

# COURSE DESCRIPTIONS

The following list of courses is arranged in alphabetical order by course prefix and in numerical order under the program of study. Following the title are numbers representing lecture, lab, clinical or work experience, and credit. When classes have pre- or co-requisite requirements, those are listed as well. These are noted as either State (S) or Local (L) requirements. Courses below the 100 level are considered developmental education courses and serve as prerequisites to curriculum study. Grades in all courses below the 100 level will not count as hours/credits earned and will not be used to calculate grade point averages. Courses below the 100 level are counted as hours attempted for financial aid and term course load purposes. Courses without clinical or work experience hours have three numbers listed, as in Example 1 below. Courses with clinical or work experience hours have four numbers listed, as in Example 2 below. The final sentence in some course descriptions indicates the potential transferability of the course, as in Example 3 below.

<b>EXAMPLE 1</b>	<b>Lecture</b>	<b>Lab</b>	<b>Credit</b>
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<b>PSY 118 Interpersonal Psychology</b>	<b>3</b>	<b>0</b>	<b>3</b>
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This course introduces the basic principles of psychology as they relate to personal and professional development. Emphasis is placed on personality traits, communication/leadership styles, effective problem solving, and cultural diversity as they apply to personal and work environments. Upon completion, students should be able to demonstrate an understanding of these principles of psychology as they apply to personal and professional development. S11025

<b>EXAMPLE 2</b>	<b>Lecture</b>	<b>Lab</b>	<b>Clin/Wrk</b>	<b>Credit</b>
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<b>COE 111 Co-op Work Experience I</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>1</b>
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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. S11680

<b>EXAMPLE 1</b>	<b>Lecture</b>	<b>Lab</b>	<b>Credit</b>
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<b>ENG 111 Expository Writing</b>	<b>3</b>	<b>0</b>	<b>3</b>
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Prerequisites: ENG 090 and RED 090 or ENG 095

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 has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in English Composition. S13673

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**ANIMAL ASSISTED INTERACTIONS (AAI)**


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<b>AAI 110</b>	<b>Animal Assisted Introduction</b>	<b>1</b>	<b>0</b>	<b>1</b>
Corequisites: (L) Take AAI 120				
This course introduces the field of human-animal interactions, its history, agencies, roles and careers. Topics include personal/professional characteristics, animal behavioral profiles, diversity of populations served, disciplines in the field, ethical standards and major theoretical and intervention approaches. Upon completion, students should be able to clearly articulate the knowledge, skills and roles of the animal interaction specialist. S22766				
<b>AAI 120</b>	<b>Animals in Human Lives</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (L) Take AAI 110				
This course covers the roles, uses and status of animals across the human life span and the regulation of animals in social spaces. Emphasis is placed on animals in the social world and individual lives, including animal and human development, animal cruelty and human violence, and cultural perspectives. Upon completion, students should be able to show competence in identifying and explaining how people are influenced by animals in social and personal contexts. S22767				
<b>AAI 130</b>	<b>Animal Handling Skills</b>	<b>1</b>	<b>4</b>	<b>3</b>
Prerequisites: (L) Take AAI 110 and PSY 150				
This course covers the capacities of different species for work with diverse goals and populations in animal interactions and introduces components critical to animals' