old West** (Coll/Tran) **3 0 0 3**  
This course surveys the development of the western United States. Emphasis is placed on Native American cultures, Manifest Destiny, conflicts on the frontier, and subsequent developments. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in the western United States.  
Prerequisites: None. Corequisites: None.

**HIS 236 North Carolina History** (Coll/Tran) **3 0 0 3**  
This course is a study of geographical, political, economic, and social conditions existing in North Carolina from America's discovery to the present. Topics include native and immigrant backgrounds; colonial, antebellum, and Reconstruction periods; party politics; race relations; and the transition from an agrarian to an industrial economy. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in North Carolina.  
Prerequisites: None. Corequisites: None. (S)

**HIS 261 East Asian History** (Coll/Tran) **3 0 0 3**  
This course surveys the history of China and Japan from the development of civilization in Asia to the present. Emphasis is placed on the evaluation of social, political, economic, and governmental structures in China and Japan. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in east Asia.  
Prerequisites: RED 090 or appropriate placement test score.  
Corequisites: None. (On demand)

## HEALTH INFORMATION TECHNOLOGY

**HIT 110 Fundamentals of HIM** **3 0 0 3**  
This course introduces Health Information Management (HIM) and its role in healthcare delivery systems. Topics include standards, regulations, and initiatives; payment and reimbursement systems, healthcare providers and disciplines, and EHRs. Upon completion, the student should be able to demonstrate an understanding of health information management and healthcare organizations, professions, and trends.  
Prerequisites: None. Corequisites: None. (F)

**HIT 112 Health Law and Ethics** **3 0 0 3**  
This course covers legislative and regulatory processes, legal terminology, and professional-related and practice-related ethical issues. Topics include confidentiality; privacy and security policies, procedures and monitoring; release of information policies and procedures; and professional-related and practice-related ethical issues. Upon completion, students should be able to apply policies and procedures for access and disclosure of Protected Health Information and apply and promote ethical standards.  
Prerequisites: None. Corequisites: None. (F,S)

**HIT 114 Health Data Sys/Standards** **2 3 0 3**  
This course covers concepts and techniques for managing and maintaining manual and electronic health records (EHR). Topics include structure and use of health information including data collection and analysis, data sources and sets, archival systems, quality and integrity of healthcare data. Upon completion, students should be able to monitor and apply system-wide clinical documentation guidelines and comply with regulatory standards.  
Prerequisites: None. Corequisites: None. (S)

**HIT 122 Prof Practice Exp I** **0 0 3 1**  
This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.  
Prerequisites: HIT 112, HIT 114. Corequisites: None. (SU)



**HIT 124 Prof Practice Exp II** 0 0 3 1  
This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.  
Prerequisites: HIT 122. Corequisites: None. (F,S)

**HIT 210 Healthcare Statistics** 2 2 0 3  
This course covers maintenance, compilation, analysis, and presentation of healthcare statistics and research protocols and techniques. Topics include basic statistical principles, indices, databases, registries, vital statistics, descriptive statistics, research protocol monitoring, Institutional Review Board processes, and knowledge-based research techniques. Upon completion, students should be able to apply, interpret, and present healthcare statistics and utilize research techniques to gather and interpret healthcare data.  
Prerequisites: MAT 115, MAT 140, or MAT 161 & MAT 161A.  
Corequisites: None. (F)

**HIT 211 ICD Coding** 2 6 0 4  
This course covers ICD diagnostic and procedural coding conventions and guidelines for inpatient, outpatient and ambulatory care. Emphasis is placed on a comprehensive application of anatomy, physiology and interrelationships among organ systems. Upon completion, students should be able to accurately assign and sequence diagnostic and procedural codes for statistical, patient outcomes, reimbursement purpose.  
Prerequisites: BIO 165 & BIO 166, or BIO 168 & BIO 169; MED 121, MED 122.  
Corequisites: None. (F)

**HIT 214 CPT/Other Coding Systems** 1 3 0 2  
This course covers application of principles and guidelines of CPT/HCPCS coding. Topics include clinical classification/nomenclature systems such as SNOMED, DSM, ICD-O and the use of encoders. Upon completion, students should be able to apply coding principles to correctly assign CPT/HCPCS codes.  
Prerequisites: HIT 211. Corequisites: None. (S)

**HIT 215 Reimbursement Methodology** 1 2 0 2  
This course covers reimbursement methodologies used in all healthcare settings as they relate to national billing, compliance, and reporting requirements. Topics include prospective payment systems, billing process and procedures, chargemaster maintenance, regulatory guidelines, reimbursement monitoring, and compliance strategies and reporting. Upon completion, students should be able to perform data quality reviews to validate code assignment and comply with reimbursement and reporting requirements.  
Prerequisites: HIT 211. Corequisites: None. (S)

**HIT 216 Quality Management** 1 3 0 2  
This course introduces principles of quality assessment and improvement, and utilization, risk, and case management, in healthcare. Topics include Continuous Quality Improvement, and case management processes, data analysis/reporting techniques, credentialing, regulatory quality monitoring requirements, and outcome measures and monitoring. Upon completion, students should be able to abstract, analyze, and report clinical data for facility-wide quality management/performance improvement programs and monitor compliance measures.  
Prerequisites: HIT 114. Corequisites: None. (F)

**HIT 220 Health Informatics & EHRs** 1 2 0 2  
This course covers electronic health information (EHR) systems design, implementation, and application. Topics include EHR, informatics, speech & imaging technology, information/network security & integrity, data dictionaries, modeling and warehousing. Upon completion, students should be able to facilitate usage of electronic health record systems and other technologies.  
Prerequisites: HIT 114; CIS 110 or CIS 111. Corequisites: None. (F)

**HIT 222 Prof Practice Exp III** 0 0 6 2  
This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.  
Prerequisites: HIT 122. Corequisites: None. (S)

**HIT 226 Principles of Disease** 3 0 0 3  
This course covers disease etiology and organ system involvement, including physical signs and symptoms, prognoses, and common complications and their management. Topics include basic microbiology, basic pharmacology, and principles of disease. Upon completion, students should be able to relate disease processes to etiology, physical signs and symptoms, prognosis, and common complications and their management.  
Prerequisites: BIO 169. Corequisites: None. (F)

**HIT 280 Professional Issues** 2 0 0 2  
This course provides a comprehensive discussion of topics common to the health information profession. Emphasis is placed on application of professional competencies, job search tools, and preparation for the certification examination. Upon completion, students should be able to demonstrate competence in entry-level domains and subdomains for health information technologies.  
Prerequisites: HIT 211. Corequisites: HIT 214. (S)

## HEALTHCARE MANAGEMENT

**HMT 110 Intro to Healthcare Mgt** 3 0 0 3  
This course introduces the functions, practices, organizational structures, and professional issues in healthcare management. Emphasis is placed on planning, controlling, directing, and communicating within health and human services organizations. Upon completion, students should be able to apply the concepts of management within a healthcare service environment.  
Prerequisites: None. Corequisites: None. (F,S)

**HMT 210 Medical Insurance** 3 0 0 3  
This course introduces the concepts of medical insurance. Topics include types and characteristics of third-party payers, coding concepts, payment systems, and manual/electronic claims form preparation. Upon completion, students should be able to process third-party claims forms.  
Prerequisites: MED 122 or OST 142. Corequisites: None. (S)

**HMT 211 Long-Term Care Admin** 3 0 0 3  
This course introduces the administration of long-term care facilities and services. Emphasis is placed on nursing home care, home health care, hospice, skilled nursing facilities, and other long-term care services. Upon completion, students should be able to administer state and national standards and regulations as they apply to long-term care.  
Prerequisites: HMT 110. Corequisites: None. (F)

**HMT 212 Mgt of Healthcare Org** 3 0 0 3  
This course examines current issues affecting the management of healthcare delivery systems. Topics include current problems, changes, and challenges in the healthcare environment. Upon completion, students should be able to identify current health care issues and their impact on healthcare management.  
Prerequisites: HMT 110. Corequisites: None. (F)

**HMT 220 Healthcare Financial Mgmt** 4 0 0 4  
This course covers the methods and techniques utilized in the financial management of healthcare programs. Topics include cost determination, pricing of services, financial statement analysis, forecasting/projections, third-party billing, reimbursement, Medicare, Medicaid, and budgeting. Upon completion, students should be able to interpret and apply the principles of financial management in a healthcare environment.  
Prerequisites: HMT 110, ACC 121. Corequisites: None. (S)

**HMT 225 Practice Mgmt. Simulation** 2 2 0 3  
This course introduces medical systems used to process and analyze information in the automated office. Emphasis is placed on daily processing of patient services, management reporting used to monitor productivity, and interactive database reporting and analysis. Upon completion, students should be able to process daily services, generate and interpret management reports and utilize key indicators for monitoring practice productivity.  
Prerequisites : HMT 210. Corequisites : HMT 220. (S)

## HORTICULTURE

- HOR 110 Intro to Landscaping** 1 2 0 2  
This course introduces the basic skills and concepts of drafting and surveying necessary to complete landscape site analysis and topographical drawings. Emphasis is placed on proper use of drafting and survey equipment. Upon completion, students should be able to draw a site analysis drawing with topographical lines.  
Prerequisites: None. Corequisites: None. (F,S)
- HOR 112 Landscape Design I** 2 3 0 3  
This course covers landscape principles and practices for residential and commercial sites. Emphasis is placed on drafting, site analysis, and common elements of good design, plant material selection, and proper plant utilization. Upon completion, students should be able to read, plan, and draft a landscape design.  
Prerequisites: None. Corequisites: None. (SU)
- HOR 114 Landscape Construction** 2 2 0 3  
This course introduces the design and fabrication of landscape structures/features. Emphasis is placed on safety, tool identification and use, material selection, construction techniques, and fabrication. Upon completion, students should be able to design and construct common landscape structures/features.  
Prerequisites: None. Corequisites: None. (SU)
- HOR 116 Landscape Management I** 2 2 0 3  
This course covers information and skills necessary to analyze a property and develop a management schedule. Emphasis is placed on property measurement, plant condition, analysis of client needs, and plant culture needs. Upon completion, students should be able to analyze a property, develop management schedules, and implement practices based on client needs.  
Prerequisites: None. Corequisites: None. (S)
- HOR 118 Equipment Op & Maint** 1 3 0 2  
This course covers the proper operation and maintenance of selected equipment used in horticulture. Emphasis is placed on the maintenance, minor repairs, safety devices, and actual operation of selected equipment. Upon completion, students should be able to design a maintenance schedule, service equipment, and demonstrate safe operation of selected equipment.  
Prerequisites: None. Corequisites: None. (F,S)
- HOR 124 Nursery Operations** 2 3 0 3  
This course covers nursery site and crop selection, cultural practices, and production and marketing methods. Topics include site considerations, water availability, equipment, irrigation, fertilization, containers, media, and pest control. Upon completion, students should be able to design and implement a nursery operation and grow and harvest nursery crops.  
Prerequisites: None. Corequisites: None. (On demand)
- HOR 134 Greenhouse Operations** 2 2 0 3  
This course covers the principles and procedures involved in the operation and maintenance of greenhouse facilities. Emphasis is placed on the operation of greenhouse systems, including the environmental control, record keeping, scheduling, and production practices. Upon completion, students should be able to demonstrate the ability to operate greenhouse systems and facilities to produce greenhouse crops.  
Prerequisites: None. Corequisites: None. (F)
- HOR 160 Plant Materials I** 2 2 0 3  
This course covers identification, culture, characteristics, and use of plants. Emphasis is placed on nomenclature, identification, growth requirements, cultural requirements, soil preferences, and landscape applications. Upon completion, students should be able to demonstrate knowledge of the proper selection and utilization of plant materials.  
Prerequisites: None. Corequisites: None. (S)
- HOR 162 Applied Plant Science** 2 2 0 3  
This course introduces the basic concepts of botany as they apply to horticulture. Topics include nomenclature, physiology, morphology, and anatomy as they apply to plant culture. Upon completion, students should be able to apply the basic principles of botany to horticulture.  
Prerequisites: None. Corequisites: None. (F)

- HOR 164 Hort Pest Management** 2 2 0 3  
This course covers the identification and control of plant pests including insects, diseases, and weeds. Topics include pest identification and chemical regulations, safety, and pesticide application. Upon completion, students should be able to meet the requirements for North Carolina Commercial Pesticide Ground Applicators license.  
Prerequisites: None. Corequisites: None. (S,SU)
- HOR 166 Soils & Fertilizers** 2 2 0 3  
This course covers the physical and chemical properties of soils and soil fertility and management. Topics include soil formation, classification, physical and chemical properties, testing, fertilizer application, and other amendments. Upon completion, students should be able to analyze, evaluate, and properly amend soils/media.  
Prerequisites: None. Corequisites: None. (F)
- HOR 168 Plant Propagation** 2 2 0 3  
This course is a study of sexual and asexual reproduction of plants. Emphasis is placed on seed propagation, grafting, stem and root propagation, micro-propagation, and other propagation techniques. Upon completion, students should be able to successfully propagate ornamental plants.  
Prerequisites: None. Corequisites: None. (S)
- HOR 170 Hort Computer Apps** 1 3 0 2  
This course introduces computer programs as they apply to the horticulture industry. Emphasis is placed on applications of software for plant identification, design, and irrigation. Upon completion, students should be able to use computer programs in horticultural situations.  
Prerequisites: None. Corequisites: None. (F)
- HOR 213 Landscape Design II** 2 2 0 3  
This course covers residential and commercial landscape design, cost analysis, and installation. Emphasis is placed on job cost estimates, installation of the landscape design, and maintenance techniques. Upon completion, students should be able to read landscape design blueprints, develop cost estimates, and implement the design.  
Prerequisites: HOR 112. Corequisites: None. (F)
- HOR 215 Landscape Irrigation** 2 2 0 3  
This course introduces basic irrigation design, layout, and installation. Topics include site analysis, components of irrigation systems, safety, types of irrigation systems, and installation techniques. Upon completion, students should be able to design and install basic landscape irrigation systems.  
Prerequisites: None. Corequisites: None. (F,SU)
- HOR 255 Interiorscapes** 1 2 0 2  
This course covers plant selection, design, and management for interior settings. Topics include tropical plant identification, cultural requirements, insect and disease identification and control, and design and management requirements for interior plants. Upon completion, students should be able to design, install, and manage plants in interior settings.  
Prerequisites: None. Corequisites: None. (On demand)
- HOR 260 Plant Materials II** 2 2 0 3  
This course covers important landscape plants. Emphasis is placed on identification, plant nomenclature, growth characteristics, culture requirements, and landscape uses. Upon completion, students should be able to demonstrate knowledge of the proper selection and utilization of plant materials.  
Prerequisites: None. Corequisites: None. (SU)
- HOR 265 Adv Plant Materials** 1 2 0 2  
This course covers important landscape plants. Emphasis is placed on identification, plant nomenclature, growth characteristics, cultural requirements, and landscape uses. Upon completion, students should be able to correctly select plants for specific landscape uses.  
Prerequisites: None. Corequisites: None. (S)
- HOR 273 Hor Mgmt & Marketing** 3 0 0 3  
This course covers the steps involved in starting or managing a horticultural business. Topics include financing, regulations, market analysis, employer/employee relations, formulation of business plans, and operational procedures in a horticultural business. Upon completion, students should be able to assume ownership or management of a horticultural business.  
Prerequisites: None. Corequisites: None. (F)

## HUMANITIES

**HUM 110 Technology and Society** (Coll/Tran) **3 0 0 3**  
This course considers technological change from historical, artistic, and philosophical perspectives and its effect on human needs and concerns. Emphasis is placed on the causes and consequences of technological change. Upon completion, students should be able to critically evaluate the implications of technology. Prerequisites: None. Corequisites: None. (F)

**HUM 120 Cultural Studies** (Coll/Tran) **3 0 0 3**  
This course introduces the distinctive features of a particular culture. Topics include art, history, music, literature, politics, philosophy, and religion. Upon completion, students should be able to appreciate the unique character of the study culture. Prerequisites: None. Corequisites: None.

**HUM 211 Humanities I** (Coll/Tran) **3 0 0 3**  
This course introduces the humanities as a record in literature, music, art, history, religion, and philosophy of humankind's answers to the fundamental questions of existence. Emphasis is placed on the interconnectedness of various aspects of cultures from ancient through early modern times. Upon completion, students should be able to identify significant figures and cultural contributions of the periods studied. Prerequisites: ENG 111. Corequisites: None. (F)

**HUM 220 Human Values and Meaning** (Coll/Tran) **3 0 0 3**  
This course presents some major dimensions of human experience as reflected in art, music, literature, philosophy, and history. Topics include the search for identity, the quest for knowledge, the need for love, the individual and society, and the meaning of life. Upon completion, students should be able to recognize interdisciplinary connections and distinguish between open and closed questions and between narrative and scientific models of understanding. Prerequisites: ENG 111. Corequisites: None. (On demand)

## HYDRAULICS AND PNEUMATICS

**HYD 110 Hydraulics/Pneumatics I** **2 3 0 3**  
This course introduces the basic components and functions of hydraulic and pneumatic systems. Topics include standard symbols, pumps, control valves, control assemblies, actuators, FRL, maintenance procedures, and switching and control devices. Upon completion, students should be able to understand the operation of a fluid power system, including design, application, and troubleshooting. Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (On demand)

## INDUSTRIAL SCIENCE

**ISC 112 Industrial Safety** **2 0 0 2**  
This course introduces the principles of industrial safety. Emphasis is placed on industrial safety, OSHA, and environmental regulations. Upon completion, students should be able to demonstrate knowledge of a safe working environment and OSHA compliance. Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (F)

## JOURNALISM

**JOU 110 Intro to Journalism** (Coll/Tran) **3 0 0 3**  
This course presents a study of journalistic news, feature, and sports writing. Emphasis is placed on basic news writing techniques and on related legal and ethical issues. Upon completion, students should be able to gather, write, and edit news, feature, and sports articles. Prerequisites: None. Corequisites: None. (On demand)

## MACHINING

**MAC 122 CNC Turning** **1 3 0 2**  
This course introduces the programming, setup, and operation of CNC turning centers. Topics include programming formats, control functions, program editing, part production, and inspection. Upon completion, students should be able to manufacture simple parts using CNC turning centers. Prerequisites: MAC 141, RED 080 or appropriate placement test score. Corequisites: None. (S)

**MAC 124 CNC Milling** **1 3 0 2**  
This course introduces the manual programming, setup, and operation of CNC machining centers. Topics include programming formats, control functions, program editing, part production, and inspection. Upon completion, students should be able to manufacture simple parts using CNC machining centers. Prerequisites: MAC 141, RED 080 or appropriate placement test score. Corequisites: None. (S)

**MAC 131 Blueprint Reading/Mach I** **1 2 0 2**  
This course covers the basic principles of blueprint reading and sketching. Topics include multi-view drawings; interpretation of conventional lines; and dimensions, notes, and thread notations. Upon completion, students should be able to interpret basic drawings, visualize parts, and make pictorial sketches. Prerequisites: CTS 080, DMA 010, DMA 020, DMA 030; RED 080 or appropriate placement test score. Corequisites: None. (F)

**MAC 132 Blueprint Reading/Mach II** **1 2 0 2**  
This course introduces more complex industrial blueprints. Emphasis is placed on auxiliary views, section views, violations of true project, special views, applications of GD & T, and interpretation of complex parts. Upon completion, students should be able to read and interpret complex industrial blueprints. Prerequisites: MAC 131. Corequisites: None. (S)

**MAC 141 Machining Applications I** **2 6 0 4**  
This course provides an introduction to a variety of material-working processes that are common to the machining industry. Topics include safety, process-specific machining equipment, measurement devices, set-up and layout instruments, and common shop practices. Upon completion, students should be able to safely demonstrate basic machining operations, accurately measure components, and effectively use layout instruments. Prerequisites: CTS 080, DMA 010, DMA 020, DMA 030; RED 080 or appropriate placement test score. Corequisites: None.

**MAC 142 Machining Applications II** **2 6 0 4**  
This course provides instruction in the wide variety of processes associated with machining. Topics include safety, equipment set-up, holding fixtures, tooling, cutting speeds and depths, metal properties, and proper finishes. Upon completion, students should be able to safely demonstrate advanced machining operations, accurately measure components, and produce accurate components with a proper finish. Prerequisites: MAC 141. Corequisites: None.

**MAC 143 Machining Appl III** **2 6 0 4**  
This course provides instruction in the field of advanced machining. Emphasis is placed on creating complex components, close-tolerance machining, precise measurement, and proper equipment usage. Upon completion, students should be able to demonstrate the ability to produce an accurately machined component with a quality finish using the proper machining process. Prerequisites: MAC 142. Corequisites: None.

**MAC 151 Machining Calculations** **1 2 0 2**  
This course introduces basic calculations as they relate to machining occupations. Emphasis is placed on basic calculations and their applications in the machine shop. Upon completion, students should be able to perform basic shop calculations. Prerequisites: CTS 080, DMA 010, DMA 020, DMA 030; RED 080 or appropriate placement test score. Corequisites: None

**MAC 222 Advanced CNC Turning** 1 3 0 2  
This course covers advanced methods in setup and operation of CNC turning centers. Emphasis is placed on programming and production of complex parts. Upon completion, students should be able to demonstrate skills in programming, operations, and setup of CNC turning centers.  
Prerequisites: MAC 122. Corequisites: None. (S)

**MAC 224 Advanced CNC Milling** 1 3 0 2  
This course covers advanced methods in setup and operation of CNC machining centers. Emphasis is placed on programming and production of complex parts. Upon completion, students should be able to demonstrate skills in programming, operations, and setup of CNC machining centers.  
Prerequisites: MAC 124. Corequisites: None. (S)

**MAC 231 CAM: CNC Turning** 1 4 0 3  
This course introduces Computer Numerical Control graphics programming and concepts for turning center applications. Emphasis is placed on the interaction of menus to develop a shape file in a graphics CAM system and to develop tool path geometry and part geometry. Upon completion, students should be able to develop a job plan using CAM software, including machine selection, tool selection, operational sequence, speed, feed, and cutting depth.  
Prerequisites: MEC 110. Corequisites: None. (F)

**MAC 232 CAM: CNC Milling** 1 4 0 3  
This course introduces Computer Numerical Control graphics programming and concepts for machining center applications. Emphasis is placed on developing a shape file in a graphics CAM system and transferring coded information from CAM graphics to the CNC milling center. Upon completion, students should be able to develop a complete job plan using CAM software to create a multi-axis CNC program.  
Prerequisites: MEC 110. Corequisites: None. (F)

**MAC 233 Appl in CNC Machining** 2 12 0 6  
This capstone course provides students the opportunity to apply skills learned throughout the curriculum. Emphasis is placed on production of parts and assemblies using modern CNC machine tools. Upon completion, students should be able to manufacture complex parts using a variety of CNC machine tools.  
Prerequisites: MAC 234. Corequisites: None. (S)

**MAC 234 Adv Multi-Axis Machin** 2 3 0 3  
This course includes multi-axis machining using machining centers with multi-axis capabilities. Emphasis is placed on generation of machining center input with a CAM system and setup of pallet changer and rotary system for multi-axis machining fixtures. Upon completion, students should be able to convert CAD to output for multi-axis machining centers, including tooling, setup, and debugging processes.  
Prerequisites: MAC 222, MAC 224. Corequisites: None. (S)

**MAC 241 Jigs & Fixtures I** 2 6 0 4  
This course introduces the application and use of jigs and fixtures. Emphasis is placed on design and manufacture of simple jigs and fixtures. Upon completion, students should be able to design and build simple jigs and fixtures.  
Prerequisites: MAC 142, MAC 222, MAC 224. Corequisites: None. (F)

**MAC 242 Jigs & Fixtures II** 1 9 0 4  
This course provides continued study in the application of jigs and fixtures. Emphasis is placed on design and manufacture of complex jigs and fixtures. Upon completion, students should be able to design and build complex jigs and fixtures.  
Prerequisites: MAC 241. Corequisites: None. (S)

## MATHEMATICS

### (Developmental Mathematics)

**DMA 010 Operations With Integers** .75 .50 0 1  
This course provides a conceptual study of integers and integer operations. Topics include integers, absolute value, exponents, square roots, perimeter and area of basic geometric figures, Pythagorean theorem, and use of the correct order of operations. Upon completion, students should be able to demonstrate an understanding of pertinent concepts and principles and apply this knowledge in the evaluation of expressions.  
Prerequisites: None. Corequisites: None. (F,S,SU)

**DMA 020 Fractions and Decimals** .75 .50 0 1  
This course provides a conceptual study of the relationship between fractions and decimals and covers related problems. Topics include application of operations and solving contextual application problems, including determining the circumference and area of circles with the concept of pi. Upon completion, students should be able to demonstrate an understanding of the connections between fractions and decimals.  
Prerequisites: DMA 010 **or** by placement testing. Corequisites: None. (F,S,SU)

**DMA 030 Propor/Ratio/Rate/Percent** .75 .50 0 1  
This course provides a conceptual study of the problems that are represented by rates, ratios, percent, and proportions. Topics include rates, ratios, percent, proportion, conversion of English and metric units, and applications of the geometry of similar triangles. Upon completion, students should be able to use their understanding to solve conceptual application problems.  
Prerequisites: DMA 010, DMA 020 **or** by placement testing.  
Corequisites: None. (F,S,SU).

**DMA 040 Express/Lin Equat/Inequal** .75 .50 0 1  
This course provides a conceptual study of problems involving linear expressions, equations, and inequalities. Emphasis is placed on solving contextual application problems. Upon completion, students should be able to distinguish between simplifying expressions and solving equations and apply this knowledge to problems involving linear expressions, equations, and inequalities.  
Prerequisites: DMA 010, DMA 020, DMA 030 **or** by placement testing.  
Corequisites: None. (F,S,SU)

**DMA 050 Graphs/Equations of Lines** .75 .50 0 1  
This course provides a conceptual study of problems involving graphic and algebraic representations of lines. Topics include slope, equations of lines, interpretation of basic graphs, and linear modeling. Upon completion, students should be able to solve contextual application problems and represent real-world situations as linear equations in two variables.  
Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040 **or** by placement testing. Corequisites: None. (F,S,SU)

**DMA 060 Polynomial/Quadratic Appl** .75 .50 0 1  
This course provides a conceptual study of problems involving graphic and algebraic representations of quadratics. Topics include basic polynomial operations, factoring polynomials, and solving polynomial equations by means of factoring. Upon completion, students should be able to find algebraic solutions to contextual problems with quadratic applications.  
Prerequisites: take DMA 010, DMA 020, DMA 030, DMA 040, DMA 050 **or** by placement testing. Corequisites: None. (F,S,SU)

**DMA 070 Rational Express/Equation** .75 .50 0 1  
This course provides a conceptual study of problems involving graphic and algebraic representations of rational equations. Topics include simplifying and performing operations with rational expressions and equations, understanding the domain, and determining the reasonableness of an answer. Upon completion, students should be able to find algebraic solutions to contextual problems with rational applications.  
Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, DMA 060 **or** by placement testing. Corequisites: None. (F,S,SU)

**DMA 080 Radical Express/Equations** .75 .50 0 1  
This course provides a conceptual study of the manipulation of radicals and the application of radical equations to real-world problems. Topics include simplifying and performing operations with radical expressions and rational exponents, solving equations, and determining the reasonableness of an answer. Upon completion, students should be able to find algebraic solutions to contextual problems with radical applications.  
Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, DMA 060, DMA 070 **or** by placement testing. Corequisites: None. (F,S,SU)

(Curriculum Mathematics)

**MAT 101 Applied Mathematics I 2 2 0 3**

This course is a comprehensive review of arithmetic with basic algebra designed to meet the needs of certificate and diploma programs. Topics include arithmetic and geometric skills used in measurement, ratio and proportion, exponents and roots, applications of percent, linear equations, formulas, and statistics. Upon completion, students should be able to solve practical problems in their specific areas of study. Prerequisites: DMA 010, DMA 020, DMA 030, **or** by placement testing; RED 080 **or** by placement testing. Corequisites: None. (F,S)

**MAT 102 Applied Mathematics II 2 2 0 3**

This course introduces the concepts of right triangle trigonometry and geometry with emphasis on applications to problem solving. Topics include the basic definitions and properties of plane and solid geometry, area and volume, and right triangle trigonometry. Upon completion, students should be able to solve applied problems both independently and collaboratively. Prerequisites: MAT 101. Corequisites: None. (S)

**MAT 115 Mathematical Models 2 2 0 3**

This course develops the ability to utilize mathematical skills and technology to solve problems at a level found in non-mathematics intensive programs. Topics include applications to percent, ratio and proportion, formulas, statistics, function notation, linear functions, probability, sampling techniques, scatter plots, and modeling. Upon completion, students should be able to solve practical problems, reason and communicate with mathematics, and work confidently, collaboratively, and independently. Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, **or** MAT 121 **or** MAT 161 **or** MAT 171 **or** MAT 175 **or** by placement testing; RED 080 **or** by placement testing. Corequisites: None. (F,S,SU)

**MAT 121 Algebra/Trigonometry I 2 2 0 3**

This course provides an integrated approach to technology and the skills required to manipulate, display, and interpret mathematical functions and formulas used in problem solving. Topics include simplification, evaluation, and solving of algebraic and radical functions; complex numbers; right triangle trigonometry; systems of equations; and the use of technology. Upon completion, students should be able to demonstrate an understanding of the use of mathematics and technology to solve problems and analyze and communicate results. Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, **or** by placement testing; RED 080 **or** by placement testing. Corequisites: None. (F,S)

**MAT 122 Algebra/Trigonometry II 2 2 0 3**

This course extends the concepts covered in MAT 121 to include additional topics in algebra, function analysis, and trigonometry. Topics include exponential and logarithmic functions, translation and scaling of functions, Sine Law, Cosine Law, vectors, and statistics. Upon completion, students should be able to demonstrate an understanding of the use of technology to solve problems and to analyze and communicate results. Prerequisites: MAT 121 (must pass with a grade of "C" or higher) **or** MAT 161 **or** MAT 171 **or** MAT 175. Corequisites: None. (S)

**MAT 140 Survey of Mathematics (Coll/Tran) 3 0 0 3**

This course provides an introduction in a non-technical setting to selected topics in mathematics. Topics may include, but are not limited to, sets, logic, probability, statistics, matrices, mathematical systems, geometry, topology, mathematics of finance, and modeling. Upon completion, students should be able to understand a variety of mathematical applications, think logically, and be able to work collaboratively and independently. Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050 **or** MAT 121 (must pass with a grade of "C" or higher) **or** MAT 161 **or** MAT 171 **or** MAT 175 **or** by placement testing; RED 080 **or** by placement testing. Corequisites: MAT 140A. (F,S,SU)

**MAT 140A Survey of Mathematics Lab (Coll/Tran) 0 2 0 1**

This course is a laboratory for MAT 140. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050 **or** MAT 121 (must pass with a grade of "C" or higher) **or** MAT 161 **or** MAT 171 **or** MAT 175 **or** by placement testing; RED 080 **or** by placement testing. Corequisites: MAT 140. (F,S,SU)

**MAT 151 Statistics I (Coll/Tran) 3 0 0 3**

This course provides a project-based approach to the study of basic probability, descriptive and inferential statistics, and decision making. Emphasis is placed on measures of central tendency and dispersion, correlation, regression, discrete and continuous probability distributions, quality control, population parameter estimation, and hypothesis testing. Upon completion, students should be able to describe important characteristics of a set of data and draw inferences about a population from sample data.

Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, **or** MAT 121 **or** MAT 140 (must pass with a grade of "C" or higher); **or** MAT 161 **or** MAT 171 **or** MAT 175 **or** by placement testing; RED 080 **or** by placement testing. Corequisites: MAT 151A. (F,S,SU)

**MAT 151A Statistics I Lab (Coll/Tran) 0 2 0 1**

This course is a laboratory for MAT 151. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, **or** MAT 121 **or** MAT 140 (must pass with a grade of "C" or higher); **or** MAT 161 **or** MAT 171 **or** MAT 175 **or** by placement testing. Corequisites: MAT 151. (F,S,SU)

**MAT 161 College Algebra (Coll/Tran) 3 0 0 3**

This course provides an integrated technological approach to algebraic topics used in problem solving. Emphasis is placed on applications involving equations and inequalities, polynomials, rational, exponential and logarithmic functions; and graphing and data analysis/modeling. Upon completion, students should be able to choose an appropriate model to fit a data set and use the model for analysis and prediction.

Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, DMA 060, DMA 070, DMA 080 **or** by placement testing; RED 080 **or** by placement testing. Corequisites: MAT 161A. (F,S,SU)

**MAT 161A College Algebra Lab (Coll/Tran) 0 2 0 1**

This course is a laboratory for MAT 161. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, DMA 060, DMA 070, DMA 080 **or** by placement testing; RED 080 **or** by placement testing. Corequisites: MAT 161. (F,S,SU)

**MAT 171 Precalculus Algebra (Coll/Tran) 3 0 0 3**

This is the first of two courses designed to emphasize topics which are fundamental to the study of calculus. Emphasis is placed on equations and inequalities, functions (linear, polynomial, rational), systems of equations and inequalities, and parametric equations. Upon completion, students should be able to solve practical problems and use appropriate models for analysis and predictions. (Select only one from the series MAT 171 or MAT 175.)

Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, DMA 060, DMA 070, DMA 080 **or** MAT 161 **or** by placement testing; RED 080 **or** by placement testing. Corequisites: MAT 171A. (F,S)

**MAT 171A Precalculus Algebra Lab (Coll/Tran) 0 2 0 1**

This course is a laboratory for MAT 171. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, DMA 060, DMA 070, DMA 080 **or** MAT 161 **or** by placement testing; RED 080 **or** by placement testing. Corequisites: MAT 171. (F, S)

**MAT 172 Precalculus Trigonometry** (Coll/Tran) **3 0 0 3**  
This is the second of two courses designed to emphasize topics which are fundamental to the study of calculus. Emphasis is placed on properties and applications of transcendental functions and their graphs, right and oblique triangle trigonometry, conic sections, vectors, and polar coordinates. Upon completion, students should be able to solve practical problems and use appropriate models for analysis and prediction. Prerequisites: MAT 171 must pass with a grade of "C" or higher. Corequisites: MAT 172A. (F, S)

**MAT 172A Precalculus Trig Lab** (Coll/Tran) **0 2 0 1**  
This course is a laboratory for MAT 172. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively. Prerequisites: MAT 171 must pass with a grade of "C" or higher. Corequisites: MAT 172. (F,S)

**MAT 175 Precalculus** (Coll/Tran) **4 0 0 4**  
This course provides an intense study of the topics which are fundamental to the study of calculus. Emphasis is placed on functions and their graphs with special attention to polynomial, rational, exponential, logarithmic and trigonometric functions, and analytic trigonometry. Upon completion, students should be able to solve practical problems and use appropriate models for analysis and prediction. (Select only one from the series MAT 171 or MAT 175. Select only one from the series MAT 172 or MAT 175.) Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, DMA 060, DMA 070, DMA 080 or by placement testing; RED 080 or by placement testing. Corequisites: MAT 175A. (F,S)

**MAT 175A Precalculus Lab** (Coll/Tran) **0 2 0 1**  
This course is a laboratory for MAT 175. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively. Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, DMA 060, DMA 070, DMA 080 or by placement testing; RED 080 or by placement testing. Corequisites: MAT 175. (F,S)

**MAT 263 Brief Calculus** (Coll/Tran) **3 0 0 3**  
This course is designed for students needing only one semester of calculus. Topics include functions, graphing, differentiation, and integration with emphasis on applications drawn from business, economics, and biological and behavioral sciences. Upon completion, students should be able to demonstrate an understanding of the use of basic calculus and technology to solve problems and to analyze and communicate results. Prerequisites: MAT 161 or MAT 171 or MAT 175 (must pass with a grade of "C" or higher); and RED 080 or by placement testing. Corequisites: MAT 263A. (S)

**MAT 263A Brief Calculus Lab** (Coll/Tran) **0 2 0 1**  
This course is a laboratory for MAT 263. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively. Prerequisites: MAT 161 or MAT 171 or MAT 175 (must pass with a grade of "C" or higher). Corequisites: MAT 263. (S)

**MAT 271 Calculus I** (Coll/Tran) **3 2 0 4**  
This course covers in depth the differential calculus portion of a three-course calculus sequence. Topics include limits, continuity, derivatives, and integrals of algebraic and transcendental functions of one variable, with applications. Upon completion, students should be able to apply differentiation and integration techniques to algebraic and transcendental functions. Prerequisites: MAT 172 or MAT 175 (must pass with a grade of "C" or higher); RED 080 or by placement testing. Corequisites: None. (F,S,SU)

**MAT 272 Calculus II** (Coll/Tran) **3 2 0 4**  
This course provides a rigorous treatment of integration and is the second calculus course in a three-course sequence. Topics include applications of definite integrals, techniques of integration, indeterminate forms, improper integrals, infinite series, conic sections, parametric equations, polar coordinates, and differential equations. Upon completion, students should be able to use integration and approximation techniques to solve application problems. Prerequisites: MAT 271 must pass with a grade of "C" or higher; RED 080 or by placement testing. Corequisites: None. (F,S)

**MAT 273 Calculus III** (Coll/Tran) **3 2 0 4**  
This course covers the calculus of several variables and is the third calculus course in a three-course sequence. Topics include functions of several variables, partial derivatives, multiple integrals, solid analytical geometry, vector-valued functions, and line and surface integrals. Upon completion, students should be able to solve problems involving vectors and functions of several variables. Prerequisites: MAT 272 must pass with a grade of "C" or higher; RED 080 or by placement testing. Corequisites: None. (S)

**MAT 285 Differential Equations** (Coll/Tran) **3 0 0 3**  
This course provides an introduction to ordinary differential equations with an emphasis on applications. Topics include first order, linear higher-order, and systems of differential equations; numerical methods; series solutions; eigenvalues and eigenvectors; Laplace transforms; and Fourier series. Upon completion, students should be able to use differential equations to model physical phenomena, solve the equations, and use the solutions to analyze the phenomena. Prerequisites: MAT 272 must pass with a grade of "C" or higher; RED 080 or by placement testing. Corequisites: None. (S)

## MECHANICAL

**MEC 110 Intro to CAD/CAM** **1 2 0 2**  
This course introduces CAD/CAM. Emphasis is placed on transferring part geometry from CAD to CAM for the development of a CNC-ready program. Upon completion, students should be able to use CAD/CAM software to produce a CNC program. Prerequisites: MAC 122, MAC 124. Corequisites: MAC 122, MAC 124.

**MEC 111 Machine Processes I** **1 4 0 3**  
This course introduces shop safety, hand tools, machine processes, measuring instruments, and the operation of machine shop equipment. Topics include use and care of tools, safety, measuring tools, and the basic setup and operation of common machine tools. Upon completion, students should be able to safely machine simple parts to specified tolerances. Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (S)

**MEC 142 Physical Metallurgy** **1 2 0 2**  
This course covers the heat treating of metals. Emphasis is placed on the effects of hardening, tempering, and annealing on the structure and physical properties of metals. Upon completion, students should be able to heat treat materials. Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (F)

**MEC 180 Engineering Materials** **2 3 0 3**  
This course introduces the physical and mechanical properties of materials. Topics include materials testing, pre and post-manufacturing processes, and material selection of ferrous and non-ferrous metals, plastics, composites, and non-conventional materials. Upon completion, students should be able to utilize basic material property tests and select appropriate materials for applications. Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (F)

**MEC 231 Comp-Aided Manufact I** **1 4 0 3**  
This course introduces computer-aided design / manufacturing (CAD/CAM) applications and concepts. Topics include software, programming, data transfer and verification, and equipment setup. Upon completion, students should be able to produce parts using CAD/ CAM applications. Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (S)

**MEC 237 Instr and Control Systems** **3 2 0 4**  
This course covers basic principles of instrumentation and control systems. Emphasis is placed upon the application of electrical, electronic, and pneumatic instruments and control systems in mechanical systems. Upon completion, students should be able to understand the application of switches, sensors, transducers, and other control components in circuits for controlling motors, servomechanisms, and other mechanical devices. Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (F)

**MEC 250 Statics & Strength of Mat** **4 3 0 5**  
This course covers the concepts and principles of statics and stress analysis. Topics include systems of forces on structures in equilibrium and analysis of stresses and strains on these components. Upon completion, students should be able to analyze forces and the results of stresses and strains on structural components. Prerequisites: MAT 121 or MAT 161 or MAT 172; RED 080 or appropriate placement test score. Corequisites: PHY 131 or PHY 151. (F)

**MEC 265 Fluid Mechanics** 2 2 0 3  
This course covers the physical behavior of fluids and fluid systems. Topics include fluid statics and dynamics, laminar and turbulent flow, Bernoulli's Equation, components, applications, and other related topics. Upon completion, students should be able to apply fluid power principles to practical applications.  
Prerequisites: PHY 131; RED 080 or appropriate placement test score.  
Corequisites: None. (S)

**MEC 270 Machine Design** 3 3 0 4  
This course covers the basic principles underlying design and selection of machine elements. Topics include stress analysis, selection of components, power transmission, and other design considerations. Upon completion, students should be able to identify and solve mechanical design problems by applying basic engineering principles.  
Prerequisites: DFT 151, MEC 180, MEC 250; RED 080 or appropriate placement test score. Corequisites: None. (S)

**MEC 272 Dynamics** 2 2 0 3  
This course covers the forces associated with motion. Topics include translation, rotation, acceleration, displacement, and velocity. Upon completion, students should be able to analyze forces and motion in a dynamic mechanical system.  
Prerequisites: PHY 131 or PHY 151; RED 080 or appropriate placement test score. Corequisites: None. (S)

### MEDICAL ASSISTING

**MED 114 Prof Interac in Heal Care** 1 0 0 1  
This course is designed to identify various patient behaviors encountered in the medical setting. Emphasis is placed on stressors related to illness, cultural influences, death and dying, and needs specific to patients. Upon completion, students should be able to utilize appropriate methods of verbal and nonverbal communication with empathy and impartiality.  
Prerequisites: None. Corequisites: None. (F,S)

**MED 118 Medical Law and Ethics** 2 0 0 2  
This course covers legal relationships of physicians and patients, contractual agreements, professional liability, malpractice, medical practice acts, informed consent, and bioethical issues. Emphasis is placed on legal terms, professional attitudes, and the principles and basic concepts of ethics and laws involved in providing medical services. Upon completion, students should be able to meet the legal and ethical responsibilities of a multi-skilled health professional.  
Prerequisites: None. Corequisites: None. (F, SU)

**MED 121 Medical Terminology I** 3 0 0 3  
This course introduces prefixes, suffixes, and word roots used in the language of medicine. Topics include medical vocabulary and the terms that relate to the anatomy, physiology, pathological conditions, and treatment of selected systems. Upon completion, students should be able to pronounce, spell, and define medical terms as related to selected body systems and their pathological disorders.  
Prerequisites: RED 080 or appropriate placement test score.  
Corequisites: None. (F,S)

**MED 122 Medical Terminology II** 3 0 0 3  
This course is the second in a series of medical terminology courses. Topics include medical vocabulary and the terms that relate to the anatomy, physiology, pathological conditions, and treatment of selected systems. Upon completion, students should be able to pronounce, spell, and define medical terms as related to selected body systems and their pathological disorders.  
Prerequisites: MED 121. Corequisites: None. (F,S)

### MARKETING AND RETAILING

**MKT 120 Principles of Marketing** 3 0 0 3  
This course introduces principles and problems of marketing goods and services. Topics include promotion, placement, and pricing strategies for products. Upon completion, students should be able to apply marketing principles in organizational decision making.  
Prerequisites: None. Corequisites: None. (S)

**MKT 123 Fundamentals of Selling** 3 0 0 3  
This course is designed to emphasize the necessity of selling skills in a modern business environment. Emphasis is placed on sales techniques involved in various types of selling situations. Upon completion, students should be able to demonstrate an understanding of the techniques covered.  
Prerequisites: None. Corequisites: None. (F)

**MKT 220 Advertising and Sales Promotion** 3 0 0 3  
This course covers the elements of advertising and sales promotion in the business environment. Topics include advertising and sales promotion appeals, selection of media, use of advertising and sales promotion as a marketing tool, and means of testing effectiveness. Upon completion, students should be able to demonstrate an understanding of the concepts covered through application.  
Prerequisites: None. Corequisites: None. (S)

**MKT 221 Consumer Behavior** 3 0 0 3  
This course is designed to describe consumer behavior as applied to the exchange processes involved in acquiring, consuming, and disposing of goods and services. Topics include an analysis of basic and environmental determinants of consumer behavior with emphasis on the decision-making process. Upon completion, students should be able to analyze concepts related to the study of the individual consumer.  
Prerequisites: None. Corequisites: None. (On demand)

**MKT 223 Customer Service** 3 0 0 3  
This course stresses the importance of customer relations in the business world. Emphasis is placed on learning how to respond to complex customer requirements and to efficiently handle stressful situations. Upon completion, students should be able to demonstrate the ability to handle customer relations.  
Prerequisites: None. Corequisites: None. (On demand)

### MAINTENANCE

**MNT 110 Intro to Maint Procedures** 1 3 0 2  
This course covers basic maintenance fundamentals for power transmission equipment. Topics include equipment inspection, lubrication, alignment, and other scheduled maintenance procedures. Upon completion, students should be able to demonstrate knowledge of accepted maintenance procedures and practices according to current industry standards.  
Prerequisites: RED 080 or appropriate placement test score.  
Corequisites: None. (On demand)

### MUSIC

**MUS 110 Music Appreciation (Coll/Tran)** 3 0 0 3  
This course is a basic survey of the music of the Western world. Emphasis is placed on the elements of music, terminology, composers, form, and style within a historical perspective. Upon completion, students should be able to demonstrate skills in basic listening and understanding of the art of music.  
Prerequisites: None. Corequisites: None. (F,S,SU)

**MUS 111 Fundamentals of Music (Coll/Tran)** 3 0 0 3  
This course is an introductory course for students with little or no music background. Emphasis is placed on music notation, rhythmic patterns, scales, key signatures, intervals, and chords. Upon completion, students should be able to demonstrate an understanding of the rudiments of music.  
Prerequisites: None. Corequisites: None. (F)

**MUS 112 Introduction to Jazz (Coll/Tran)** 3 0 0 3  
This course introduces the origins and musical components of jazz and the contributions of its major artists. Emphasis is placed on the development of discriminating listening habits, as well as the investigation of the styles and structural forms of the jazz idiom. Upon completion, students should be able to demonstrate skills in listening and understanding this form of American music.  
Prerequisites: None. Corequisites: None. (On demand)

**MUS 113 American Music (Coll/Tran)** 3 0 0 3  
This course introduces various musical styles, influences, and composers of the United States from pre-Colonial times to the present. Emphasis is placed on the broad variety of music particular to American culture. Upon completion, students should be able to demonstrate skills in basic listening and understanding of American music.  
Prerequisites: None. Corequisites: None

**MUS 121 Music Theory I** (Coll/Tran) **3 2 0 4**  
This course provides an in-depth introduction to melody, rhythm, and harmony. Emphasis is placed on fundamental melodic, rhythmic, and harmonic analysis, introduction to part writing, ear-training, and sight-singing. Upon completion, students should be able to demonstrate proficiency in the recognition and application of the above.  
Prerequisites: None. Corequisites: None. (F)

**MUS 122 Music Theory II** (Coll/Tran) **3 2 0 4**  
This course is a continuation of studies begun in MUS 121. Emphasis is placed on advanced melodic, rhythmic, and harmonic analysis and continued studies in part-writing, ear-training, and sight-singing. Upon completion, students should be able to demonstrate proficiency in the recognition and application of the above.  
Prerequisites: MUS 121. Corequisites: None. (S)

**MUS 131 Chorus I** (Coll/Tran) **0 2 0 1**  
This course provides an opportunity to gain experience singing in a chorus. Emphasis is placed on vocal techniques and the study and performance of a variety of styles and periods of choral literature. Upon completion, students should be able to demonstrate skills needed to participate in choral singing leading to performance. This course includes a performance choir that will prepare a Christmas Music Presentation in conjunction with a neighborhood church choir; rehearsals at both locations (on campus and church site) will be required.  
Prerequisites: Appropriate vocal proficiency. Corequisites: None. (On demand)

**MUS 132 Chorus II** (Coll/Tran) **0 2 0 1**  
This course provides a continuation of studies begun in MUS 131. Emphasis is placed on vocal techniques and the study and performance of a variety of styles and periods of choral literature. Upon completion, students should be able to demonstrate skills needed to participate in choral singing leading to performance.  
Prerequisites: MUS 131. Corequisites: None. (On demand)

**MUS 133 Band I** (Coll/Tran) **0 2 0 1**  
This course provides an opportunity for those who play a band instrument to gain experience playing in an ensemble. Emphasis is placed on band techniques and the study and performance of a variety of styles and periods of band literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.  
Prerequisites: Audition. Corequisites: None. (F, On demand)

**MUS 134 Band II** (Coll/Tran) **0 2 0 1**  
This course is a continuation of MUS 133. Emphasis is placed on band techniques and the study and performance of a variety of styles and periods of band literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.  
Prerequisites: MUS 133. Corequisites: None. (S, On demand)

**MUS 135 Jazz Ensemble I** **0 2 0 1**  
This course provides an opportunity for those who play an appropriate instrument to gain experience playing in a jazz ensemble. Emphasis is placed on jazz ensemble techniques and the study and performance of a variety of styles of jazz literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.  
Prerequisites: None. Corequisites: None. (On demand)

**MUS 136 Jazz Ensemble II** (Coll/Tran) **0 2 0 1**  
This course is a continuation of MUS 135. Emphasis is placed on jazz ensemble techniques and the study and performance of a variety of styles and periods of jazz literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.  
Prerequisites: MUS 135. Corequisites: None. (On demand)

**MUS 141 Ensemble I** (Coll/Tran) **0 2 0 1**  
This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.  
Prerequisites: Audition. Corequisites: None. (F)

**MUS 142 Ensemble II** (Coll/Tran) **0 2 0 1**  
This course is a continuation of MUS 141. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of

ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.  
Prerequisites: MUS 141. Corequisites: None. (S)

**MUS 151 Class Music I** (Coll/Tran) **0 2 0 1**  
This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.  
Prerequisites: None. Corequisites: None. (F)

**MUS 151G Class Music I-Guitar** **0 2 0 1**  
This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.  
Prerequisites: None. Corequisites: None. (F)

**MUS 151P Class Music I-Piano** **0 2 0 1**  
This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.  
Prerequisites: None. Corequisites: None. (F)

**MUS 151V Class Music I-Voice** **0 2 0 1**  
This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.  
Prerequisites: None. Corequisites: None. (F, On demand)

**MUS 152 Class Music II** (Coll/Tran) **0 2 0 1**  
This course is a continuation of MUS 151. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.  
Prerequisites: MUS 151. Corequisites: None. (S)

**MUS 152G Class Music I-Guitar** **0 2 0 1**  
This course is a continuation of MUS 151. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.  
Prerequisites: MUS 151. Corequisites: None. (S)

**MUS 152P Class Music II-Piano** **0 2 0 1**  
This course is a continuation of MUS 151P. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.  
Prerequisites: MUS 151. Corequisites: None. (S)

**MUS 152V Class Music I-Voice** **0 2 0 1**  
This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.  
Prerequisites: None. Corequisites: None. (F, On demand)

**MUS 161 Applied Music I** (Coll/Tran) **1 2 0 2**  
This course provides individual instruction in the skills and techniques of the particular instrument or voice. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.  
Prerequisites: None. Corequisites: None. (F,S,SU)



**MUS 161B Applied Music I-Brass 1 2 0 2**

This course provides individual instruction in the skills and techniques of the particular instrument or voice. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: Audition. Corequisites: None. (F,S)

**MUS 161D Applied Music I-Percussion 1 2 0 2**

This course provides individual instruction in the skills and techniques of the particular instrument or voice. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: None. Corequisites: None. (F,S)

**MUS 161G Applied Music I-Guitar 1 2 0 2**

This course provides individual instruction in the skills and techniques of the particular instrument or voice. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: None. Corequisites: None. (F,S)

**MUS 161P Applied Music I-Piano 1 2 0 2**

This course provides individual instruction in the skills and techniques of the particular instrument or voice. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: Audition. Corequisites: None. (F,S,SU)

**MUS 161V Applied Music I-Voice 1 2 0 2**

This course provides individual instruction in the skills and techniques of the particular instrument or voice. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: Audition. Corequisites: None. (F,S,SU)

**MUS 161W Applied Music I-Woodwinds 1 2 0 2**

This course provides individual instruction in the skills and techniques of the particular instrument or voice. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: Audition. Corequisites: None. (F,S)

**MUS 162 Applied Music II (Coll/Tran) 1 2 0 2**

This course is a continuation of MUS 161. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 161. Corequisites: None. (F,S)

**MUS 162B Applied Music II-Brass 1 2 0 2**

This course is a continuation of MUS 161B. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 161. Corequisites: None. (F,S)

**MUS 162G Applied Music II-Guitar 1 2 0 2**

This course is a continuation of MUS 161G. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 161. Corequisites: None. (F,S)

**MUS 162P Applied Music II-Piano 1 2 0 2**

This course is a continuation of MUS 161P. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion,

students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 161. Corequisites: None. (F,S)

**MUS 162V Applied Music II-Voice 1 2 0 2**

This course is a continuation of MUS 161V. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 161. Corequisites: None. (F,S)

**MUS 162W Applied Music II-Woodwinds 1 2 0 2**

This course is a continuation of MUS 161W. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 161. Corequisites: None. (F,S)

**MUS 175 Recording Techniques I (Coll/Tran) 2 0 0 2**

This course introduces the recording studio from an artistic and operational point of view. Emphasis is placed on audio consoles, microphones, multi-track recorders, and echo chambers. Upon completion, students should be able to demonstrate understanding of operation and function of recording equipment and its relationship to musician, sound engineer, and producer.

Prerequisites: None. Corequisites: None.

**MUS 176 Recording Techniques II (Coll/Tran) 0 4 0 2**

This course continues the study and application of recording techniques begun in MUS 175. Emphasis is placed on multi-track recording and mix-down, microphone placement, and patch bay function. Upon completion, students should be able to create projects demonstrating proficiency in the skills and use of the equipment studied.

Prerequisites: MUS 175. Corequisites: None.

**MUS 181 Show Choir I (Coll/Tran) 3 3 0 4**

This course provides students the initial training in basic competencies of dance/voice-based performances and to the nuances of preparation for such pop/jazz/theatre performances. Emphasis is placed on the introduction to, and subsequent development of, basic performance skills necessary for choreographed performance. Upon completion, students should be able to demonstrate the foundation competencies necessary to perform the assigned literature in various venues and under various professional conditions.

Prerequisites: None. Corequisites: None. (F,S)

**MUS 182 Show Choir II (Coll/Tran) 3 3 0 4**

This course provides intermediate training in dance/voice-based performances and in the nuances of preparation for such pop/jazz/theatre performances. Emphasis is placed on continued development of skills necessary for professional group choral preparation and performance, as well as effective social interaction with a performance troupe. Upon completion, students should be able to demonstrate the intermediate competencies necessary to perform the assigned literature in various venues and under various professional conditions.

Prerequisites: MUS 181. Corequisites: None. (F,S)

**MUS 210 History of Rock Music (Coll/Tran) 3 0 0 3**

This course is a survey of Rock music from the early 1950's to the present. Emphasis is placed on musical groups, soloists, and styles related to the evolution of this idiom and on related historical and social events. Upon completion, students should be able to identify specific styles and to explain the influence of selected performers within their respective eras. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

Prerequisites: None. Corequisites: None.

**MUS 211 History of Country Music (Coll/Tran) 3 0 0 3**

This course introduces the varied origins of country music and the commercialization of this art form. Emphasis is placed on historical, sociocultural, and stylistic factors related to country music and musicians. Upon completion, students should be able to identify specific styles and explain the influence of pop culture on the development of country music.

Prerequisites: None. Corequisites: None.

**MUS 212 American Musical Theatre** (Coll/Tran) **3 0 0 3**  
 This course covers the origins and development of the musical from Show Boat to the present. Emphasis is placed on the investigation of the structure of the musical and its components through listening and analysis. Upon completion, students should be able to demonstrate skills in listening and understanding this form of American music.  
 Prerequisites: None. Corequisites: None. (On demand)

**MUS 213 Opera and Musical Theatre** (Coll/Tran) **3 0 0 3**  
 This course covers the origins and development of opera and musical theatre from the works of Claudio Monteverdi to the present. Emphasis is placed on how the structure and components of opera and musicals effect dramaturgy through listening examples and analysis. Upon completion, students should be able to demonstrate analytical and listening skills in understanding both opera and the musical.  
 Prerequisites: None. Corequisites: None. (S)

**MUS 214 Electronic Music I** (Coll/Tran) **1 2 0 2**  
 This course provides an opportunity to study and explore various electronic instruments and devices. Emphasis is placed on fundamental MIDI applications and implementation, features and application of sequences, sound modules, and digital keyboards. Upon completion, students should be able to demonstrate proficiency by creation of appropriate musical projects using the equipment and techniques covered. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.  
 Prerequisites: MUS 111. Corequisites:None.

**MUS 215 Electronic Music II** (Coll/Tran) **1 2 0 2**  
 This course is a continuation of MUS 214. Emphasis is placed on advanced MIDI applications and implementation and continued work with sequencers, sound modules, and digital keyboards. Upon completion, students should be able to demonstrate proficiency by creation of appropriate musical projects using the equipment and techniques covered. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.  
 Prerequisites: MUS 214. Corequisites: None.

**MUS 217 Elementary Conducting** (Coll/Tran) **1 2 0 2**  
 This course introduces the basic patterns and skills for conducting instrumental and vocal groups. Emphasis is placed on conducting beat patterns, expressive gestures, fermatas, accents, tempos, and rehearsal techniques. Upon completion, students should be able to demonstrate the above skills by conducting vocal and/or instrumental groups.  
 Prerequisites: MUS 111. Corequisites: None. (S)

**MUS 221 Music Theory III** (Coll/Tran) **3 2 0 4**  
 This course is a continuation of MUS 122. Emphasis is placed on altered and chromatic harmony, common practice era compositional techniques and forms, and continued studies in part-writing, ear training, and sight-singing. Upon completion, students should be able to demonstrate proficiency in the recognition and application of the above.  
 Prerequisites: MUS 122. Corequisites: None. (S)

**MUS 222 Music Theory IV** (Coll/Tran) **3 2 0 4**  
 This course is a continuation of studies begun in MUS 221. Emphasis is placed on continued study of common practice era compositional techniques and forms, 20th century practices, ear-training, and sight-singing. Upon completion, students should be able to demonstrate proficiency in the recognition and application of the above.  
 Prerequisites: MUS 221. Corequisites: None. (S)

**MUS 231 Chorus III** (Coll/Tran) **0 2 0 1**  
 This course is a continuation of MUS 132. Emphasis is placed on vocal techniques and the study and performance of a variety of styles and periods of choral literature. Upon completion, students should be able to demonstrate skills needed to participate in choral singing leading to performance.  
 Prerequisites: MUS 132. Corequisites: None. (S, On demand)

**MUS 232 Chorus IV** (Coll/Tran) **0 2 0 1**  
 This course is a continuation of MUS 231. Emphasis is placed on vocal techniques and the study of styles and periods of choral literature. Upon

completion, students should be able to demonstrate skills needed to participate in choral singing leading to performance.  
 Prerequisites: MUS 231. Corequisites: None. (On demand)

**MUS 233 Band III** (Coll/Tran) **0 2 0 1**  
 This course is a continuation of MUS 134. Emphasis is placed on band techniques and the study and performance of a variety of styles and periods of band literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.  
 Prerequisites: MUS 134. Corequisites: None. (On demand)

**MUS 234 Band IV** (Coll/Tran) **0 2 0 1**  
 This course is a continuation of MUS 233. Emphasis is placed on band techniques and the study and performance of a variety of styles and periods of band literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.  
 Prerequisites: MUS 233. Corequisites: None. (On demand)

**MUS 235 Jazz Ensemble III** (Coll/Tran) **0 2 0 1**  
 This course is a continuation of MUS 136. Emphasis is placed on jazz ensemble techniques and the study and performance of a variety of styles and periods of jazz literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.  
 Prerequisites: MUS 136. Corequisites: None. (On demand)

**MUS 236 Jazz Ensemble IV** (Coll/Tran) **0 2 0 1**  
 This course is a continuation of MUS 235. Emphasis is placed on jazz ensemble techniques and the study and performance of a variety of styles and periods of jazz literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.  
 Prerequisites: MUS 235. Corequisites: None. (On demand)

**MUS 241 Ensemble III** (Coll/Tran) **0 2 0 1**  
 This course is a continuation of MUS 142. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.  
 Prerequisites: MUS 142. Corequisites: None. (F,S)

**MUS 242 Ensemble IV** (Coll/Tran) **0 2 0 1**  
 This course is a continuation of MUS 241. Emphasis is placed on the development of performance skills and the study of styles of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.  
 Prerequisites: MUS 241. Corequisites: None. (On demand)

**MUS 251 Class Music III** (Coll/Tran) **0 2 0 1**  
 This course is a continuation of MUS 152. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.  
 Prerequisites: MUS 152. Corequisites: None.

**MUS 252 Class Music IV** (Coll/Tran) **0 2 0 1**  
 This course is a continuation of MUS 251. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.  
 Prerequisites: MUS 251. Corequisites: None.

**MUS 261 Applied Music III** (Coll/Tran) **1 2 0 2**  
 This course is a continuation of MUS 162. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.  
 Prerequisites: MUS 162. Corequisites: None. (S)

**MUS 261B Applied Music III-Brass** **1 2 0 2**  
 This course is a continuation of MUS 162B. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.  
 Prerequisites: MUS 162. Corequisites: None. (S)

**MUS 261D Applied Music III-Drumset** 1 2 0 2

This course is a continuation of MUS 162D. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 162. Corequisites: None. (S)

**MUS 261G Applied Music III-Guitar** 1 2 0 2

This course is a continuation of MUS 162G. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 162. Corequisites: None. (S)

**MUS 261P Applied Music III-Piano** 1 2 0 2

This course is a continuation of MUS 162P. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 162. Corequisites: None. (S)

**MUS 261V Applied Music III-Voice** 1 2 0 2

This course is a continuation of MUS 162V. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 162. Corequisites: None. (S)

**MUS 261W Applied Music III-Woodwinds** 1 2 0 2

This course is a continuation of MUS 162W. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 162. Corequisites: None. (S)

**MUS 262 Applied Music IV (Coll/Tran)** 1 2 0 2

This course is a continuation of MUS 261. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 261. Corequisites: None. (S)

**MUS 262B Applied Music IV-Brass** 1 2 0 2

This course is a continuation of MUS 261B. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 261. Corequisites: None. (S)

**MUS 262G Applied Music IV-Guitar** 1 2 0 2

This course is a continuation of MUS 261G. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 261. Corequisites: None. (S)

**MUS 262P Applied Music IV-Piano** 1 2 0 2

This course is a continuation of MUS 261P. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 261. Corequisites: None. (S)

**MUS 262V Applied Music IV-Voice** 1 2 0 2

This course is a continuation of MUS 261V. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 261. Corequisites: None. (S)

**MUS 262W Applied Music IV-Woodwinds** 1 2 0 2

This course is a continuation of MUS 261W. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion,

students should be able to demonstrate proficiency in the studied skills and repertoire through performance.

Prerequisites: MUS 261. Corequisites: None. (S)

**MUS 270 Music Literature (Coll/Tran)** 3 0 0 3

This course is a survey of music literature from the Middle Ages to the present. Emphasis is placed on selected works of representative composers. Upon completion, students should be able to trace important developments and demonstrate an understanding of the aspects of the composers' styles.

Prerequisites: MUS 122. Corequisites: None. (S)

**MUS 281 Show Choir III (Coll/Tran)** 3 3 0 4

This course provides advanced training in dance/voice-based performance and in the nuances of preparation for such pop/jazz/theatre performances. Emphasis is placed on development of advanced skills necessary for professional group choral performance and the technical skills necessary for the execution of such performances. Upon completion, students should be able to demonstrate the advanced competencies necessary to perform the assigned literature in various venues and under various professional conditions.

Prerequisites: MUS 182. Corequisites: None. (F,S)

**MUS 282 Show Choir IV (Coll/Tran)** 3 3 0 4

This course provides advanced training in dance/voice-based pop/jazz/theatre performances and is the capstone course in a four-semester series. Emphasis is placed on refinement of advanced skills necessary for professional group choral performance and the technical skills necessary for the execution of such performances. Upon completion, students should be able to demonstrate a mastery of the skills necessary to plan and perform the assigned literature in various venues and under various professional conditions.

Prerequisites: MUS 281. Corequisites: None. (F,S)

**MUS 283 Varied Cultures/Mus Perf (Coll/Tran)** 1 2 0 2

This course provides an opportunity for music students to experience various musical cultures and to perform in public venues for audiences in these cultures. Emphasis is placed on the development of performance skills and on the musically historical information that characterizes the specific culture. Upon completion, students should be able to identify new culturally-based musical concepts and will have experiences in working with other cultures and in culturally-reflective environments.

Prerequisites: None. Corequisites: MUS 181 or MUS 182 or MUS 281 or MUS 282. (S - Invitation only)

**NETWORKING TECHNOLOGY****NET 125 Networking Basics** 1 4 0 3

This course introduces the networking field. Emphasis is placed on network terminology and protocols, local-area networks, wide-area networks, OSI model, cabling, router programming, Ethernet, IP addressing, and network standards. Upon completion, Students should be able to perform tasks related to networking mathematics, terminology, and models, media, Ethernet, subnetting, and TCP/IP Protocols.

Prerequisites: None. Corequisites: None. (F,S)

**NET 126 Routing Basics** 1 4 0 3

This course focuses on initial router configuration, router software management, routing protocol configuration, TCP/IP, and access control lists (ACLs). Emphasis will be placed on the fundamentals of router configuration, managing router software, routing protocol, and access lists. Upon completion, students should have an understanding of routers and their role in WANs, router configuration, routing protocols, TCP/IP, troubleshooting, and ACLs.

Prerequisites: NET 125. Corequisites: None. (F,S)

**NET 175 Wireless Technology** 2 2 0 3

This course introduces the student to wireless technology and interoperability with different communication protocols. Topics include Wireless Application Protocol (WAP), Wireless Mark-up language (WML), link manager, service discovery protocol, transport layer and frequency band. Upon completion, students should be able to discuss in written and oral form protocols and procedures required for different wireless applications.

Prerequisites: NET 125. Corequisites: None. (F)

**NET 225 Routing & Switching I** 1 4 0 3  
This course focuses on advanced IP addressing techniques, intermediate routing protocols, command-line interface configuration of switches, Ethernet switching, VLANs, STP, and VTP. Emphasis will be placed on application and demonstration of skills acquired in pre-requisite courses. Upon completion, students should be able to perform tasks related to VLSM, routing protocols, switching concepts and configuration, STP, VLANs, and VTP.  
Prerequisites: NET 126. Corequisites: None. (F,S)

**NET 226 Routing & Switching II** 1 4 0 3  
This course introduces WAN theory and design, WAN technology, PPP, Frame Relay, ISDN, and additional case studies. Topics include network congestion problems, TCP/IP transport and network layer protocols, advanced routing and switching configuration, ISDN protocols, PPP encapsulation operations on a router. Upon completion, students should be able to provide solutions for network routing problems, identify ISDN protocols, and describe the Spanning Tree protocol.  
Prerequisites: NET 225. Corequisites: None. (F,S)

**NET 240 Network Design** 3 0 0 3  
This course covers the principles of the design of LANs and WANs. Topics include network architecture, transmission systems, traffic management, bandwidth requirements, Internet working devices, redundancy, and broad-band versus base-band systems. Upon completion, students should be able to design a network to meet specified business and technical requirements.  
Prerequisites: NET 125. Corequisites: None. (S)

**NET 270 Building Scalable Networks** 1 4 0 3  
This course covers principles and techniques of scalable networks. Topics include building multi-layer networks, controlling overhead traffic in growing routed networks, and router capabilities used to control traffic over LANs and WANs. Upon completion, students should be able to design; implement; and improve traffic flow, reliability, redundancy, and performance in enterprise networks.  
Prerequisites: NET 226. Corequisites: None. (On demand)

**NET 271 Remote Access Networks** 1 4 0 3  
This course covers how to build a remote access network to interconnect central sites to branch offices, home offices, and telecommuters. Topics include enabling on-demand/permanent connections to the central site, scaling and troubleshooting remote access networks, and maximizing bandwidth utilization over remote links. Upon completion, students should be able to assemble and configure equipment, establish WAN connections, enable protocols/technologies, allow traffic between sites, and implement accessible access control.  
Prerequisites: NET 226. Corequisites: None. (On demand)

**NET 272 Multi-Layer Networks** 1 4 0 3  
This course covers building campus networks using multi-layer switching technologies over a high-speed Ethernet. Topics include improving IP routing performance with multi-layer switching, implementing fault tolerance routing, and managing high bandwidth broadcast while controlling IP multi-cast access to networks. Upon completion, students should be able to install and configure multi-layer enterprise networks and determine the required router configurations to support new services and applications.  
Prerequisites: NET 226. Corequisites: None. (On demand)

**NET 273 Internetworking Support** 1 4 0 3  
This course covers how to baseline and troubleshoot and internetworking environment using routers and switches for multi-protocol client, host and servers. Topics include troubleshooting processes, routing and routed protocols, campus switching; and WAN troubleshooting. Upon completion, students should be able to troubleshoot Ethernet, Fast Ethernet, and Token Ring LANs; and Serial, Frame Relay, and ISDN connections.  
Prerequisites: NET 226. Corequisites: None. (On demand)

#### NETWORKING OPERATING SYSTEMS

**NOS 110 Operating System Concepts** 2 3 0 3  
This course introduces students to a broad range of operating system concepts, including installation and maintenance. Emphasis is placed on operating system concepts, management, maintenance, and resources required. Upon completion of this course, students will have an understanding of OS concepts, installation, management, maintenance, using a variety of operating systems.  
Prerequisites: None. Corequisites: None. (F,S)

**NOS 120 Linux/UNIX Single User** 2 2 0 3  
This course develops the necessary skills for students to develop both GUI and command line skills for using and customizing a Linux workstation. Topics include Linux file system and access permissions, GNOME Interface, VI editor, X Window System expression pattern matching, I/O redirection, network and printing utilities. Upon completion, students should be able to customize and use Linux systems for command line requirements and desktop productivity roles.  
Prerequisites: NOS 110. Corequisites: None. (S)

**NOS 130 Windows Single User** 2 2 0 3  
This course introduces operating system concepts for single-user systems. Topics include hardware management, file and memory management, system configuration/optimization, and utilities. Upon completion, students should be able to perform operating systems functions at the support level in a single-user environment.  
Prerequisites: NOS 110. Corequisites: None. (S)

**NOS 220 Linux/UNIX Admin I** 2 2 0 3  
This course introduces the Linux file system, group administration, and system hardware controls. Topics include installation, creation and maintaining file systems, NIS client and DHCP client configuration, NFS, SMB/Samba, Configure X, Gnome, KDE, basic memory, processes, and security. Upon completion, students should be able to perform system administration tasks including installation, configuring and attaching a new Linux workstation to an existing network.  
Prerequisites: NOS 120. Corequisites: None. (On demand)

**NOS 221 Linux/UNIX Admin II** 2 2 0 3  
This course includes skill-building in configuring common network services and security administration using Linux. Topics include server-side setup, configuration, basic administration of common networking services, and security administration using Linux. Upon completion, students should be able to setup a Linux server and configure common network services including security requirements.  
Prerequisites: NOS 220. Corequisites: None. (On demand)

**NOS 222 Linux/UNIX Admin III** 2 2 0 3  
This course includes technical topics in preparing an enterprise Linux system for common uses. Topics include advanced study of hardware, installation, boot process, file system administration, software administration, user administration, system administration, kernel services, configuration, securing services, and troubleshooting. Upon completion, students should be able to administer an enterprise Linux system.  
Prerequisites: NOS 221. Corequisites: None. (On demand)

**NOS 230 Windows Admin I** 2 2 0 3  
This course covers the installation and administration of a Windows Server network operating system. Topics include managing and maintaining physical and logical devices, access to resources, the server environment, managing users, computers, and groups, and Managing/Implementing Disaster Recovery. Upon completion, students should be able to manage and maintain a Windows Server environment.  
Prerequisites: NOS 130. Corequisites: None. (F)

**NOS 231 Windows Admin II** 2 2 0 3  
This course covers implementing, managing, and maintaining a Windows Server network infrastructure. Topics include implementing, managing, and maintaining IP addressing, name resolution, network security, routing and remote access, and managing a network infrastructure. Upon completion, students should be able to manage and maintain a Windows Server environment  
Prerequisites: NOS 230. Corequisites: None. (S)

**NOS 232 Windows Admin III** 2 2 0 3  
This course covers implementing and administering security in a Windows Server network. Topics include implementing, managing, and troubleshooting security policies, patch management infrastructure, security for network communications, authentication, authorization, and PKI. Upon completion, students should be able to implement, manage, and maintain a Windows Server network infrastructure.  
Prerequisites: NOS 231. Corequisites: None. (On demand)

**NOS 240 Novell Admin I** 2 2 0 3  
This course will introduce students to the Novell network operating system. Topics include installing and using NetWare, managing printing, storage space, implement internet services, and managing security. Upon completion, students should have basic knowledge about implementing NetWare and using its management tools.  
Prerequisites: NOS 110. Corequisites: None. (On demand)

**NOS 244 Operating System – AS/400** 2 2 0 3  
This course includes operating systems concepts for AS/400 systems. Topics include hardware management, file and memory management, system configuration/optimization, utilities, Job Control Language, and support functions. Upon completion, students should be able to perform operating system functions in an AS/400 environment.  
Prerequisites: None. Corequisites: None. (S)

## NURSING

**NUR 111 Intro to Health Concepts** 4 6 6 8  
This course introduces the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts within each domain including medication administration, assessment, nutrition, ethics, interdisciplinary teams, informatics, evidence-based practice, individual-centered care, and quality improvement. Upon completion, students should be able to provide safe nursing care incorporating the concepts identified in this course.  
Prerequisites: None. Corequisites: BIO 168. (On demand)

**NUR 111AB Intro to Health Concepts** 2 3 3 4  
This course introduces the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts within each domain including medication administration, assessment, nutrition, ethics, interdisciplinary teams, informatics, evidence-based practice, individual-centered care, and quality improvement. Upon completion, students should be able to provide safe nursing care incorporating the concepts identified in this course.  
Prerequisites: None. Corequisites: BIO 168. (On demand)

**NUR 111BB Intro to Health Concepts** 2 3 3 4  
This course is a continuation of NUR 111AB. This course introduces the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts within each domain including medication administration, assessment, nutrition, ethics, interdisciplinary teams, informatics, evidence-based practice, individual-centered care, and quality improvement. Upon completion, students should be able to provide safe nursing care incorporating the concepts identified in this course.  
Prerequisites: None. Corequisites: BIO 168. (On demand)

**NUR 112 Health-Illness Concepts** 3 0 6 5  
This course is designed to further develop the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts of acid-base, metabolism, cellular regulation, oxygenation, infection, stress/coping, health-wellness-illness, communication, caring interventions, managing care, safety, quality improvement, and informatics. Upon completion, students should be able to provide safe nursing care incorporating the concepts identified in this course.  
Prerequisites: BIO 168, NUR 111, PSY 150.  
Corequisites: BIO 169, PSY 241. (On demand)

**NUR 113 Family Health Concepts** 3 0 6 5  
This course is designed to further develop the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts of oxygenation, sexuality, reproduction, grief/loss, mood/affect, behaviors, development, family, health-wellness-illness, communication, caring interventions, managing care, safety, and advocacy. Upon completion, students should be able to provide safe nursing care incorporating the concepts identified in this course.  
Prerequisites: BIO 168, BIO 169, ENG 111, NUR 111, NUR 112, NUR 114, PSY 150, PSY 241. Corequisites: BIO 275. (On demand)

**NUR 114 Holistic Health Concepts** 3 0 6 5  
This course is designed to further develop the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts of cellular regulation, perfusion, inflammation, sensory perception, stress/coping, mood/affect, cognition, self, violence, health-wellness-illness, professional behaviors, caring interventions, and safety. Upon completion, students should be able to provide safe nursing care incorporating the concepts identified in this course.  
Prerequisites: BIO 168, NUR 111, PSY 150.  
Corequisites: BIO 169, PSY 241. (On demand)

**NUR 211 Health Care Concepts** 3 0 6 5  
This course is designed to further develop the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts of cellular regulation, perfusion, infection, immunity, mobility, comfort, behaviors, health-wellness-illness, clinical decision-making, caring interventions, managing care, and safety. Upon completion, students should be able to provide safe nursing care incorporating the concepts identified in this course.  
Prerequisites: BIO 168, BIO 169, NUR 111, NUR 112, NUR 114, PSY 150, PSY 241. Corequisites: ENG 111. (On demand)

**NUR 212 Health System Concepts** 3 0 6 5  
This course is designed to further develop the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts of grief/loss, violence, health-wellness-illness, collaboration, managing care, safety, advocacy, legal issues, policy, healthcare systems, ethics, accountability, and evidence-based practice. Upon completion, students should be able to provide safe nursing care incorporating the concepts identified in this course.  
Prerequisites: BIO 168, BIO 169, NUR 111, NUR 112, NUR 114, PSY 150, PSY 241. Corequisites: ENG 111. (On demand)

**NUR 213 Complex Health Concepts** 4 3 15 10  
This course is designed to assimilate the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts of fluid/electrolytes, metabolism, perfusion, mobility, stress/coping, violence, health-wellness-illness, professional behaviors, caring interventions, managing care, healthcare systems, and quality improvement. Upon completion, students should be able to demonstrate the knowledge, skills, and attitudes necessary to provide quality, individualized, entry level nursing care.  
Prerequisites: Take NUR 111. Corequisites: ENG 112 or ENG 113, or ENG 114; NUR 112, NUR 113, NUR 114, NUR 211, NUR 112.

**NUR 213AB Complex Health Concepts** 2 2 7 5  
This course is designed to assimilate the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts of fluid/electrolytes, metabolism, perfusion, mobility, stress/coping, violence, health-wellness-illness, professional behaviors, caring interventions, managing care, healthcare systems, and quality improvement. Upon completion, students should be able to demonstrate the knowledge, skills, and attitudes necessary to provide quality, individualized, entry level nursing care.  
Prerequisites: BIO 168, BIO 169, BIO 275, ENG 111, NUR 111, NUR 112, NUR 113, NUR 114, NUR 211, NUR 212, PSY 150, PSY 241.  
Corequisites: ENG 112 or ENG 113, or ENG 114. (On demand)

**NUR 213BB Complex Health Concepts** 2 1 8 5  
This course is a continuation of NUR 213AB. This course is designed to assimilate the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts of fluid/electrolytes, metabolism, perfusion, mobility, stress/coping, violence, health-wellness-illness, professional behaviors, caring interventions, managing care, healthcare systems, and quality improvement. Upon completion, students should be able to demonstrate the knowledge, skills, and attitudes necessary to provide quality, individualized, entry level nursing care.  
Prerequisites: BIO 168, BIO 169, BIO 275, ENG 111, NUR 111, NUR 112, NUR 113, NUR 114, NUR 211, NUR 212, PSY 150, PSY 241.  
Corequisites: ENG 112 or ENG 113, or ENG 114. (On demand)

## OFFICE SYSTEMS TECHNOLOGY

### **OST 080 Keyboarding Literacy 1 2 0 2**

This course is designed to develop elementary keyboarding skills. Emphasis is placed on mastery of the keyboard. Upon completion, students should be able to demonstrate basic proficiency in keyboarding.

Prerequisites: None. Corequisites: None.

### **OST 131 Keyboarding 1 2 0 2**

This course covers basic keyboarding skills. Emphasis is placed on the touch system, correct techniques, and development of speed and accuracy. Upon completion, students should be able to key at an acceptable speed and accuracy level using the touch system.

Prerequisites: None. Corequisites: CTS 080 or CIS 110. (On demand)

### **OST 132 Keyboard Skill Building 1 2 0 2**

This course is designed to increase speed and improve accuracy in keyboarding. Emphasis is placed on diagnostic tests to identify accuracy and speed deficiencies followed by corrective drills. Upon completion, students should be able to keyboard rhythmically with greater accuracy and speed.

Prerequisites: OST 080. Corequisites: None. (F)

### **OST 136 Word Processing 2 2 0 3**

This course is designed to introduce word processing concepts and applications. Topics include preparation of a variety of documents and mastery of specialized software functions. Upon completion, students should be able to work effectively in a computerized word processing environment.

Prerequisites: None. Corequisites: CTS 080. (F)

### **OST 137 Office Software Applicat 2 2 0 3**

This course introduces the concepts and functions of software that meets the changing needs of the community. Emphasis is placed on the terminology and use of software through a hands on approach. Upon completion, students should be able to use software in a business environment.

Prerequisites: None. Corequisites: CTS 080. (S)

### **OST 148 Med Coding Billing & Insu 3 0 0 3**

This course introduces fundamentals of medical coding, billing, and insurance. Emphasis is placed on the medical billing cycle to include third party payers, coding concepts, and form preparation. Upon completion, students should be able to explain the life cycle of and accurately complete a medical insurance claim.

Prerequisites: None. Corequisites: None. (S)

### **OST 149 Medical Legal Issues 3 0 0 3**

This course introduces the complex legal, moral, and ethical issues involved in providing health-care services. Emphasis is placed on the legal requirements of medical practices; the relationship of physician, patient, and office personnel; professional liabilities; and medical practice liability. Upon completion, students should be able to demonstrate a working knowledge of current medical law and accepted ethical behavior.

Prerequisites: None. Corequisites: None. (S,SU)

### **OST 153 Office Finance Solutions 1 2 0 2**

This course introduces basic bookkeeping concepts. Topics include entering data in accounts payable and receivable, keeping petty cash records, maintaining inventory, reconciling bank statements, running payroll, and generating simple financial reports. Upon completion, students should be able to demonstrate competence in the entry and manipulation of data to provide financial solutions for the office.

Prerequisites: None. Corequisites: CTS 080. (S)

### **OST 164 Text Editing Applications 3 0 0 3**

This course provides a comprehensive study of editing skills needed in the workplace. Emphasis is placed on grammar, punctuation, sentence structure, proofreading, and editing. Upon completion, students should be able to use reference materials to compose and edit text.

Prerequisites: None. Corequisites: CTS 080. (F)

### **OST 165 Adv Text Editing Apps 2 2 0 3**

This course is designed to develop proficiency in advanced editing skills needed in the office environment. Emphasis is placed on the application of creating

effective electronic office documents. Upon completion, students should be able to apply advanced editing skills to compose text.

Prerequisites: OST 164. Corequisites: None. (F)

### **OST 181 Intro to Office Systems 2 2 0 3**

This course introduces the skills and abilities needed in today's office. Topics include effectively interacting with co-workers and the public, processing simple financial and informational documents, and performing functions typical of today's offices. Upon completion, students should be able to display skills and decision-making abilities essential for functioning in the total office context.

Prerequisites: None. Corequisites: None. (S)

### **OST 184 Records Management 2 2 0 3**

This course includes the creation, maintenance, protection, security, and disposition of records stored in a variety of media forms. Topics include alphabetic, geographic, subject, and numeric filing methods. Upon completion, students should be able to set up and maintain a records management system.

Prerequisites: None. Corequisites: CTS 080. (S)

### **OST 243 Med Office Simulation 2 2 0 3**

This course introduces medical systems used to process information in the automated office. Topics include traditional and electronic information resources, storing and retrieving information, and the billing cycle. Upon completion, students should be able to use the computer accurately to schedule, bill, update, and make corrections.

Prerequisites: OST 148. Corequisites: None. (S)

### **OST 247 Procedure Coding 1 2 0 2**

This course provides in-depth coverage of procedural coding. Emphasis is placed on CPT and HCPCS coding systems. Upon completion, students should be able to properly code procedures and services performed in a medical facility.

Prerequisites: MED 121 or OST 141. Corequisites: None. (F,S)

### **OST 248 Diagnostic Coding 1 2 0 2**

This course provides an in-depth study of diagnostic coding. Emphasis is placed on ICD coding system. Upon completion, students should be able to properly code diagnoses in a medical facility.

Prerequisites: MED 121 or OST 141. Corequisites: None. (S)

### **OST 281 Emer Issues in Med Ofc 3 0 0 3**

This course provides a comprehensive discussion of topics familiar to the health care setting. Topics include emerging issues in the health care setting. Upon completion, students should be able to demonstrate an understanding of current medical office procedures and treatments.

Prerequisites: None. Corequisites: None. (S)

### **OST 284 Emerging Technologies 1 2 0 2**

This course provides opportunities to explore emerging technologies. Emphasis is placed on identifying, researching, and presenting current technological topics for class consideration and discussion. Upon completion, students should be able to understand the importance of keeping abreast of technological changes that affect the office professional.

Prerequisites: None. Corequisites: CTS 080. (S)

### **OST 286 Professional Development 3 0 0 3**

This course covers the personal competencies and qualities needed to project a professional image in the office. Topics include interpersonal skills, health lifestyles, appearance, attitude, personal and professional growth, multicultural awareness, and professional etiquette. Upon completion, students should be able to demonstrate these attributes in the classroom, office, and society.

Prerequisites: None. Corequisites: None. (F)

### **OST 289 Administrative Office Mgt 2 2 0 3**

This course is designed to be a capstone course for the office professional and provides a working knowledge of modern office procedures. Emphasis is placed on scheduling, telephone procedures, travel arrangements, event planning, office design, and ergonomics. Upon completion, students should be able to adapt in an office environment.

Prerequisites: OST 134 and OST 164, or OST 136 and OST 164.

Corequisites: None. (S)

## PUBLIC ADMINISTRATION

### **PAD 254 Grant Writing 3 0 0 3**

This course covers the basic techniques of successful grant writing. Topics include concept development, funding sources research, and writing skills relevant to the grants process. Upon completion, students should be able to demonstrate a basic understanding of the grants process.  
Prerequisites: None. Corequisites: None

## PHYSICAL EDUCATION

### **PED 110 Fit and Well for Life (Coll/Tran) 1 2 0 2**

This course is designed to investigate and apply the basic concepts and principles of lifetime physical fitness and other health related factors. Emphasis is placed on wellness through the study of nutrition, weight control, stress management, and consumer facts on exercise and fitness. Upon completion, students should be able to plan a personal, lifelong fitness program based on individual needs, abilities, and interests.  
Prerequisites: None. Corequisites: None. (S, On demand)

### **PED 113 Aerobics I (Coll/Tran) 0 3 0 1**

This course introduces a program of cardiovascular fitness involving continuous, rhythmic exercise. Emphasis is placed on developing cardiovascular efficiency, strength, and flexibility and on safety precautions. Upon completion, students should be able to select and implement a rhythmic aerobic exercise program.  
Prerequisites: None. Corequisites: None. (F,S, On demand)

### **PED 114 Aerobics II (Coll/Tran) 0 3 0 1**

This course provides a continuation of a program of cardiovascular fitness involving rhythmic exercise. Emphasis is placed on a wide variety of aerobic activities which include cardiovascular efficiency, strength, and flexibility. Upon completion, students should be able to participate in and design a rhythmic aerobic exercise routine.  
Prerequisites: PED 113 or equivalent training or experience. Corequisites: None. (On demand)

### **PED 117 Weight Training I (Coll/Tran) 0 3 0 1**

This course introduces the basics of weight training. Emphasis is placed on developing muscular strength, muscular endurance, and muscle tone. Upon completion, students should be able to establish and implement a personal weight training program.  
Prerequisites: None. Corequisites: None. (F,S, On demand)

### **PED 118 Weight Training II (Coll/Tran) 0 3 0 1**

This course covers advanced levels of weight training. Emphasis is placed on meeting individual training goals and addressing weight training needs and interests. Upon completion, students should be able to establish and implement an individualized advanced weight training program.  
Prerequisites: PED 117 or equivalent training or experience. Corequisites: None. (F,S, On demand)

### **PED 120 Walking for Fitness (Coll/Tran) 0 3 0 1**

This course introduces fitness through walking. Emphasis is placed on stretching, conditioning exercises, proper clothing, fluid needs, and injury prevention. Upon completion, students should be able to participate in a recreational walking program.  
Prerequisites: None. Corequisites: None. (On demand)

### **PED 121 Walk, Jog, Run (Coll/Tran) 0 3 0 1**

This course covers the basic concepts involved in safely and effectively improving cardiovascular fitness. Emphasis is placed on walking, jogging, or running as a means of achieving fitness. Upon completion, students should be able to understand and appreciate the benefits derived from these activities.  
Prerequisites: None. Corequisites: None. (On demand)

### **PED 122 Yoga I (Coll/Tran) 0 2 0 1**

This course introduces the basic discipline of yoga. Topics include proper breathing, relaxation techniques, and correct body positions. Upon completion, students should be able to demonstrate the procedures of yoga.  
Prerequisites: None. Corequisites: None. (F,S, On demand)

### **PED 123 Yoga II (Coll/Tran) 0 2 0 1**

This course introduces more detailed aspects of the discipline of yoga. Topics include breathing and physical postures, relaxation, and mental concen-

tration. Upon completion, students should be able to demonstrate advanced procedures of yoga.

Prerequisites: PED 122. Corequisites: None.

### **PED 124 Run, Swim, Cycle (Coll/Tran) 0 3 0 1**

This course introduces the sport of the triathlon. Topics include the rules, equipment, and skills necessary for the triathlon. Upon completion, students should be able to participate in a triathlon competition.  
Prerequisites: None. Corequisites: None. (On demand)

### **PED 125 Self-Defense-Beginning (Coll/Tran) 0 2 0 1**

This course is designed to aid students in developing rudimentary skills in self-defense. Emphasis is placed on stances, blocks, punches, and kicks as well as non-physical means of self-defense. Upon completion, students should be able to demonstrate basic self defense techniques of a physical and non-physical nature.  
Prerequisites: None. Corequisites: None. (On demand)

### **PED 128 Golf-Beginning (Coll/Tran) 0 2 0 1**

This course emphasizes the fundamentals of golf. Topics include the proper grips, stance, alignment, swings for the short and long game, putting, and the rules and etiquette of golf. Upon completion, students should be able to perform the basic golf shots and demonstrate a knowledge of the rules and etiquette of golf.  
Prerequisites: None. Corequisites: None. (On demand)

### **PED 129 Golf-Intermediate (Coll/Tran) 0 2 0 1**

This course covers the more advanced phases of golf. Emphasis is placed on refining the fundamental skills and learning more advanced phases of the games such as club selection, trouble shots, and course management. Upon completion, students should be able demonstrate the knowledge and ability to play a recreational round of golf.  
Prerequisites: PED 128 or equivalent training or experience. Corequisites: None. (On demand)

### **PED 130 Tennis-Beginning (Coll/Tran) 0 2 0 1**

This course emphasizes the fundamentals of tennis. Topics include basic strokes, rules, etiquette, and court play. Upon completion, students should be able to play recreational tennis.  
Prerequisites: None. Corequisites: None. (F,S,U, On demand)

### **PED 131 Tennis-Intermediate (Coll/Tran) 0 2 0 1**

This course emphasizes the refinement of playing skills. Topics include continuing the development of fundamentals, learning advanced serves, and strokes and pace and strategies in singles and doubles play. Upon completion, students should be able to play competitive tennis.  
Prerequisites: PED 130 or equivalent training or experience. Corequisites: None. (On demand)

### **PED 137 Badminton (Coll/Tran) 0 2 0 1**

This course covers the fundamentals of badminton. Emphasis is placed on the basics of serving, clears, drops, drives, smashes, and the rules and strategies of singles and doubles. Upon completion, students should be able to apply these skills in playing situations.  
Prerequisites: None. Corequisites: None. (On demand)

### **PED 138 Archery (Coll/Tran) 0 2 0 1**

This course introduces basic archery safety and skills. Topics include proper techniques of stance, bracing, drawing, and releasing as well as terminology and scoring. Upon completion, students should be able to participate safely in target archery.  
Prerequisites: None. Corequisites: None. (On demand)

### **PED 139 Bowling-Beginning (Coll/Tran) 0 2 0 1**

This course introduces the fundamentals of bowling. Emphasis is placed on ball selection, grips, stance, and delivery along with rules and etiquette. Upon completion, students should be able to participate in recreational bowling.  
Prerequisites: None. Corequisites: None. (On demand)

### **PED 142 Lifetime Sports (Coll/Tran) 0 2 0 1**

This course is designed to give an overview of a variety of sports activities. Emphasis is placed on the skills and rules necessary to participate in a variety of lifetime sports. Upon completion, students should be able to demonstrate an awareness of the importance of participating in lifetime sports activities.  
Prerequisites: None. Corequisites: None. (On demand)

**PED 143 Volleyball-Beginning** (Coll/Tran) **0 2 0 1**  
This course covers the fundamentals of volleyball. Emphasis is placed on the basics of serving, passing, setting, spiking, blocking, and the rules and etiquette of volleyball. Upon completion, students should be able to participate in recreational volleyball. Prerequisites: None. Corequisites: None. (On demand)

**PED 144 Volleyball-Intermediate** (Coll/Tran) **0 2 0 1**  
This course covers more advanced volleyball techniques. Emphasis is placed on refining skills and developing more advanced strategies and techniques. Upon completion, students should be able to participate in competitive volleyball. Prerequisites: PED 143. Corequisites: None. (On demand)

**PED 145 Basketball-Beginning** (Coll/Tran) **0 2 0 1**  
This course covers the fundamentals of basketball. Emphasis is placed on skill development, knowledge of the rules, and basic game strategy. Upon completion, students should be able to participate in recreational basketball. Prerequisites: None. Corequisites: None. (On demand)

**PED 146 Basketball-Intermediate** (Coll/Tran) **0 2 0 1**  
This course covers more advanced basketball techniques. Emphasis is placed on refining skills and developing more advanced strategies and techniques. Upon completion, students should be able to play basketball at a competitive level. Prerequisites: PED 145. Corequisites: None. (On demand)

**PED 147 Soccer** (Coll/Tran) **0 2 0 1**  
This course introduces the basics of soccer. Emphasis is placed on rules, strategies, and fundamental skills. Upon completion, students should be able to participate in recreational soccer. Prerequisites: None. Corequisites: None. (On demand)

**PED 148 Softball** (Coll/Tran) **0 2 0 1**  
This course introduces the fundamental skills and rules of softball. Emphasis is placed on proper techniques and strategies for playing softball. Upon completion, students should be able to participate in recreational softball. Prerequisites: None. Corequisites: None. (On demand)

**PED 150 Baseball - Beginning** (Coll/Tran) **0 3 0 1**  
This course covers the fundamentals of baseball. Emphasis is placed on skill development, knowledge of the rules, and basic game strategy. Upon completion, students should be able to participate in recreational baseball. Prerequisites: None. Corequisites: None.

**PED 152 Swimming-Beginning** (Coll/Tran) **0 2 0 1**  
This course is designed for non-swimmers and beginners. Emphasis is placed on developing confidence in the water, learning water safety, acquiring skills in floating, and learning elementary strokes. Upon completion, students should be able to demonstrate safety skills and be able to tread water, back float, and use the crawl stroke for 20 yards. Prerequisites: None. Corequisites: None. (On demand)

**PED 153 Swimming-Intermediate** (Coll/Tran) **0 2 0 1**  
This course is designed for those who have mastered basic swimming skills. Emphasis is placed on refining basic skills and learning new swim strokes. Upon completion, students should be able to demonstrate the four basic strokes, the scissors kick, the underwater swim, and other related skills. Prerequisites: PED 152 or proficiency in swimming. Corequisites: None. (On demand)

**PED 154 Swimming for Fitness** (Coll/Tran) **0 3 0 1**  
This course introduces lap swimming, aquacises, water activities, and games. Emphasis is placed on increasing cardiovascular efficiency through aquatic exercise. Upon completion, students should be able to develop an individualized aquatic fitness program. Prerequisites: PED 152. Corequisites: None. (On demand)

**PED 156 Scuba Diving** (Coll/Tran) **0 2 0 1**  
This course provides basic instruction in fundamental skills and safety procedures for scuba diving. Emphasis is placed on the history, theory, and principles of diving; development of diving skills; safety; and care and maintenance of equipment. Upon completion, students should be able to demonstrate skills, knowledge, and techniques of scuba diving in preparation for diver certification. Prerequisites: PED 153 or proficiency in swimming. Corequisites: None. (On demand)

**PED 158 Whitewater Rafting** (Coll/Tran) **0 2 0 1**  
This course covers the skills necessary to safely participate in whitewater rafting. Topics include raft guiding, paddling skills, scouting rapids, and rigging boats. Upon completion, students should be able to successfully complete a whitewater rafting experience. Prerequisites: PED 152. Corequisites: None.

**PED 160 Canoeing-Basic** (Coll/Tran) **0 2 0 1**  
This course provides basic instruction for the beginning canoeist. Emphasis is placed on safe and correct handling of the canoe and rescue skills. Upon completion, students should be able to demonstrate basic canoeing, safe-handling, and self-rescue skills. Prerequisites: None. Corequisites: None.

**PED 161 Canoeing-Rivers** (Coll/Tran) **0 2 0 1**  
This course provides practice in the basic skills of river and whitewater canoeing. Emphasis is placed on river running, safety, and care of equipment. Upon completion, students should be able to demonstrate navigation in a moving current, canoe safety, and self-rescue skills. Prerequisites: PED 160. Corequisites: None.

**PED 163 Kayaking-Basic** (Coll/Tran) **0 2 0 1**  
This course is designed to teach the basic skills of kayaking. Topics include forward and reverse strokes, sweeps, Eskimo roll, and self-rescue skills. Upon completion, students should be able to maneuver and demonstrate safe kayaking practices. Prerequisites: PED 152. Corequisites: None.

**PED 171 Nature Hiking** (Coll/Tran) **0 2 0 1**  
This course provides instruction on how to equip and care for oneself on the trail. Topics include clothing, hygiene, trail ethics, and necessary equipment. Upon completion, students should be able to successfully participate in nature trail hikes. Much of this course involves travel to and participation on nearby mountain trails. Prerequisites: None. Corequisites: None. (On demand)

**PED 180 Cycling** (Coll/Tran) **0 2 0 1**  
This course is designed to promote physical fitness through cycling. Emphasis is placed on selection and maintenance of the bicycle, gear shifting, pedaling techniques, safety procedures, and conditioning exercises necessary for cycling. Upon completion, students should be able to demonstrate safe handling of a bicycle for recreational use. Much of this course involves travel to and participation on roads away from campus. Prerequisites: None. Corequisites: None. (On demand)

**PED 181 Snow Skiing-Beginning** (Coll/Tran) **0 2 0 1**  
This course introduces the fundamentals of snow skiing. Topics include basic techniques, safety, and equipment involved in snow skiing. Upon completion, students should be able to ski a down slope, enter and exit a ski lift, and perform basic maneuvers on skis. Prerequisites: None. Corequisites: None. (S)

**PED 212 Snowboarding-Beginning** (Coll/Tran) **0 2 0 1**  
This course is designed to develop the basic knowledge and skills of snowboard. Topics include equipment, conditioning exercises, terminology, safety, rules, fundamental skills, and the use of lifts. Upon completion, students should be able to snowboard downhill, enter and exit a ski lift, and perform basic maneuvers on a snowboard. Prerequisites: None. Corequisites: None. (S)

**PED 217 Pilates I** (Coll/Tran) **0 2 0 1**  
This course provides an introduction to the pilates method of body conditioning exercise. Topics include instruction in beginning and intermediate pilates exercises using a mat or equipment, history of pilates method, and relevant anatomy and physiology. Upon completion, students should be able to perform beginning and intermediate exercises, and possess an understanding of the benefits of conditioning the body's core muscles. Prerequisites: None. Corequisites: None.



**PED 218 Pilates II** (Coll/Tran) **0 2 0 1**  
This course provides continued instruction to the pilates method of body conditioning exercise. Topics include instruction in intermediate and advanced pilates exercises using a mat or equipment, relevant anatomy and physiology, and further discussion of related concepts. Upon completion, students should be able to perform intermediate and advanced exercises, and possess the autonomy to maintain their own personal pilates practice.  
Prerequisites: PED 217. Corequisites: None.

**PED 220 Exer for Phys Challenged** (Coll/Tran) **0 2 0 1**  
This course is designed to improve physical strength, endurance, and range of motion while focusing on individual needs. Emphasis is placed on exercises which are designed and adapted to serve those with special needs. Upon completion, students should be able to show improved physical fitness, body awareness, and an appreciation for their physical well-being.  
Prerequisites: None. Corequisites: None. (On demand)

**PED 250 Officiating/Bkball/Vball** (Coll/Tran) **1 2 0 2**  
This course introduces the rules and techniques for sports officiating in basketball and volleyball. Emphasis is placed on officiating fundamentals and responsibilities. Upon completion, students should be able to demonstrate proper mechanics and knowledge of officiating procedures in basketball and volleyball.  
Prerequisites: None. Corequisites: None. (On demand)

**PED 251 Officiating/Ftball/Soccer** (Coll/Tran) **1 2 0 2**  
This course introduces the rules and techniques for sports officiating in football and soccer. Emphasis is placed on officiating fundamentals and responsibilities. Upon completion, students should be able to demonstrate proper mechanics and knowledge of officiating procedures in football and soccer.  
Prerequisites: None. Corequisites: None. (On demand)

**PED 252 Officiating/Bsball/Sfball** (Coll/Tran) **1 2 0 2**  
This course introduces the rules and techniques for sports officiating in baseball and softball. Emphasis is placed on officiating fundamentals and responsibilities. Upon completion, students should be able to demonstrate proper mechanics and knowledge of officiating procedures in baseball and softball.  
Prerequisites: None. Corequisites: None. (On demand)

**PED 254 Coaching Basketball** (Coll/Tran) **1 2 0 2**  
This course introduces the theory and methods of coaching basketball. Emphasis is placed on rules, game strategies, and selected techniques of coaching basketball. Upon completion, students should be able to demonstrate competent coaching skills in basketball.  
Prerequisites: None. Corequisites: None. (On demand)

**PED 256 Coaching Baseball** (Coll/Tran) **1 2 0 2**  
This course introduces the theory and methods of coaching baseball. Emphasis is placed on rules, game strategies, and selected techniques of coaching baseball. Upon completion, students should be able to demonstrate competent coaching skills in baseball.  
Prerequisites: None. Corequisites: None. (On demand)

**PED 259 Prev & Care Ath Injuries** (Coll/Tran) **1 2 0 2**  
This course provides information on the prevention and care of athletic injuries. Topics include safety devices, taping, therapeutic techniques, and conditioning exercises. Upon completion, students should be able to demonstrate proper preventive measures and skills in caring for athletic injuries.  
Prerequisites: None. Corequisites: None. (On demand)

## PHILOSOPHY

**PHI 210 History of Philosophy** (Coll/Tran) **3 0 0 3**  
This course introduces fundamental philosophical issues through an historical perspective. Emphasis is placed on such figures as Plato, Aristotle, Lao-Tzu, Confucius, Augustine, Aquinas, Descartes, Locke, Kant, Wollstonecraft, Nietzsche, and Sartre. Upon completion, students should be able to identify and distinguish among the key positions of the philosophers studied. Primary sources are examined to understand the key philosophical ideas that have shaped the way we think.  
Prerequisites: ENG 111. Corequisites: None. (On demand)

**PHI 240 Introduction to Ethics** (Coll/Tran) **3 0 0 3**  
This course introduces theories about the nature and foundations of moral judgments and applications to contemporary moral issues. Emphasis is placed on utilitarianism, rule-based ethics, existentialism, relativism versus objectivism, and egoism. Upon completion, students should be able to apply various ethical theories to individual moral issues such as euthanasia, abortion, crime and punishment, and justice. Primary sources are examined to better understand the background of ethical theories.  
Prerequisites: ENG 111. Corequisites: None. (On demand)

## PHOTOGRAPHY

**PHO 110 Fund of Photography** **3 6 0 5**  
This course covers the basic technical aspects of photography, including camera controls, light and optics, flash, exposure, and processing. Emphasis is placed on principles of camera design and the relationship between subject and photographic image, with hands-on experience. Upon completion, students should be able to consistently produce technically excellent images.  
Prerequisites: None. Corequisites: None. (F)

**PHO 113 History of Photography** **3 0 0 3**  
This course introduces the history of photography from its inception through contemporary times. Emphasis is placed on technical and aesthetical developments in artistic and commercial photography. Upon completion, students should be able to identify significant photographers and procedures, trace the development of the medium, and discuss current trends in photography.  
Prerequisites: None. Corequisites: None.

**PHO 115 Basic Studio Lighting** **2 6 0 4**  
This course covers the basic principles of studio lighting. Topics include basic lighting techniques and application of lighting ratios to product illustration/portraiture using tungsten/electronic strobe sources, with emphasis on equipment maintenance and safety. Upon completion, students should be able to select and set up the best lights and lighting applications for a wide variety of photographic subjects.  
Prerequisites: PHO 110. Corequisites: None. (S)

**PHO 120 Intermediate Photography** **2 4 0 4**  
This course expands the coverage of photographic materials and provides an opportunity to experiment. Emphasis is placed on additional techniques and processes, including solarization, multiple-imaging, infrared toning, and other non-traditional uses of photography. Upon completion, students should be able to demonstrate how the choice of technique enhances the photographic subject and influences content.  
Prerequisites: PHO 110. Corequisites: None. (S)

**PHO 139 Intro to Digital Imaging** **1 3 0 2**  
This course introduces digital images by exploring the effect hardware and software have on the reproduction process. Topics include basic imaging tools and vocabulary, calibration, density, contrast, and color. Upon completion, students should be able to demonstrate a basic understanding of the digital imaging process and be able to capture and output images.  
Prerequisites: None. Corequisites: None.

**PHO 150 Portfolio Development I** **3 3 0 4**  
This course provides an opportunity to develop a thematically related portfolio of photographic images that are consistent in print quality. Emphasis is placed on subject/content development, choice of materials, and archival processing controls; organizing and sequencing images; editing; print finishing; and portfolio presentation. Upon completion, students should be able to edit and exhibit a consistent body of photographic prints in a portfolio presentation.  
Prerequisites: PHO 120. Corequisites: None. (F)

**PHO 180 Creative Problem Solving** **1 4 0 3**  
This course encourages the development of innovative photographic solutions to instructor-assigned tasks. Emphasis is placed on identifying components necessary to complete the task and applying creative solutions. Upon completion, students should be able to solve problems in a variety of photographic areas, combining media where needed to achieve the desired results.  
Prerequisites: PHO 110 and permission of instructor.  
Corequisites: None. (On demand)

**PHO 216 Documentary Photography 2 4 0 4**  
This course introduces the practical, historical, and contemporary applications of documentary photography. Emphasis is placed on understanding the various approaches to creating a photographic documentary and how a documentary project can affect society. Upon completion, students should be able to produce a documentary project on a topic of interest to them.  
Prerequisites : PHO 110. Corequisites: None.

**PHO 217 Photojournalism I 1 6 0 4**  
This course covers logistics and techniques used in current professional newspaper photography. Topics include detailed study of spot and general news, sports, and feature photography along with basic newspaper layout, advanced photographic techniques, and legal issues. Upon completion, students should be able to demonstrate an understanding of basic aspects of news, sports, and feature photography.  
Prerequisites: PHO 110. Corequisites: None. (S)

**PHO 219 Digital Applications 1 3 0 2**  
This course provides additional experience in digital photography including input/output and computer manipulation of images. Topics include legal and ethical issues and commonly used hardware and software packages, including their basic controls and imaging tools. Upon completion, students should be able to input/output images and manipulate images.  
Prerequisites: PHO 139. Corequisites: None.

**PHO 220 Business of Photography 3 0 0 3**  
This course covers the business practices of photography with emphasis on freelance photography. Topics include copyright, payment fees, client relations, licenses, insurance, assignments, stock sales, and usage rates. Upon completion, students should be able to demonstrate an understanding of the photographic business, including billing, clients, copyright protection, and obtaining assignments.  
Prerequisites: None. Corequisites: None. (S)

**PHO 224 Multimedia Production 2 3 0 3**  
This course covers various aspects of computer based multimedia production. Topics include sound recording and editing techniques and software, multimedia software, control of image and continuity and pacing, script writing, copyright laws and ethics. Upon completion, students should be able to use computer hardware and software for multimedia production.  
Prerequisites: PHO 110. Corequisites: None. (S)

**PHO 226 Portraiture 3 3 0 4**  
This course covers the techniques of contemporary studio and location portraiture. Topics include lighting techniques, lighting ratios, available light to multiple light setups, posing techniques, and styles of glamour, fashion, corporate, and public relations portraiture. Upon completion, students should be able to choose the appropriate lighting, accessories, and posing style to produce a successful portrait. Formal and candid wedding photography will also be a part of the course of study.  
Prerequisites: PHO 115. Corequisites: None. (F)

**PHO 235 Commercial Photography 2 4 0 4**  
This course covers the techniques of advertising photography used in the print media. Emphasis is placed on the conception, lighting, and creation of photographic illustration used for food, fashion, and product photography. Upon completion, students should be able to produce advertising photographs for professional photographic illustration.  
Prerequisites: PHO 115. Corequisites: None. (S)

**PHO 250 Portfolio Development II 2 4 0 4**  
This course provides an opportunity to develop a diversified professional portfolio of photographs. Emphasis is placed on the development of a portfolio exhibiting technical excellence, consistency of vision, and professional presentation. Upon completion, students should be able to present a diversified portfolio of professional quality photographs to potential employers.  
Prerequisites: PHO 217, PHO 226, PHO 235. Corequisites: None. (S)

## PHYSICAL SCIENCE

**PHS 130 Earth Science (Coll/Tran) 3 2 0 4**  
This course is a survey of the forces that impact the earth. Topics include geology, oceanography, and meteorology. Upon completion, students should be able to explain and identify the forces within, on, and around the earth as they influence the earth's dynamics.  
Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (On demand)

## PHYSICS

**PHY 110 Conceptual Physics (Coll/Tran) 3 0 0 3**  
This course provides a conceptually-based exposure to the fundamental principles and processes of the physical world. Topics include basic concepts of motion, forces, energy, heat, electricity, magnetism, and the structure of matter and the universe. Upon completion, students should be able to describe examples and applications of the principles studied.  
Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050; RED 090 or appropriate placement test scores. Corequisites: PHY 110A. (F,S)

**PHY 110A Conceptual Physics Lab (Coll/Tran) 0 2 0 1**  
This course is a laboratory for PHY 110. Emphasis is placed on laboratory experiences that enhance materials presented in PHY 110. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in PHY 110.  
Prerequisites: None. Corequisites: PHY 110. (F,S)

**PHY 121 Applied Physics I 3 2 0 4**  
This algebra-based course introduces fundamental physical concepts as applied to industrial and service technology fields. Topics include systems of units, problem-solving methods, graphical analyses, vectors, motion, forces, Newton's laws of motion, work, energy, power, momentum, and properties of matter. Upon completion, students should be able to demonstrate an understanding of the principles studied as applied in industrial and service fields.  
Prerequisites: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050; RED 090 or appropriate placement test scores. Corequisites: ENG 111. (S)

**PHY 131 Physics-Mechanics 3 2 0 4**  
This algebra/trigonometry-based course introduces fundamental physical concepts as applied to engineering technology fields. Topics include systems of units, problem-solving methods, graphical analysis, vectors, motion, forces, Newton's laws of motion, work, energy, power, momentum, and properties of matter. Upon completion, students should be able to apply the principles studied to applications in engineering technology fields. MAT 122 or MAT 172 is recommended prior to or concurrently with this course.  
Prerequisites: MAT 121 or MAT 161 or MAT 171 or MAT 175 (must pass with a grade of "C" or higher); RED 090 or appropriate placement test score.  
Corequisites: None. (F,S)

**PHY 132 Physics-Elec & Magnetism 3 2 0 4**  
This algebra/trigonometry-based course is a study of fundamental physical concepts as applied to engineering technology fields. Topics include systems of units, problem-solving methods, graphical analysis, waves, electricity, magnetism, circuits, transformers, motors, and generators. Upon completion, students should be able to apply the principles studied to applications in engineering technology fields.  
Prerequisites: PHY 131 must pass with a grade of "C" or higher.  
Corequisites: None. (S)

**PHY 133 Physics-Sound & Light 3 2 0 4**  
This algebra/trigonometry-based course is a study of fundamental physical concepts as applied to engineering technology fields. Topics include systems of units, problem-solving methods, graphical analysis, wave motion, sound, light, and modern physics. Upon completion, students should be able to apply the principles studied to applications in engineering technology fields.  
Prerequisites: PHY 131. Corequisites: None. (On demand)

**PHY 151 College Physics I (Coll/Tran) 3 2 0 4**  
This course uses algebra- and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include units and measurement, vectors, linear kinematics and dynamics, energy, power, momentum, fluid mechanics, and heat. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered. MAT 122 or MAT 172 is recommended prior to or concurrently with this course. Prerequisites: MAT 161 or MAT 171 or MAT 175 (must pass with a grade of "C" or higher); RED 090 or appropriate placement test score. Corequisites: None. (F,S)

**PHY 152 College Physics II (Coll/Tran) 3 2 0 4**  
This course uses algebra- and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include electrostatic forces, electric fields, electric potentials, direct-current circuits, magnetostatic forces, magnetic fields, electromagnetic induction, alternating current circuits, and light. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered. Prerequisites: PHY 151 must pass with a grade of "C" or higher. Corequisites: None. (S)

**PHY 153 Modern Topics in Physics (Coll/Tran) 3 2 0 4**  
This course uses algebra- and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include atomic structure, nuclear processes, natural and artificial radioactivity, basic quantum theory, and special relativity. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered. Additional topics may include principles of waves, light, and applications of basic quantum processes in lasers and fiber optics. Prerequisites: PHY 151. Corequisites: None. (On demand)

**PHY 251 General Physics I (Coll/Tran) 3 3 0 4**  
This course uses calculus-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include units and measurement, vector operations, linear kinematics and dynamics, energy, power, momentum, rotational mechanics, periodic motion, fluid mechanics, and heat. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered. Prerequisites: MAT 271 must pass with a grade of "C" or higher; RED 090 or appropriate placement test score. Corequisites: MAT 272. (F)

**PHY 252 General Physics II (Coll/Tran) 3 3 0 4**  
This course uses calculus-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include electrostatic forces, electric fields, electric potentials, direct-current circuits, magnetostatic forces, magnetic fields, electromagnetic induction, alternating-current circuits, and light. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered. Prerequisites: MAT 272, PHY 251 (must pass with a grade of "C" or higher). Corequisites: None. (S)

**PHY 253 Modern Physics (Coll/Tran) 3 3 0 4**  
This course uses calculus-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include atomic structure, nuclear processes, natural and artificial radioactivity, quantum theory, and special relativity. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered. Prerequisites: PHY 251. Corequisites: None. (On demand)

## PHYSICAL FITNESS TECHNOLOGY

**PSF 110 Exercise Science 4 0 0 4**  
This course is a survey of scientific principles, methodologies, and research as applied to exercise and physical adaptations to exercise. Topics include the basic elements of kinesiology, biomechanics, and motor learning. Upon completion, students should be able to identify and describe physiological responses and adaptations to exercise. Prerequisites: None. Corequisites: None. (F)

**PSF 111 Fitness & Exer Testing I 3 2 0 4**  
This course introduces the student to graded exercise testing. Topics include various exercise testing protocols with methods for prescribing exercise programs based on exercise tolerance tests and the use of various equipment and protocols. Upon completion, students should be able to conduct specific exercise tests and the use of various equipment. Prerequisites: None. Corequisites: None. (S)

**PSF 114 Phys Fit Theory & Instr 4 0 0 4**  
This course provides information about related components of fitness and general information about the industry. Topics include the study of the components of fitness, theories of exercise and fitness, and information about the industry. Upon completion, students should be able to identify fitness components and demonstrate these in an exercise setting. Prerequisites: PSF 110. Corequisites: None. (S)

**PSF 116 Pvnt & Care Exer Injuries 2 2 0 3**  
This course provides information about the care and prevention of exercise injuries. Topics include proper procedures, prevention techniques, and on-site care of injuries. Upon completion, students should be able to demonstrate the knowledge and skills necessary to prevent and care for exercise related injuries. Prerequisites: None. Corequisites: None. (F)

**PSF 118 Fitness Facility Mgmt 4 0 0 4**  
This course provides information about the management and operation of health and fitness facilities and programs. Topics include human resources, sales and marketing, member retention, financial management, facility design and maintenance, and risk management. Upon completion, students should be able to demonstrate the knowledge and skills necessary to effectively manage a fitness facility. Prerequisites: None. Corequisites: None. (S)

**PSF 120 Group Exer Instruction 2 2 0 3**  
This course introduces the concepts and guidelines of instructing exercise classes. Topics include program designs, working with special populations, and principles of teaching and monitoring physical activity. Upon completion, students should be able to demonstrate basic skills in instructing an exercise class and monitoring workout intensity. Prerequisites: PSF 110. Corequisites: None. (F)

**PSF 210 Personal Training 2 2 0 3**  
This course introduces the student to the aspects of personal (one-on-one) training. Topics include training systems, marketing, and program development. Upon completion, students should be able to demonstrate personal training techniques and competencies of same. Prerequisites: PSF 110, PSF 111. Corequisites: None. (S)

**PSF 212 Exercise Programming 2 2 0 3**  
This course provides information about organizing, scheduling, and implementation of physical fitness programs. Topics include programming for various age groups, competitive activities and special events, and evaluating programs. Upon completion, students should be able to organize and implement exercise activities in a competent manner. Prerequisites: PSF 110. Corequisites: None. (S)

**PSF 214 Health and Fitness Law 3 0 0 3**  
 This course is designed to build a greater awareness and understanding of laws and legal issues encountered in the health and fitness industry. Topics include federal/state regulations, historical/current practices, risk management, torts, employment, discrimination, contracts, waivers, health/fitness screening, client confidentiality, facility safety, equipment liability, and emergency procedures. Upon completion, students should be able to demonstrate an understanding of the legal system to prevent or minimize liability in a fitness setting.  
 Prerequisites: None. Corequisites: None. (On demand)

**PSF 218 Lifestyle Chng & Wellness 3 2 0 4**  
 This course introduces health risk appraisals and their application to lifestyle changes. Topics include nutrition, weight control, stress management, and the principles of exercise. Upon completion, students should be able to conduct health risk appraisals and apply behavior modification techniques in a fitness setting.  
 Prerequisites: None. Corequisites: None. (S)

### POLITICAL SCIENCE

**POL 110 Intro Political Science (Coll/Tran) 3 0 0 3**  
 This course introduces basic political concepts used by governments and addresses a wide range of political issues. Topics include political theory, ideologies, legitimacy, and sovereignty in democratic and non-democratic systems. Upon completion, students should be able to discuss a variety of issues inherent in all political systems and draw logical conclusions in evaluating these systems.  
 Prerequisites: RED 090 or appropriate placement test score.  
 Corequisites: None. (On demand)

**POL 120 American Government (Coll/Tran) 3 0 0 3**  
 This course is a study of the origins, development, structure, and functions of American national government. Topics include the constitutional framework, federalism, the three branches of government including the bureaucracy, civil rights and liberties, political participation and behavior, and policy formation. Upon completion, students should be able to demonstrate an understanding of the basic concepts and participatory processes of the American political system.  
 Prerequisites: RED 090 or appropriate placement test score. Corequisites: None. (S)

**POL 130 State & Local Government (Coll/Tran) 3 0 0 3**  
 This course includes state and local political institutions and practices in the context of American federalism. Emphasis is placed on procedural and policy differences as well as political issues in state, regional, and local governments of North Carolina. Upon completion, students should be able to identify and discuss various problems associated with intergovernmental politics and their effect on the community and the individual.  
 Prerequisites: RED 090 or appropriate placement test score. Corequisites: None. (F)

### PRINTING

**PRN 155 Screen Printing I 1 3 0 2**  
 This course covers screen printing techniques and materials. Topics include methods, materials, design, and image and stencil preparation techniques. Upon completion, students should be able to produce single- or multi-color projects.  
 Prerequisites: None. Corequisites: None. (S)

**PRN 156 Screen Printing II 1 3 0 2**  
 This course is a continuation of PRN 155. Emphasis is placed on advanced techniques and current industry practices. Upon completion, students should be able to produce multi-color projects utilizing various photographic stencil methods and substrates.  
 Prerequisites: PRN 155. Corequisites: None. (S)

**PRN 220 Offset Press Fundamentals 1 3 0 2**  
 This course is designed to provide the fundamental skills required to set up and operate an offset press. Emphasis is placed on set-up, press operation, maintenance, and troubleshooting of single-color jobs on various paper stock on sheet-fed offset presses and duplicators. Upon completion, students should be able to produce commercial-quality single-color work.  
 Prerequisites: None. Corequisites: None. (S)

**PRN 240 Print Estimating/Planning 3 0 0 3**  
 This course covers printing economics, development of cost centers, job flow throughout departments, and material and labor costs. Topics include budgeted, hourly, cost-rate derivation; production standards and data; and analysis of other estimating procedures including computer-assisted estimating. Upon completion, students should be able to demonstrate an understanding of economic factors of the printing industry and determine all production costs of printed jobs.  
 Prerequisites: GRA 121. Corequisites: None. (S)

### POLYSOMNOGRAPHY

**PSG 110 Intro to Polysomnography 3 2 0 4**  
 This course introduces the polysomnography profession. Topics include the history of the profession and role of the polysomnographic technologist, communication, time management, infection control, basic patient assessment, and medical gas therapy. Upon completion, students should be able to demonstrate competence in concepts through written and laboratory evaluations.  
 Prerequisites: None. Corequisites: None. (F)

**PSG 111 Neuro/Cardiopulmonary A&P 4 0 0 4**  
 This course provides a concentrated study of anatomy and physiology essential to the practice of polysomnography. Emphasis is placed on the physiology of the nervous, cardiovascular, and pulmonary systems and basic pharmacological principles. Upon completion, students should be able to demonstrate competence in concepts through written evaluation.  
 Prerequisites: BIO 163; or BIO 168 and BIO 169. Corequisites: None. (S)

**PSG 112 PSG Fundamentals 3 0 0 3**  
 This course provides the knowledge and skills necessary to manage/function in a polysomnographic laboratory. Topics include recordkeeping, scheduling techniques, creation/implementation of departmental policies, reimbursement, the technologist's role as sleep advocate, and case management/patient education. Upon completion, students should be able to demonstrate competence in concepts through written evaluation.  
 Prerequisites: None. Corequisites: None. (S)

**PSG 189 Polysomnog Transition 1 3 3 3**  
 This course introduces the basic fundamentals for polysomnography. Emphasis is placed on cardiopulmonary assessment and monitoring, medical gas therapy, principles of case management, wellness promotion, recordkeeping, reimbursement, and exposure to the clinical setting. Upon completion, students should be prepared to apply the above concepts to the field of polysomnography.  
 Prerequisites: None. Corequisites: None. (On demand)

**PSG 210 Polysomnography I 3 2 9 7**  
 This course provides entry-level didactic, laboratory, and clinical training in polysomnography. Emphasis is placed on medical terminology, instrumentation setup and calibration, recording and monitoring techniques, and patient technologist interactions. Upon completion, students should be able to demonstrate competence in concepts and procedures through written, laboratory and clinical evaluations.  
 Prerequisites: PSG 111 or PSG 189. Corequisites: None. (F)

**PSG 211 Polysomnography II 2 6 9 7**  
 This course provides advanced-level didactic, laboratory, and clinical training in polysomnography. Emphasis is placed on the knowledge and skills necessary to obtain and evaluate high quality sleep recordings. Upon completion, students should be able to demonstrate competence in concepts and procedures through written, laboratory and clinical evaluations  
 Prerequisites: PSG 210. Corequisites: None. (S)

**PSG 212 Infant/Pediatric PSG 3 2 0 4**  
 This course provides the knowledge and skills to perform and score polysomnographic procedures on infants and pediatric patients. Emphasis is placed on infant/pediatric assessment, monitoring, and sleep disorders. Upon completion, students should be able to demonstrate competence in concepts through written and laboratory evaluations.  
 Prerequisites: None. Corequisites: None. (S)

**PSG 213 Case Study/Exam Review 0 3 0 1**  
This course provides an opportunity to review clinical cases and prepare for the polysomnography credentialing exam. Emphasis is placed on case management and review for the Registered Polysomnographic Technologist Exam. Upon completion, students should be able to successfully complete practice exams. Prerequisites: None. Corequisites: None. (S)

**PSG 214 PSG Clinical Apps I 0 2 0 1**  
This course provides practical application of theories covered in previous PSG courses. Emphasis is placed on polysomnography testing and procedures. Upon completion, students should be able to demonstrate competence through laboratory evaluation. Prerequisites: None. Corequisites: None. (F)

## PSYCHOLOGY

**PSY 110 Life Span Development 3 0 0 3**  
This course provides an introduction to the study of human growth and development. Emphasis is placed on the physical, cognitive, and psychosocial aspects of development from conception to death. Upon completion, students should be able to demonstrate knowledge of development across the life span and apply this knowledge to their specific field of study. Prerequisites: RED 090 or appropriate placement test score. Corequisites: None. (On demand)

**PSY 150 General Psychology (Coll/Tran) 3 0 0 3**  
This course provides an overview of the scientific study of human behavior. Topics include history, methodology, biopsychology, sensation, perception, learning, motivation, cognition, abnormal behavior, personality theory, social psychology, and other relevant topics. Upon completion, students should be able to demonstrate a basic knowledge of the science of psychology. Prerequisites: RED 090 or appropriate placement test score. Corequisites: None. (F,S,SU)

**PSY 211 Psychology of Adjustment (Coll/Tran) 3 0 0 3**  
This course introduces the study of the adjustment process focusing on contemporary challenges individuals must deal with in everyday life. Topics include theories of behavior, career choices, self-understanding, coping mechanisms, human relationships, intimacy, sociocultural factors influencing healthy personal adjustment, and other related topics. Upon completion, students should be able to demonstrate an awareness of the processes of adjustment. Prerequisites: PSY 150 must pass with a grade of "C" or higher. Corequisites: None.

**PSY 231 Forensic Psychology (Coll/Tran) 3 0 0 3**  
This course introduces students to concepts which unite psychology and the legal system. Topics include defining competency, insanity, involuntary commitment as well as introducing forensic assessment techniques, such as interviewing process, specialized assessments, and collecting collateral information. Upon completion, students should be able to demonstrate knowledge in areas of forensic psychology: risk assessment, criminal competencies, insanity, psychopathology, and mentally disordered offenders. Prerequisites: PSY 150 must pass with a grade of "C" or higher. Corequisites: None. (On demand)

**PSY 237 Social Psychology (Coll/Tran) 3 0 0 3**  
This course introduces the study of individual behavior within social contexts. Topics include affiliation, attitude formation and change, conformity, altruism, aggression, attribution, interpersonal attraction, and group behavior. Upon completion, students should be able to demonstrate an understanding of the basic principles of social influences on behavior. Prerequisites: PSY 150 or SOC 210 (must pass with a grade of "C" or higher); RED 090 or appropriate placement test score. Corequisites: None. (F,S)

**PSY 239 Psychology of Personality (Coll/Tran) 3 0 0 3**  
This course covers major personality theories and personality research methods. Topics include psychoanalytic, behavioristic, social learning, cognitive, humanistic, and trait theories including supporting research. Upon completion, students should be able to compare and contrast traditional and contemporary approaches to the understanding of individual differences in human behavior. Prerequisites: PSY 150 must pass with a grade of "C" or higher. Corequisites: None. (On demand)

**PSY 241 Developmental Psych (Coll/Tran) 3 0 0 3**  
This course is a study of human growth and development. Emphasis is placed on major theories and perspectives as they relate to the physical, cognitive, and psychosocial aspects of development from conception to death. Upon completion, students should be able to demonstrate knowledge of development across the life span. Prerequisites: PSY 150 must pass with a grade of "C" or higher. Corequisites: None. (F,S, and on demand)

**PSY 243 Child Psychology (Coll/Tran) 3 0 0 3**  
This course provides an overview of physical, cognitive, and psychosocial development from conception through adolescence. Topics include theories and research, interaction of biological and environmental factors, language development, learning and cognitive processes, social relations, and moral development. Upon completion, students should be able to identify typical and atypical childhood behavior patterns as well as appropriate strategies for interacting with children. Prerequisites: PSY 150 must pass with a grade of "C" or higher. Corequisites: None. (F, On demand)

**PSY 244 Child Development I 3 0 0 3**  
This course provides an introduction to the study of child development and examines the growth and development of children from conception through early childhood. Topics include historical and theoretical perspectives, terminology, research and observation techniques as well as physical, cognitive, and psychosocial growth and change. Upon completion, students should be able to demonstrate an understanding of the early stages of child development. Prerequisites: None. Corequisites: None. (On demand)

**PSY 245 Child Development II 3 0 0 3**  
This course examines the growth and development of children during early and middle childhood. Emphasis is placed on factors influencing physical, cognitive, and psychosocial growth and change. Upon completion, students should be able to demonstrate an understanding of early and middle child development. Prerequisites: None. Corequisites: None. (On demand)

**PSY 246 Adolescent Psychology (Coll/Tran) 3 0 0 3**  
This course provides an overview of the behavior patterns, life changes, and social issues that accompany the developmental stage of adolescence. Topics include developmental theories; physical, cognitive and psychosocial growth; transitions to young adulthood; and sociocultural factors that influence adolescent roles in home, school and community. Upon completion, students should be able to identify typical and atypical adolescent behavior patterns as well as appropriate strategies for interacting with adolescents. Prerequisites: PSY 150 must pass with a grade of "C" or higher. Corequisites: None. (F, On demand)

**PSY 247 Psychology of Adulthood (Coll/Tran) 3 0 0 3**  
This course examines the major theories and patterns of adult development from young adulthood to late adulthood. Topics include physical, cognitive, and psychosocial changes with an emphasis on relationships, family patterns, work roles, community interactions, and the challenges of each stage of adulthood. Upon completion, students should be able to demonstrate a knowledge of adult development and an ability to apply this knowledge to their own lives. Prerequisites: PSY 150 must pass with a grade of "C" or higher. Corequisites: None. (On demand)

**PSY 263 Educational Psychology (Coll/Tran) 3 0 0 3**  
This course examines the application of psychological theories and principles to the educational process and setting. Topics include learning and cognitive theories, achievement motivation, teaching and learning styles, teacher and learner roles, assessment, and developmental issues. Upon completion, students should be able to demonstrate an understanding of the application of psychological theory to educational practice. Prerequisites: PSY 150 must pass with a grade of "C" or higher. Corequisites: None. (SU)

**PSY 275 Health Psychology (Coll/Tran) 3 0 0 3**  
This course covers the biopsychosocial dynamics of stress and the maintenance of good health. Topics include enhancing health and well-being, stress management, lifestyle choices and attitudes, the mind-body relationship, nutrition, exercise, and fitness. Upon completion, students should be able to demonstrate an understanding of the psychological factors related to health and well-being. Prerequisite: PSY 150 must pass with a grade of "C" or higher. Corequisite: None. (On demand)

**PSY 281 Abnormal Psychology** (Coll/Tran) **3 0 0 3**  
This course provides an examination of the various psychological disorders, as well as theoretical, clinical, and experimental perspectives of the study of psychopathology. Emphasis is placed on terminology, classification, etiology, assessment, and treatment of the major disorders. Upon completion, students should be able to distinguish between normal and abnormal behavior patterns as well as demonstrate knowledge of etiology, symptoms, and therapeutic techniques. Prerequisites: PSY 150 must pass with a grade of "C" or higher. Corequisites: None. (F,S,SU)

## RADIOGRAPHY

**RAD 110 Rad Intro & Patient Care** **2 3 0 3**  
This course provides an overview of the radiography profession and student responsibilities. Emphasis is placed on basic principles of patient care, radiation protection, technical factors, and medical terminology. Upon completion, students should be able to demonstrate basic skills in these areas. Prerequisites: Admission to Radiography program. Corequisites: RAD 111, RAD 151. (F)

**RAD 111 RAD Procedures I** **3 3 0 4**  
This course provides the knowledge and skills necessary to perform standard radiographic procedures. Emphasis is placed on radiography of the chest, abdomen, extremities, spine, and pelvis. Upon completion, students should be able to demonstrate competence in these areas. Prerequisites: Admission to Radiography program. Corequisites: RAD 110, RAD 151. (F)

**RAD 112 RAD Procedures II** **3 3 0 4**  
This course provides the knowledge and skills necessary to perform standard radiographic procedures. Emphasis is placed on radiography of the skull, bony thorax, and gastrointestinal, biliary, and urinary systems. Upon completion, students should be able to demonstrate competence in these areas. Prerequisites: RAD 110, RAD 111, RAD 151. Corequisites: None. (S)

**RAD 121 Radiographic Imaging I** **2 3 0 3**  
This course provides the principles of conventional film-screen radiography. Emphasis is placed on the factors that impact density, contrast, recorded detail, and distortion. Upon completion, students should be able to demonstrate an understanding of conventional film-screen radiographic imaging. Prerequisites: RAD 110, RAD 111, RAD 151. Corequisites: None. (S)

**RAD 122 Radiographic Imaging II** **1 3 0 2**  
This course provides advanced principles of imaging including digital radiography. Emphasis is placed on the factors that impact brightness, contrast, recorded detail, and distortion. Upon completion, students should be able to demonstrate an understanding of advanced principles of imaging. Prerequisites: RAD 112, RAD 121, RAD 161. Corequisites: RAD 131, RAD 171. (SU)

**RAD 131 Radiographic Physics I** **1 3 0 2**  
This course introduces the principles of radiation characteristics and production. Emphasis is placed on imaging equipment. Upon completion, students should be able to demonstrate a basic understanding of radiation characteristics and production. Prerequisites: Enrollment in the Radiography Program.. Corequisites: None. (S)

**RAD 151 RAD Clinical Ed I** **0 0 6 2**  
This course introduces patient management and basic radiographic procedures in the clinical setting. Emphasis is placed on mastering positioning of the chest and extremities, manipulating equipment, and applying principles of ALARA. Upon completion, students should be able to demonstrate successful completion of clinical objectives. Prerequisites: Admission to Radiography program. Corequisites: RAD 110, RAD 111. (F)

**RAD 161 RAD Clinical Ed II** **0 0 15 5**  
This course provides additional experience in patient management and in more complex radiographic procedures. Emphasis is placed on mastering positioning of the spine, pelvis, head and neck, and thorax and adapting procedures to meet patient variations. Upon completion, students should be able to demonstrate successful completion of clinical objectives. Prerequisites: RAD 110, RAD 111, RAD 151. Corequisites: RAD 112, RAD 121.(S)

**RAD 171 RAD Clinical Ed III** **0 0 12 4**  
This course provides experience in patient management specific to fluoroscopic and advanced radiographic procedures. Emphasis is placed on applying appropriate technical factors to all studies and mastering positioning of gastrointestinal and urological studies. Upon completion, students should be able to demonstrate successful completion of clinical objectives. Prerequisites: RAD 112, RAD 121, RAD 161. Corequisites: RAD 122, RAD 131. (SU)

**RAD 211 RAD Procedures III** **2 3 0 3**  
This course provides the knowledge and skills necessary to perform standard and specialty radiographic procedures. Emphasis is placed on radiographic specialty procedures, sectional anatomy, and advanced imaging. Upon completion, students should be able to demonstrate competence in these areas. Prerequisites: RAD 122. Corequisites: RAD 231, RAD 241, RAD 251. (F)

**RAD 231 Radiographic Physics II** **1 3 0 2**  
This course continues the study of physics that underlie diagnostic X-ray production and radiographic and fluoroscopic equipment. Topics include X-ray production, electromagnetic interactions with matter, and equipment circuitry. Upon completion, students should be able to demonstrate an understanding of the application of physical concepts as related to image production. Prerequisites: RAD 131 or RAD 171. Corequisites: RAD 211, RAD 241, and RAD 251. (F)

**RAD 241 Radiobiology/Protection** **2 0 0 2**  
This course covers the principles of radiation protection and radiobiology. Topics include the effects of ionizing radiation on body tissues, protective measures for limiting exposure to the patient and personnel, and radiation monitoring devices. Upon completion, students should be able to demonstrate an understanding of the effects and uses of radiation in diagnostic radiology. Prerequisites: RAD 122, RAD 131, RAD 171. Corequisites: RAD 211, RAD 231, RAD 251. (S)

**RAD 245 Image Analysis** **1 3 0 2**  
This course provides an overview of image analysis and introduces methods of quality management. Topics include image evaluation, pathology, quality control, and quality assurance. Upon completion, students should be able to demonstrate a basic knowledge of image analysis and quality management. Prerequisites: RAD 211, RAD 231, RAD 241, RAD 251. Corequisites: RAD 261. (S)

**RAD 251 RAD Clinical Ed IV** **0 0 21 7**  
This course provides the opportunity to continue mastering all basic radiographic procedures and to attain experience in advanced areas. Emphasis is placed on equipment operation, pathological recognition, pediatric and geriatric variations, and a further awareness of radiation protection requirements. Upon completion, students should be able to demonstrate successful completion of clinical objectives. Prerequisites: RAD 122, RAD 131, RAD 171. Corequisites: RAD 211, RAD 231, RAD 241. (F)

**RAD 261 RAD Clinical Ed V** **0 0 21 7**  
This course is designed to enhance expertise in all radiographic procedures, patient management, radiation protection, and image production and evaluation. Emphasis is placed on developing an autonomous approach to the diversity of clinical situations and successfully adapting to those procedures. Upon completion, students should be able to demonstrate successful completion of clinical objectives. Prerequisites: RAD 251. Corequisites: RAD 245. (S)

**RAD 271 Radiography Capstone** **0 3 0 1**  
This course provides an opportunity to exhibit problem-solving skills required for certification. Emphasis is placed on critical thinking and integration of didactic and clinical components. Upon completion, students should be able to demonstrate the knowledge required of any entry-level radiographer. Prerequisites: RAD 211, RAD 231, RAD 241, RAD 251. Corequisites: RAD 245, RAD 261. (S)

## RESPIRATORY THERAPY

### RCP 110 Intro to Respiratory Care 3 3 0 4

This course introduces the respiratory care profession. Topics include the role of the respiratory care practitioner, medical gas administration, basic patient assessment, infection control, and medical terminology. Upon completion, students should be able to demonstrate competence in concepts and procedures through written and laboratory evaluations. Competencies in the following procedures will prepare the students for clinical practice: aerosol/humidity, bronchial hygiene, hyperinflation, and airway management.

Prerequisites: Enrollment in the Respiratory Therapy program.

Corequisites: None. (F)

### RCP 111 Therapeutics/Diagnostics 4 3 0 5

This course is a continuation of RCP 110. Emphasis is placed on entry-level therapeutic and diagnostic procedures used in respiratory care. Upon completion, students should be able to demonstrate competence in concepts and procedures through written and laboratory evaluations. Competencies in the following procedures will prepare the students for clinical practice: electro cardiography, pulmonary function testing, blood gases, bedside monitoring, and introduction to mechanical ventilation.

Prerequisites: RCP 110. Corequisites: None. (S)

### RCP 113 RCP Pharmacology 2 0 0 2

This course covers the drugs used in the treatment of cardiopulmonary diseases. Emphasis is placed on the uses, actions, indications, administration, and hazards of pharmacological agents. Upon completion, students should be able to demonstrate competence through written evaluations. This course includes indepth study of the following drug classifications: bronchodilators, surface active agents, corticosteroids, antibiotics, CNS agents, cardiovascular drugs, and neonatal/pediatric drugs.

Prerequisites: Enrollment in the Respiratory Therapy program.

Corequisites: None. (F)

### RCP 114 C-P Anatomy & Physiology 3 0 0 3

This course provides a concentrated study of cardiopulmonary anatomy and physiology essential to the practice of respiratory care. Emphasis is placed on cardiovascular and pulmonary physiology, acid/base balance, and blood gas interpretation. Upon completion, students should be able to demonstrate competence in these concepts through written evaluation. This course includes an overview of the effects of renal failure, aging, exercise, high-altitude and high-pressure environments on the cardiopulmonary system.

Prerequisites: None. Corequisites: None. (F)

### RCP 115 C-P Pathophysiology 2 0 0 2

This course introduces the etiology, pathogenesis, and physiology of cardiopulmonary diseases and disorders. Emphasis is placed on clinical signs and symptoms along with diagnoses, complications, prognoses, and management. Upon completion, students should be able to demonstrate competence in these concepts through written evaluations. Case study evaluation will be used to emphasize clinical practice guideline implementation in care plan development.

Prerequisites: None. Corequisites: None. (S)

### RCP 122 Special Practice Lab 0 2 0 1

This course provides additional laboratory learning opportunities in respiratory care. Emphasis is placed on therapeutic procedures and equipment management. Upon completion, students should be able to demonstrate competence in concepts and procedures through laboratory evaluations.

Prerequisites: None. Corequisites: None. (F)

### RCP 123 Special Practice Lab 0 3 0 1

This course provides additional laboratory learning opportunities in respiratory care. Emphasis is placed on therapeutic procedures and equipment management. Upon completion, students should be able to demonstrate competence in concepts and procedures through laboratory evaluations.

Prerequisites: None. Corequisites: None. (SU)

### RCP 145 RCP Clinical Practice II 0 0 15 5

This course provides entry-level clinical experience. Emphasis is placed on therapeutic and diagnostic patient care. Upon completion, students should be able to demonstrate clinical competence in required performance evaluations.

Prerequisites: RCP 110. Corequisites: RCP 111. (S)

### RCP 152 RCP Clinical Practice III 0 0 6 2

This course provides entry-level clinical experience. Emphasis is placed on therapeutic and diagnostic patient care. Upon completion, students should be able to demonstrate clinical competence in required performance evaluations.

Prerequisites: RCP 111. Corequisites: None. (SU)

### RCP 210 Critical Care Concepts 3 3 0 4

This course provides further refinement of acute patient care and underlying pathophysiology. Topics include a continuation in the study of mechanical ventilation, underlying pathophysiology, and introduction of critical care monitoring. Upon completion, students should be able to demonstrate competence in concepts and procedures through written and laboratory evaluations. Specific topics include: prevention of lung injury, independent lung ventilation, high frequency techniques, and infant mechanical ventilation.

Prerequisites: None. Corequisites: None. (F)

### RCP 211 Adv Monitoring/Procedures 3 3 0 4

This course includes advanced information gathering and decision making for the respiratory care professional. Topics include advanced cardiac monitoring and special procedures. Upon completion, students should be able to evaluate, design, and recommend appropriate care plans through written and laboratory evaluations. This course prepares the student for ACLS certification.

Prerequisites: RCP 210. Corequisites: None. (S)

### RCP 214 Neonatal/Ped's RC 1 3 0 2

This course provides in-depth coverage of the concepts of neonatal and pediatric respiratory care. Emphasis is placed on neonatal and pediatric pathophysiology and on the special therapeutic needs of neonates and children. Upon completion, students should be able to demonstrate competence in these concepts through written and laboratory evaluations. This course includes preparation for PALS and NRP certification.

Prerequisites: RCP 111. Corequisites: None. (F)

### RCP 215 Career Prep-Adv Level 0 3 0 1

This course provides preparation for employment and the advanced-level practitioner credentialing exam. Emphasis is placed on review of the NBRC Advanced-Level Practitioner Exam and supervision and management. Upon completion, students should be able to successfully complete the appropriate self-assessment examinations and meet the requirements for employment.

Prerequisites: None. Corequisites: None. (S)

### RCP 236 RCP Clinical Practice IV 0 0 18 6

This course provides advanced practitioner clinical experience. Emphasis is placed on therapeutic and diagnostic patient care. Upon completion, students should be able to demonstrate clinical competence in required performance evaluations.

Prerequisites: RCP 111. Corequisites: RCP 210. (F)

### RCP 247 RCP Clinical Practice V 0 0 21 7

This course provides advanced practitioner clinical experience. Emphasis is placed on therapeutic and diagnostic patient care. Upon completion, students should be able to demonstrate clinical competence in required performance evaluations.

Prerequisites: RCP 210. Corequisites: RCP 211. (S)

## READING

### RED 070 Essential Reading Skills 3 2 0 4

This course is designed to strengthen reading skills. Emphasis is placed on basic word attack skills, vocabulary, transitional words, paragraph organization, basic comprehension skills, and learning strategies. Upon completion, students should be able to demonstrate competence in the skills required for RED 080.

Prerequisites: None. Corequisites: None. (F,S,SU)

### RED 080 Intro to College Reading 3 2 0 4

This course introduces effective reading and inferential thinking skills in preparation for RED 090. Emphasis is placed on vocabulary, comprehension, and reading strategies. Upon completion, students should be able to determine main ideas and supporting details, recognize basic patterns of organization, draw conclusions, and understand vocabulary in context.

Prerequisites: RED 070 or appropriate placement test score.

Corequisites: None. (F,S,SU)

**RED 090 Improved College Reading** 3 2 0 4  
This course is designed to improve reading and critical thinking skills. Topics include vocabulary enhancement; extracting implied meaning; analyzing author's purpose, tone, and style; and drawing conclusions and responding to written material. Upon completion, students should be able to comprehend and analyze college-level reading material.  
Prerequisites: RED 080 or appropriate placement test score.  
Corequisites: None. (F,S,SU)

### RELIGION

**REL 110 World Religions** (Coll/Tran) 3 0 0 3  
This course introduces the world's major religious traditions. Topics include Primal religions, Hinduism, Buddhism, Islam, Judaism, and Christianity. Upon completion, students should be able to identify the origins, history, beliefs, and practices of the religions studied. Attention will also be given to current practices and historical influences.  
Prerequisites: None. Corequisites: None. (F,S)

**REL 211 Intro to Old Testament** (Coll/Tran) 3 0 0 3  
This course is a survey of the literature of the Hebrews with readings from the law, prophets, and other writings. Emphasis is placed on the use of literary, historical, archeological, and cultural analysis. Upon completion, students should be able to use the tools of critical analysis to read and understand Old Testament literature.  
Prerequisites: None. Corequisites: None. (S)

**REL 212 Intro to New Testament** (Coll/Tran) 3 0 0 3  
This course is a survey of the literature of first-century Christianity with readings from the gospels, Acts, and the Pauline and pastoral letters. Topics include the literary structure, audience, and religious perspective of the writings, as well as the historical and cultural context of the early Christian community. Upon completion, students should be able to use the tools of critical analysis to read and understand New Testament literature.  
Prerequisites: None. Corequisites: None. (F,S,U)

**REL 221 Religion in America** (Coll/Tran) 3 0 0 3  
This course is an examination of religious beliefs and practice in the United States. Emphasis is placed on mainstream religious traditions and non-traditional religious movements from the Colonial period to the present. Upon completion, students should be able to recognize and appreciate the diversity of religious traditions in America. Some attention will be given to religious beliefs and practices in the South.  
Prerequisites: None. Corequisites: None. (F,S,SU)

### REAL ESTATE

**RLS 112 Broker Prelicensing** 5 0 0 5  
This course provides basic instruction in real estate principles and practices. Topics include law, finance, brokerage, closing, valuation, management, taxation, mathematics, construction, land use, property insurance, and NC License Law and Commission Rules. Upon completion, students should be able to demonstrate basic knowledge and skills necessary for real estate sales.  
Prerequisites: None. Corequisites: None. (F,S)

**RLS 113 Real Estate Mathematics** 2 0 0 2  
This course provides basic instruction in business mathematics applicable to real estate situations. Topics include area computations, percentage of profit/loss, book-keeping and accounting methods, appreciation and depreciation, financial calculations and interest yields, property valuation, insurance, taxes, and commissions. Upon completion, students should be able to demonstrate proficiency in applied real estate mathematics.  
Prerequisites: None. Corequisites: None. (F,S)

### INFORMATION SYSTEMS SECURITY

**SEC 110 Security Concepts** 2 2 0 3  
This course introduces the concepts and issues related to securing information systems and the development of policies to implement information security controls. Topics include the historical view of networking and security, security issues, trends, security resources, and the role of policy, people, and processes in information security. Upon completion, students should be able to identify information security risks, create an information security policy, and identify processes to implement and enforce policy.  
Prerequisites: None. Corequisites: None. (F)

**SEC 150 Secure Communications** 2 2 0 3  
This course provides an overview of current technologies used to provide secure transport of information across networks. Topics include data integrity through encryption, Virtual Private Networks, SSL, SSH, and IPsec. Upon completion, students should be able to implement secure data transmission technologies.  
Prerequisites: SEC 110, NET 125, NOS 110. Corequisites: None. (S)

**SEC 160 Secure Admin I** 2 2 0 3  
This course provides an overview of security administration and fundamentals of designing security architectures. Topics include networking technologies, TCP/IP concepts, protocols, network traffic analysis, monitoring, and security best practices. Upon completion, students should be able to identify normal network traffic using network analysis tools and design basic security defenses.  
Prerequisites: SEC 110, NET 125. Corequisites: None. (F)

**SEC 210 Intrusion Detection** 2 2 0 3  
This course introduces the student to intrusion detection methods in use today. Topics include the types of intrusion detection products, traffic analysis, and planning and placement of intrusion detection solutions. Upon completion, students should be able to plan and implement intrusion detection solution for networks and host based systems.  
Prerequisites: SEC 160. Corequisites: None. (S)

**SEC 220 Defense-In-Depth** 2 2 0 3  
This course introduces students to the concepts of defense in-depth, a security industry best practice. Topics include firewalls, backup systems, redundant systems, disaster recovery, and incident handling. Upon completion, students should be able to plan effective information security defenses, backup systems, and disaster recovery procedures.  
Prerequisites: None. Corequisites: SEC 160. (F)

**SEC 240 Wireless Security** 2 2 0 3  
This course introduces security principles and topics related to the wireless networking environment. Topics include network topologies, network protocols, security issues, and best practices for wireless environments. Upon completion, students should be able to design, setup, manage, and secure a wireless network.  
Prerequisites: SEC 110 and NET 175. Corequisites: None. (S)

**SEC 289 Security Capstone Project** 1 4 0 3  
This course provides the student the opportunity to put into practice all the skills learned to this point. Emphasis is placed on security policy, process planning, procedure definition, business continuity, and systems security architecture. Upon completion, students should be able to design and implement comprehensive information security architecture from the planning and design phase through implementation.  
Prerequisites: SEC 220. Corequisites: None. (S)



## SIMULATION AND GAME DEVELOPMENT

### SGD 111 Introduction to SGD 2 3 0 3

This course provides students with an introduction to simulation and game development. Topics include setting, storytelling, narrative, character design, interface design, game play, internal economy, core mechanics, game genres, AI, the psychology of game design and professionalism. Upon completion, students should be able to demonstrate knowledge of the major aspects of simulation and game design and development.

Prerequisites: None. Corequisites: None. (On demand)

### SGD 112 SGD Design 2 3 0 3

This course introduces the fundamentals of simulation and game design. Topics include industry standards and design elements for simulations and games. Upon completion, students should be able to design simple simulations and/or games.

Prerequisites: None. Corequisites: None. (On demand)

### SGD 114 3D Modeling 2 3 0 3

This course introduces the tools required to create three dimensional (3D) models. Emphasis is placed on exploring tools used to create 3D models. Upon completion, students should be able to create and animate 3D models using 3D modeling tools.

Prerequisites: None. Corequisites: None. (On demand)

## SOCIOLOGY

### SOC 210 Introduction to Sociology (Coll/Tran) 3 0 0 3

This course introduces the scientific study of human society, culture, and social interactions. Topics include socialization, research methods, diversity and inequality, cooperation and conflict, social change, social institutions, and organizations. Upon completion, students should be able to demonstrate knowledge of sociological concepts as they apply to the interplay among individuals, groups, and societies.

Prerequisites: RED 090 or appropriate placement test score.

Corequisites: None. (F,S,SU)

### SOC 213 Sociology of the Family (Coll/Tran) 3 0 0 3

This course covers the institution of the family and other intimate relationships. Emphasis is placed on mate selection, gender roles, sexuality, communication, power and conflict, parenthood, diverse lifestyles, divorce and remarriage, and economic issues. Upon completion, students should be able to analyze the family as a social institution and the social forces which influence its development and change.

Prerequisites: RED 090 or appropriate placement test score.

Corequisites: None. (F,S,SU)

### SOC 215 Group Processes (Coll/Tran) 3 0 0 3

This course introduces group processes and dynamics. Emphasis is placed on small group experiences, roles and relationships within groups, communication, cooperation and conflict resolution, and managing diversity within and among groups. Upon completion, students should be able to demonstrate the knowledge and skills essential to analyze group interaction and to work effectively in a group context.

Prerequisites: None. Corequisites: None.

### SOC 220 Social Problems (Coll/Tran) 3 0 0 3

This course provides an in-depth study of current social problems. Emphasis is placed on causes, consequences, and possible solutions to problems associated with families, schools, workplaces, communities, and the environment. Upon completion, students should be able to recognize, define, analyze, and propose solutions to these problems.

Prerequisites: RED 090 or appropriate placement test score.

Corequisites: None. (F,S)

### SOC 225 Social Diversity (Coll/Tran) 3 0 0 3

This course provides a comparison of diverse roles, interests, opportunities, contributions, and experiences in social life. Topics include race, ethnicity, gender, sexual orientation, class, and religion. Upon completion, students should be able to analyze how cultural and ethnic differences evolve and how they affect personality development, values, and tolerance.

Prerequisites: RED 090 or appropriate placement test score. Corequisites: None. (F)

### SOC 230 Race and Ethnic Relations (Coll/Tran) 3 0 0 3

This course includes an examination of the various aspects of race and ethnicity and how these lead to different experiences, opportunities, problems, and contributions. Topics include prejudice, discrimination, perceptions, myths, stereotypes, and intergroup relationships. Upon completion, students should be able to identify and analyze relationships among racial and ethnic groups within the larger society.

Prerequisites: RED 090 or appropriate placement test score.

Corequisites: None. (On demand)

### SOC 234 Sociology of Gender (Coll/Tran) 3 0 0 3

This course examines contemporary roles in society with special emphasis on recent changes. Topics include sex role socialization, myths and stereotypes, gender issues related to family, work, and power. Upon completion, students should be able to analyze modern relationships between men and women.

Prerequisites: RED 090 or appropriate placement test score.

Corequisites: None. (On demand)

### SOC 242 Sociology of Deviance (Coll/Tran) 3 0 0 3

This course provides an overview of deviant behavior and the processes involved in its definition, causation, prevention, control, and treatment. Topics include theories of causation, social control, delinquency, victimization, criminality, the criminal justice system, punishment, rehabilitation, and restitution. Upon completion, students should be able to identify and analyze issues surrounding the nature and development of social responses to deviance.

Prerequisites: RED 090 or appropriate placement test score.

Corequisites: None. (On demand)

### SOC 244 Soc of Death & Dying (Coll/Tran) 3 0 0 3

This course presents sociological perspectives on death and dying. Emphasis is placed on analyzing the different death rates among various groups, races, and societies, as well as various types of death. Upon completion, students should be able to discuss the rituals of death, both cultural and religious, and examine current issues relating to death and dying.

Prerequisites: None. Corequisites: None. (F)

### SOC 250 Sociology of Religion (Coll/Tran) 3 0 0 3

This course examines religion from a sociological perspective as part and product of human society. Topics include the origins, development, and functions of belief systems; religious organizations; conversion; and interactions with politics, the economy, science, and the class system. Upon completion, students should be able to describe and analyze religious systems.

Prerequisites: RED 090 or appropriate placement test score.

Corequisites: None. (On demand)

### SOC 254 Rural and Urban Sociology (Coll/Tran) 3 0 0 3

This course applies sociological concepts to a comparative study of major social issues facing contemporary rural and urban America. Emphasis is placed on growth and development patterns, ecological factors, social organizations, social controls, and processes of change. Upon completion, students should be able to illustrate the differences and similarities that exist between urban and rural environments as they resolve contemporary issues.

Prerequisites: RED 090 or appropriate placement test score.

Corequisites: None. (On demand)

## SPANISH

### SPA 111 Elementary Spanish I (Coll/Tran) 3 0 0 3

This course introduces the fundamental elements of the Spanish language within a cultural context. Emphasis is placed on the development of basic listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written Spanish and demonstrate cultural awareness.

Prerequisites: None. Corequisites: SPA 181. (F,S,SU)

### SPA 112 Elementary Spanish II (Coll/Tran) 3 0 0 3

This course is a continuation of SPA 111 focusing on the fundamental elements of the Spanish language within a cultural context. Emphasis is placed on the progressive development of listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written Spanish and demonstrate further cultural awareness.

Prerequisites: SPA 111 must pass with a grade of "C" or higher.

Corequisites: SPA 182. (F,S,SU)

**SPA 120 Spanish for the Workplace 3 0 0 3**

This course offers applied Spanish for the workplace to facilitate basic communication with people whose native language is Spanish. Emphasis is placed on oral communication and career-specific vocabulary that targets health, business, and/or public service professions. Upon completion, students should be able to communicate at a functional level with native speakers and demonstrate cultural sensitivity. Prerequisites: None. Corequisites: None. (On demand)

**SPA 141 Culture and Civilization (Coll/Tran) 3 0 0 3**

This course provides an opportunity to explore issues related to the Hispanic world. Topics include historical and current events, geography, and customs. Upon completion, students should be able to identify and discuss selected topics and cultural differences related to the Hispanic world. Prerequisites: None. Corequisites: None. (On demand)

**SPA 161 Cultural Immersion (Coll/Tran) 2 3 0 3**

This course explores Hispanic culture through intensive study on campus and field experience in a host country or area. Topics include an overview of linguistic, historical, geographical, sociopolitical, economic, and/or artistic concerns of the area visited. Upon completion, students should be able to exhibit first-hand knowledge of issues pertinent to the host area and demonstrate understanding of cultural differences. Prerequisites: SPA 111. Corequisites: None. (On demand)

**SPA 181 Spanish Lab 1 (Coll/Tran) 0 2 0 1**

This course provides an opportunity to enhance acquisition of the fundamental elements of the Spanish language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of various supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written Spanish and demonstrate cultural awareness. Prerequisites: None. Corequisites: SPA 111. (F,S,SU)

**SPA 182 Spanish Lab 2 (Coll/Tran) 0 2 0 1**

This course provides an opportunity to enhance acquisition of the fundamental elements of the Spanish language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of various supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written Spanish and demonstrate cultural awareness. Prerequisites: SPA 181 must pass with a grade of "C" or higher. Corequisites: SPA 112. (F,S,SU)

**SPA 211 Intermediate Spanish I (Coll/Tran) 3 0 0 3**

This course provides a review and expansion of the essential skills of the Spanish language. Emphasis is placed on the study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future. Prerequisites: SPA 112 must pass with a grade of "C" or higher. Corequisites: SPA 281. (F,S,SU)

**SPA 212 Intermediate Spanish II (Coll/Tran) 3 0 0 3**

This course provides a continuation of SPA 211. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication. Prerequisites: SPA 211 must pass with a grade of "C" or higher. Corequisites: SPA 282. (F,S,SU)

**SPA 221 Spanish Conversation (Coll/Tran) 3 0 0 3**

This course provides an opportunity for intensive communication in spoken Spanish. Emphasis is placed on vocabulary acquisition and interactive communication through the discussion of media materials and authentic texts. Upon completion, students should be able to discuss selected topics, express ideas and opinions clearly, and engage in formal and informal conversations. Prerequisites: SPA 212. Corequisites: None. (On demand)

**SPA 281 Spanish Lab 3 (Coll/Tran) 0 2 0 1**

This course provides an opportunity to enhance the review and expansion of the essential skills of the Spanish language. Emphasis is placed on the study of authentic and representative literary and cultural texts through the use of various supplementary learning media and materials. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future. Prerequisites: SPA 182 must pass with a grade of "C" or higher. Corequisites: SPA 211. (F,S,SU)

**SPA 282 Spanish Lab 4 (Coll/Tran) 0 2 0 1**

This course provides an opportunity to enhance the review and expansion of the essential skills of the Spanish language. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts through the use of various supplementary learning media and materials. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication. Prerequisites: SPA 281 must pass with a grade of "C" or higher. Corequisites: SPA 212. (F,S,SU)

**SURGICAL TECHNOLOGY****SUR 110 Intro to Surg Tech 3 0 0 3**

This course provides a comprehensive study of peri-operative care, patient care concepts, and professional practice concepts within the profession of surgical technology. Topics include: introductory concepts, organizational structure and relationships, legal, ethical and moral issues, medical terminology, pharmacology, anesthesia, wound healing management concepts, and the technological sciences. Upon completion, students should be able to apply theoretical knowledge of the course topics to the practice of surgical technology. Prerequisites: CTS 080 or appropriate test score; Enrollment in the Surgical Technology program. Corequisites: ACA 111, BIO 163, ENG 111, SUR 111. (F)

**SUR 111 Periop Patient Care 5 6 0 7**

This course provides the surgical technology student the theoretical knowledge required to function in the pre-operative, intra-operative, and post-operative role. Topics include asepsis, disinfection and sterilization, physical environment, instrumentation, equipment, peri-operative patient care, and peri-operative case management. Upon completion, students should be able to apply the principles and practice of the peri-operative team member to the operative environment. Prerequisites: CTS 080 or appropriate test score; Enrollment in the Surgical Technology program. Corequisites: ACA 111, BIO 163, ENG 111, SUR 110. (F)

**SUR 122 Surgical Procedures I 5 3 0 6**

This course provides an introduction to selected basic and intermediate surgical specialties that students are exposed to the first clinical rotation. Emphasis is placed on related surgical anatomy, pathology, and procedures that enhance theoretical knowledge of patient care, instrumentation, supplies, and equipment. Upon completion, students should be able to correlate, integrate, and apply theoretical knowledge of the course topics to the clinical operative environment. Prerequisites: BIO 163, ENG 111, SUR 110, SUR 111. Corequisites: BIO 175, PSY 150, SUR 123. (S)

**SUR 123 SUR Clinical Practice I 0 0 2 1 7**

This course provides clinical experience with a variety of perioperative assignments to build upon skills learned in SUR 111. Emphasis is placed on the scrub and circulating roles of the surgical technologist including aseptic technique and basic case preparation for selected surgical procedures. Upon completion, students should be able to prepare, assist with, and dismantle basic surgical cases in both the scrub and circulating roles. Prerequisites: SUR 110, SUR 111. Corequisites: SUR 122. (S)

**SUR 134 Surgical Procedures II 5 0 0 5**

This course provides a comprehensive study of intermediate and advanced surgical specialties that students are exposed to in the second clinical rotation. Emphasis is placed on related surgical anatomy, pathology, and procedures that enhance theoretical knowledge of patient care, instrumentation, supplies, and equipment. Upon completion, students should be able to correlate, integrate, and apply theoretical knowledge of the course topics to the clinical operative environment. Prerequisites: SUR 123. Corequisites: None. (SU)

**SUR 135 SUR Clinical Practice II 0 0 12 4**  
 This course provides clinical experience with a variety of perioperative assignments to build skills required for complex perioperative patient care. Emphasis is placed on greater technical skills, critical thinking, speed, efficiency, and autonomy in the operative setting. Upon completion, students should be able to function in the role of an entry-level surgical technologist.  
 Prerequisites: BIO 175, PSY 150, SUR 123.  
 Corequisites: SUR 134, SUR 137. (SU)

**SUR 137 Prof Success Prep 1 0 0 1**  
 This course provides employability skills and an overview of theoretical knowledge in preparation for certification. Topics include test-taking strategies, resume preparation, interviewing strategies, communication skills, and teamwork concepts. Upon completion, students should be able to prepare a resume, demonstrate appropriate interview techniques, and identify strengths and weaknesses in preparation for certification.  
 Prerequisites: SUR 123. Corequisites: SUR 134, SUR 135. (SU)

### TURFGRASS MANAGEMENT

**TRF 110 Intro Turfgrass Cult & ID 3 2 0 4**  
 This course provides an in-depth study of turfgrass. Topics include principles of reproduction, growth development, species characteristics, establishment and maintenance of golf courses and sports fields, and lawn applications. Upon completion, students should be able to identify turfgrass species through characteristics and reproductive stages and develop an establishment and maintenance plan for high quality turf areas.  
 Prerequisites: None. Corequisites: None. (F,SU)

**TRF 120 Turfgrass Irrigat & Design 2 4 0 4**  
 This course covers the basic techniques involved in the design, layout, installation, and use of turfgrass irrigation systems. Topics include types of irrigation systems, components of the systems, materials available for use, and economic considerations. Upon completion, students should be able to complete a functional design for a turfgrass irrigation system.  
 Prerequisites: None. Corequisites: None. (S)

**TRF 125 Turfgrass Computer App 1 3 0 2**  
 This course introduces basic computer applications for the turfgrass industry. Emphasis is placed on computer software applications for irrigation design, management, and budget planning for turfgrass applications. Upon completion, students should be able to use appropriate software for various turfgrass management applications.  
 Prerequisites: None. Corequisites: None. (F)

**TRF 130 Native Flora ID 1 3 0 2**  
 This course covers identification of selected native ground covers and woodland trees by summer and/or winter characteristics. Emphasis is placed on mature age, fall colors, site adaptability, and habit of growth for special turf-related areas. Upon completion, students should be able to identify native plants by size and leaf, bud, twig, and limb formation.  
 Prerequisites: None. Corequisites: None. (F)

**TRF 140 Turfgrass Mgmt Safety 2 2 0 3**  
 This course introduces the dangers and problems that may be faced in the turfgrass management profession. Emphasis is placed on the possible prevention and treatment that may be necessary as well as basic first aid treatment. Upon completion, students should be able to demonstrate effective leadership skills in various professional emergency scenarios.  
 Prerequisites: None. Corequisites: None. (F)

**TRF 150 Landscape Drafting 1 3 0 2**  
 This course introduces the equipment, software, and skills involved in landscape drafting. Emphasis is placed on creating geometrical constructions and visualizing and drawing scaled profile views of various turfgrass-related sites. Upon completion, students should be able to produce competent landscape drawings.  
 Prerequisites: None. Corequisites: None. (F)

**TRF 151 Intro Landscape Design 2 2 0 3**  
 This course covers the principles and practices of landscape design with application to landscape problems associated with lawn areas. Topics include site analysis, drafting techniques, cost estimating, plant selection, and presentation of plans. Upon completion, students should be able to design and install a landscape plan.  
 Prerequisites: None. Corequisites: None. (S)

**TRF 152 Landscape Maintenance 2 2 0 3**  
 This course introduces the tasks of landscape maintenance. Emphasis is placed on lawns, shrubs, trees, flowers, and ground covers. Upon completion, students should be able to maintain a landscape area on a year-round schedule.  
 Prerequisites: None. Corequisites: None. (F)

**TRF 210 Turfgrass Eqmt Mgmt 1 4 0 3**  
 This course covers the operation and maintenance of specialized turfgrass management equipment. Topics include small engine use and repair; operation, maintenance, and repair of turfgrass management equipment; organization of shop areas; and safety considerations. Upon completion, students should be able to operate and maintain turfgrass management equipment.  
 Prerequisites: None. Corequisites: None. (S)

**TRF 220 Turfgrass Calculations 2 0 0 2**  
 This course introduces the specific math concepts and calculations necessary in the turfgrass industry. Emphasis is placed on calibration of equipment used in the application of fertilizers and pesticides and calculation of solid materials used in construction. Upon completion, students should be able to correctly perform basic calculations and calibrations and estimate materials needed in specific professional turfgrass management situations.  
 Prerequisites: None. Corequisites: None. (S)

**TRF 230 Turfgrass Mgmt Apps 1 2 0 2**  
 This course introduces specific sports field design, installation, and maintenance. Topics include natural grass croquet courts and baseball, soccer, and football fields. Upon completion, students should be able to perform specific tasks in layout, field marking, and preparing for tournament play.  
 Prerequisites: None. Corequisites: None. (S)

**TRF 240 Turfgrass Pest Control 2 2 0 3**  
 This course covers detection and identification of turfgrass pests with emphasis on methods of control or eradication. Topics include weeds, insects, diseases, and nematodes identification with an understanding of pesticides used, application procedures, and costs involved in control programs. Upon completion, students should be able to identify turfgrass pests, select the proper pesticide, develop pest control programs, and/or use integrated pest management.  
 Prerequisites: None. Corequisites: None. (F)

**TRF 250 Golf/Sport Field Const 2 4 0 4**  
 This course provides information for layout, materials, and construction of special recreational applications. Emphasis is placed on site selection, equipment, safety regulations, drainage, turfgrass species, and irrigation needs. Upon completion, students should be able to locate construction reference sites and develop drainage and irrigation plans from their own blueprints and topo map designs.  
 Prerequisites: None. Corequisites: None. (S)

**TRF 260 Adv Turfgrass Mgmt 3 2 0 4**  
 This course covers the principles and practices involved in turfgrass management. Topics include choosing the best management practice in mowing, pest control, fertilization, irrigation, traffic control, air control, budgeting, and materials procurement. Upon completion, students should be able to demonstrate knowledge of the principles covered and select and apply the best practices in turfgrass management.  
 Prerequisites: TRF 110. Corequisites: None. (S)

## TRANSPORTATION TECHNOLOGY

### TRN 110 Intro to Transport Tech 1 2 0 2

This course covers workplace safety, hazardous materials, environmental regulations, hand tools, service information, basic concepts, vehicle systems, and common transportation industry terminology. Topics include familiarization with major vehicle systems, proper use of various hand and power tools, material safety data sheets, and personal protective equipment. Upon completion, students should be able to demonstrate appropriate safety procedures, identify and use basic shop tools, and describe government regulations regarding transportation repair facilities.

Prerequisites: RED 080. Corequisites: CTS 080. (F,S)

### TRN 120 Basic Transp Electricity 4 3 0 5

This course covers basic electrical theory, wiring diagrams, test equipment, and diagnosis, repair and replacement of batteries, starters, and alternators. Topics include Ohm's Law, circuit construction, wiring diagrams, circuit testing, and basic troubleshooting. Upon completion, students should be able to properly use wiring diagrams, diagnose, test, and repair basic wiring, battery, starting, charging, and electrical concerns.

Prerequisites: DMA 010, DAM 020, DMA 030, RED 080.

Corequisites: TRN 110. (F)

### TRN 140 Transp Climate Control 1 2 0 2

This course covers the theory of refrigeration and heating, electrical/electronic/pneumatic controls, and diagnosis and repair of climate control systems. Topics include diagnosis and repair of climate control components and systems, recovery/recycling of refrigerants, and safety and environmental regulations. Upon completion, students should be able to diagnose and repair vehicle climate control systems.

Prerequisites: RED 080. Corequisites: TRN 110, TRN 140A. (F)

### TRN 140A Transp Climate Cont Lab 1 2 0 2

This course provides experiences for enhancing student skills in the diagnosis and repair of transportation climate control systems. Emphasis is placed on reclaiming, recovery, recharging, leak detection, climate control components, diagnosis, air conditioning equipment, tools and safety. Upon completion, students should be able to describe the operation, diagnose, and safely service climate control systems using appropriate tools, equipment, and service information.

Prerequisites: None. Corequisites: TRN 140. (F)

### TRN 170 Pc Skills for Transp 1 2 0 2

This course introduces students to personal computer literacy and Internet literacy with an emphasis on the transportation service industry. Topics include service information systems, management systems, computer-based systems, and PC-based diagnostic equipment. Upon completion, students should be able to access information pertaining to transportation technology and perform word processing.

Prerequisites: CTS 080, RED 080. Corequisites: None. (F)

## UPHOLSTERY

### UPH 100 Cutting 1 15 0 6

This course introduces a variety of upholstery cutting methods and techniques. Emphasis is placed on the correct use of patterns and cutting techniques. Upon completion, students should be able to place and adjust patterns onto fabric, demonstrate various cutting techniques and cut part to acceptable quality standards.

Prerequisites: None. Corequisites: None. (F,S,SU)

### UPH 101 Sewing 1 15 0 6

This course covers various methods and techniques of sewing upholstery covers. Emphasis is placed on machine operation, set-up, and maintenance; threading; sewing straight lines, corners, curves and welts. Upon completion students should be able to set up and operate a variety of standard sewing machines used for upholstery fabrics.

Prerequisites: None. Corequisites: None. (F,S,SU)

### UPH 102 Inside Upholstery 1 15 0 6

This course introduces the fundamental techniques required to perform inside upholstery on simple furniture styles. Topics include terminology and the techniques required to upholster seat decks, inside arms and backs and properly fit and adjust cushions to acceptable quality standards. Upon completion, students should be able to peel and upholster seat decks, inside arms and backs, and fit cushions.

Prerequisites: None. Corequisites: None. (F,S,SU)

### UPH 106 Pattern Making 1 15 0 6

This course covers the techniques and procedures for fabricating cutting patterns. Topics include frame measurement, pattern development, and pattern making. Upon completion, students should be able to fabricate a set of cutting patterns from an upholstery frame.

Prerequisites: None. Corequisites: None. (F,S,SU)

### UPH 107 Spring-Up 1 15 0 6

This course introduces the basic seat construction for simple furniture styles. Topics include webbing, lightweight springs, and basic eight-way hand tie construction. Upon completion, students should be able to develop basic seat construction for a variety of furniture styles.

Prerequisites: None. Corequisites: None. (F,S,SU)

### UPH 108 Outside Upholstery 1 15 0 6

This course introduces the fundamental techniques required to perform outside upholstery on simple furniture styles. Topics include padding, double covering, and deluxing. Upon completion, students should be able to cover the outside of simple furniture styles.

Prerequisites: None. Corequisites: None. (F,S,SU)

### UPH 111 Cutting & Patrn Makng I 1 4 0 3

This course introduces making, selecting, identifying, and placing patterns on fabric; fabric characteristics; and cutting simple fabrics. Emphasis is placed on frame measurements, fabric characteristics, pattern placement, cutting techniques, and proper use of cutting tools. Upon completion, students should be able to develop a set of patterns and demonstrate cutting techniques and placement of patterns on fabric to industry standards.

Prerequisites: None. Corequisites: None. (F,S,SU)

### UPH 112 Cutting & Patrn Makng II 1 4 0 3

This course covers advanced pattern making and cutting on a variety of fabrics and furniture styles. Emphasis is placed on making and cutting complex patterns for a variety of furniture styles and the use of patterned fabrics. Upon completion, students should be able to develop and cut patterns for a variety of complex furniture styles and fabric patterns.

Prerequisites: UPH 111. Corequisites: None. (F,S,SU)

### UPH 121 Sewing I 1 4 0 3

This course introduces skills needed to sew upholstery covers using a standard sewing machine. Topics include machine maintenance, threading, and sewing straight lines, corners, curves, and welts. Upon completion, students should be able to operate and maintain a standard sewing machine for upholstery fabric.

Prerequisites: None. Corequisites: None. (F,S,SU)

### UPH 122 Sewing II 1 4 0 3

This course covers operation of more advanced equipment on complex fabric patterns and designs. Emphasis is placed on double needle, zipper, border, and computerized machines and on matching stripes and patterns. Upon completion, students should be able to operate advanced sewing equipment on complex fabrics.

Prerequisites: UPH 121. Corequisites: None. (F,S,SU)

### UPH 123 Sewing III 1 4 0 3

This course is designed to provide additional instruction on sewing techniques commonly used for speed and accuracy in incentive work when fabricating welt box cushions. Emphasis is placed on learning to accurately follow sewing diagrams used for creating welted box cushions and similar components common to the furniture upholstery industry. Upon completion, the student should be able to make contrast and self welt box cushions without a zipper or box border machine.

Prerequisites: UPH 121. Corequisites: None.

### UPH 131 Seat Construction I 1 4 0 3

This course introduces basic seat construction for simple furniture styles. Topics include webbing, light-weight springs, and basic eight-way tie construction. Upon completion, students should be able to develop basic seat construction for simple furniture.

Prerequisites: None. Corequisites: None. (F,S,SU)

**UPH 132 Seat Construction II 1 4 0 3**  
This course covers more complex methods of seat construction, including eight-way hand tying. Emphasis is placed on eight-way hand tie construction on love seats and sofas and other related topics. Upon completion, students should be able to demonstrate proficiency in eight-way hand tying on complex furniture styles. Prerequisites: UPH 131. Corequisites: None. (F,S,SU)

**UPH 141 Inside Upholstery I 1 4 0 3**  
This course covers basic aspects of inside upholstering on simple chairs, including correct terminology. Topics include the introduction of padding and upholstering, seat decks, inside backs and arms of chairs, and fitting cushions. Upon completion, students should be able to peel and upholster seat decks, inside arms, inside backs, and arms of chairs and fit cushions for comfort. Prerequisites: None. Corequisites: None. (F,S,SU)

**UPH 142 Inside Upholstery II 1 4 0 3**  
This course covers advanced inside upholstering tasks for chairs, love seats, and sofas. Emphasis is placed on channeling and tufting for all styles and types. Upon completion, students should be able to complete inside upholstering of complex styles of furniture. Prerequisites: UPH 141. Corequisites: None. (F,S,SU)

**UPH 151 Outside Upholstery I 1 4 0 3**  
This course introduces the application of an outside cover to a basic chair. Topics include double covering and proper use of padding on the outside of chairs, love seats, and sofas. Upon completion, students should be able to cover and pad the outside of a chair. Prerequisites: None. Corequisites: None. (F,S,SU)

**UPH 152 Outside Upholstery II 1 4 0 3**  
This course covers application of outside coverings to frames using more complex fabric and decoration. Emphasis is placed on applying skirts and decorative trim, including matching of stripes. Upon completion, students should be able to demonstrate proficiency in covering furniture outside and applying decorative trim and matching of stripes. Prerequisites: UPH 151. Corequisites: None. (F,S,SU)

**UPH 161 Automated Cutting I 1 2 0 2**  
This course introduces the basic operating procedures of automated cutting equipment in the upholstery industry. Emphasis is placed on operation of automated cutting equipment. Upon completion, students should be able to maintain and operate the automated cutter with marker for maximum yield. Prerequisites: UPH 111. Corequisites: None. (On demand)

**UPH 162 Automated Cutting II 1 2 0 2**  
This course covers computer functions as they relate to the operation of the automated cutter. Topics include correcting and positioning of markers on fabric, cutting of multiple layers of fabric, and an overview of software. Upon completion, students should be able to process a set of markers through a complete cutting cycle. Prerequisites: UPH 161. Corequisites: None. (On demand)

**UPH 186 Upholstered Furn Styles 2 0 0 2**  
This course covers periods and styles of upholstered furniture from Gothic to 21st century. Emphasis is placed on style characteristics and influences on development and design construction. Upon completion, students should be able to identify styles of upholstered furniture from various time periods and demonstrate an understanding of construction as related to styles of furniture. Prerequisites: None. Corequisites: None. (On demand)

## WEB TECHNOLOGIES

**WEB 110 Internet/Web Fundamentals 2 2 0 3**  
This course introduces basic markup language, various navigational tools and services of the Internet. Topics include creating web pages, using Internet protocols, search engines, file compression/decompression, FTP, E-mail, listservers, and other related topics. Upon completion, students should be able to deploy a web-site created with basic markup language, retrieve/decompress files, e-mail, FTP, and utilize other Internet tools. Prerequisites: None. Corequisites: None. (F)

**WEB 111 Intro to Web Graphics 2 2 0 3**  
This course is the first of two courses covering the creation of web graphics, addressing problems peculiar to WWW display using appropriate software. Topics include web graphics file types, type conversion, RGB color, the browser-safe palette, elementary special effects, image maps, and other related topics. Upon completion, students should be able to create graphics such as banners buttons, backgrounds, and other graphics for Web pages. Prerequisites: None. Corequisites: None. (On demand)

**WEB 115 Web Markup and Scripting 2 2 0 3**  
This course introduces client-side Internet programming using the current W3C-recommended presentation markup language and supporting elements. Topics include site management and development, markup elements, stylesheets, validation, accessibility, standards, browsers, and basic JavaScripting. Upon completion, students should be able to hand-code web pages with various media elements according to current markup standards and integrate them into websites. Prerequisites: None. Corequisites: None. (F)

**WEB 120 Intro Internet Multimedia 2 2 0 3**  
This is the first of two courses covering the creation of internet multimedia. Topics include Internet multimedia file types, file type conversion, acquisition of digital audio/video, streaming audio/video and graphics animation plug-in programs and other related topics. Upon completion, students should be able to create Internet multimedia presentations utilizing a variety of methods and applications. Prerequisites: None. Corequisites: None. (S)

**WEB 140 Web Development Tools 2 2 0 3**  
This course provides an introduction to web development software suites. Topics include the creation of web sites and applets using web development software. Upon completion, students should be able to create entire web sites and supporting applets. Prerequisites: None. Corequisites: None. (S)

**WEB 151 Mobile Application Dev I 2 2 0 3**  
This course introduces students to programming technologies, design and development related to mobile applications. Topics include accessing device capabilities, industry standards, operating systems, and programming for mobile applications using an OS Software Development Kit (SDK). Upon completion, students should be able to create basic applications for mobile devices. Prerequisites: None. Corequisites: None.

**WEB 180 Active Server Pages 2 2 0 3**  
This course introduces Active Server Programming. Topics include Jscript, VBScript, HTML forms processing, and the Active Server Object Model. Upon completion, students should be able to create and maintain Active Server applications. Prerequisites: CIS 115. Corequisites: None. (On demand)

**WEB 186 XML Technology 2 2 0 3**  
This course is designed to introduce students to XML and related internet technologies. Topics include extensible style language (XSL) document object model (DOM), extensible stylesheet language transformation (XSLT), and simple object access protocol (SOAP). Upon completion, students should be able to create a complex XML document. Prerequisites: CIS 115. Corequisites: None. (On demand)

**WEB 210 Web Design 2 2 0 3**  
This course introduces intermediate to advanced web page design techniques. Topics include effective use of graphics, fonts, colors, navigation tools, advanced markup language elements, as well as a study of bad design techniques. Upon completion, students should be able to employ advanced design techniques to create high impact and highly functional web pages. Prerequisites: None. Corequisites: None. (S)

**WEB 220 Advanced Multimedia 2 2 0 3**  
This is the second of two courses covering Internet multimedia. Topics include use of advanced Internet multimedia applications. Upon completion, students should be able to create interactive Internet multimedia presentations. Prerequisites: WEB 120. Corequisites: None. (On demand)

**WEB 230 Implementing Web Serv** 2 2 0 3  
This course covers website and web server architecture. Topics include installation, configuration, administration, and security of web servers, services and sites. Upon completion, students should be able to effectively manage the web services deployment lifecycle according to industry standards.  
Prerequisites: NET 125. Corequisites: None. (F)

**WEB 240 Internet Security** 2 2 0 3  
This course covers security issues related to Internet services. Topics include the operating system and the Internet service security mechanisms. Upon completion, students should be able to implement security procedures for operating system level and server level alerts.  
Prerequisites: WEB 110; CIS 110 or CIS 111; SEC 110.  
Corequisites: None. (On demand)

**WEB 250 Database Driven Websites** 2 2 0 3  
This course introduces dynamic (database-driven) website development. Topics include the use of basic database CRUD statements (create, read, update and delete) incorporated into web applications, as well as in software architecture principles. Upon completion, students should be able to design and develop database driven web applications according to industry standards.  
Prerequisites: DBA 110, WEB 140. Corequisites: None. (F)

**WEB 260 E-Commerce Infrastructure** 2 2 0 3  
This course introduces the concepts and tools to implement electronic commerce via the Internet. Topics include application and server software selection, securing transactions, use and verification of credit cards, publishing of catalogs, documentation, and site administration. Upon completion, students should be able to setup a working e-commerce Internet web site.  
Prerequisites: WEB 250. Corequisites: None. (On demand)

**WEB 289 Internet Technologies Project** 1 4 0 3  
This course provides an opportunity to complete a significant Web technologies project from the design phase through implementation with minimal instructor support. Emphasis is placed on project definition, documentation, installation, testing, presentation, and training. Upon completion, students should be able to complete an Internet project from the definition phase through implementation.  
Prerequisites: WEB 250. Corequisites: None. (S)

## WELDING

**WLD 110 Cutting Processes** 1 3 0 2  
This course introduces oxy-fuel and plasma-arc cutting systems. Topics include safety, proper equipment setup, and operation of oxy-fuel and plasma-arc cutting equipment with emphasis on straight line, curve and bevel cutting. Upon completion, students should be able to oxy-fuel and plasma-arc cut metals of varying thickness.  
Prerequisites: None. Corequisites: None. (F,S)

**WLD 112 Basic Welding Processes** 1 3 0 2  
This course introduces basic welding and cutting. Emphasis is placed on beads applied with gases, mild steel fillers, and electrodes and the capillary action of solder. Upon completion, students should be able to set up welding and oxy-fuel equipment and perform welding, brazing, and soldering processes.  
Prerequisites: None. Corequisites: None. (F,S)

**WLD 115 SMAW (Stick) Plate** 2 9 0 5  
This course introduces the shielded metal arc (stick) welding process. Emphasis is placed on padding, fillet, and groove welds in various positions with SMAW electrodes. Upon completion, students should be able to perform SMAW fillet and groove welds on carbon plate with prescribed electrodes.  
Prerequisites: None. Corequisites: WLD 110. (F,S)

**WLD 115AC SMAW (Stick) Plate-AC** 1 3 0 2  
This course introduces the shielded metal arc (stick) welding process. Emphasis is placed on padding, fillet, and groove welds in the flat and horizontal positions with SMAW electrodes. Upon completion, students should be able to perform groove welds on carbon plate with prescribed electrodes.  
Prerequisites: None. Corequisites: WLD 110. (F,S)

**WLD 115BC SMAW (Stick) Plate-BC** 1 3 0 2  
This course is a continuation of WLD 115AC, the shielded metal arc (stick) welding process. Emphasis is placed on padding, fillet, and groove welds in the vertical and overhead positions with SMAW electrodes. Upon completion, students should be able to perform groove welds on carbon plate with prescribed electrodes.  
Prerequisites: WLD 110, WLD 115AC. Corequisites: WLD 115AC. (F,S)

**WLD 115CC SMAW (Stick) Plate-CC** 0 3 0 1  
This course is a continuation of WLD 115BC, the shielded metal arc (stick) welding process. Emphasis is placed on padding, fillet, and groove welds in the vertical and overhead positions with SMAW electrodes. Upon completion, students should be able to perform groove welds on carbon plate with prescribed electrodes.  
Prerequisites: WLD 110, WLD 115BC. Corequisites: WLD 115BC. (F,S)

**WLD 116 SMAW (Stick) Plate/Pipe** 1 9 0 4  
This course is designed to enhance skills with the shielded metal arc (stick) welding process. Emphasis is placed on advancing manipulative skills with SMAW electrodes on varying joint geometry. Upon completion, students should be able to perform groove welds on carbon steel with prescribed electrodes in the flat, horizontal, vertical, and overhead positions.  
Prerequisites: WLD 115. Corequisites: None. (F,S)

**WLD 116AB SMAW (Stick) Plate/Pipe-AB** 1 4 0 2  
This course is designed to enhance skills with the shielded metal arc (stick) welding process. Emphasis is placed on advancing manipulative skills with SMAW electrodes on varying joint geometry. Upon completion, students should be able to perform groove welds on carbon steel with prescribed electrodes in the flat, and horizontal positions.  
Prerequisites: WLD 115. Corequisites: None. (F,S)

**WLD 116BB SMAW (Stick) Plate/Pipe-BB** 0 5 0 2  
This course is a continuation of WLD 116AB, the shielded metal arc (stick) welding process. Emphasis is placed on advancing manipulative skills with SMAW electrodes on varying joint geometry. Upon completion, students should be able to perform groove welds on carbon steel with prescribed electrodes in the flat, horizontal, vertical and overhead positions without backing plates.  
Prerequisites: WLD 115, WLD 116AB. Corequisites: WLD 116AB. (F,S)

**WLD 121 GMAW (MIG) FCAW/Plate** 2 6 0 4  
This course introduces metal arc welding and flux core arc welding processes. Topics include equipment setup and fillet and groove welds with emphasis on application of GMAW and FCAW electrodes on carbon steel plate. Upon completion, students should be able to perform fillet welds on carbon steel with prescribed electrodes in the flat, horizontal, and overhead positions.  
Prerequisites: WLD 115. Corequisites: None. (F,S)

**WLD 131 GTAW (TIG) Plate** 2 6 0 4  
This course introduces the gas tungsten arc (TIG) welding process. Topics include correct selection of tungsten, polarity, gas, and proper filler rod with emphasis placed on safety, equipment setup, and welding techniques. Upon completion, students should be able to perform GTAW fillet and groove welds with various electrodes and filler materials.  
Prerequisites: WLD 121. Corequisites: None. (F,S)

**WLD 141 Symbols & Specifications** 2 2 0 3  
This course introduces the basic symbols and specifications used in welding. Emphasis is placed on interpretation of lines, notes, welding symbols, and specifications. Upon completion, students should be able to read and interpret symbols and specifications commonly used in welding.  
Prerequisites: None. Corequisites: None. (On demand)

**WLD 143 Welding Metallurgy** 1 2 0 2  
This course introduces the concepts of welding metallurgy. Emphasis is placed on basic metallurgy, effects of welding on various metals, and metal classification and identification. Upon completion, students should be able to understand basic metallurgy, materials designation, and classification systems used in welding.  
Prerequisites: RED 080 or appropriate placement test score. Corequisites: None. (On demand)

**WLD 215 SMAW (Stick) Pipe 1 9 0 4**

This course covers the knowledge and skills that apply to welding pipe. Topics include pipe positions, joint geometry, and preparation with emphasis placed on bead application, profile, and discontinuities. Upon completion, students should be able to perform SMAW welds to applicable codes on carbon steel pipe with prescribed electrodes in various positions.

Prerequisites: WLD 115 or WLD 116. Corequisite:None. (F,S)

**WLD 215AB SMAW (Stick) Pipe-AB 1 4 0 2**

This course covers the knowledge and skills that apply to welding pipe. Topics include pipe positions, joint geometry, and preparation with emphasis placed on bead application, profile, and discontinuities. Upon completion, students should be able to perform SMAW welds to applicable codes on carbon steel pipe with prescribed electrodes in the 2G and 5G positions.

Prerequisites: WLD 115, WLD 116. Corequisites: None. (F)

**WLD 215BB SMAW (Stick) Pipe-BB 0 5 0 2**

This course is a continuation of WLD 215AB. Topics include pipe positions, joint geometry, and preparation with emphasis on making welds in the 2G and 5G positions without backing, and testing in the 6G position with carbon steel electrodes and making pipe welds with stainless steel electrodes. Upon completion, students should be able to perform SMAW welds to applicable codes on carbon steel pipe with carbon steel electrodes in various positions.

Prerequisites: WLD 115, WLD 116, WLD 215AB.

Corequisites: WLD 215AB. (F,S)

**WLD 261 Certification Practices 1 3 0 2**

This course covers certification requirements for industrial welding processes. Topics include techniques and certification requirements for prequalified joint geometry. Upon completion, students should be able to perform welds on carbon steel plate and/or pipe according to applicable codes.

Prerequisites: WLD 115, WLD 121, WLD 131.

Corequisites: None. (On demand)

**WLD 262 Inspection & Testing 2 2 0 3**

This course introduces destructive and non-destructive testing methods. Emphasis is placed on safety, types and methods of testing, and the use of testing equipment and materials. Upon completion, students should be able to understand and/or perform a variety of destructive and non-destructive testing processes.

Prerequisites: WLD 141. Corequisites: None. (On demand)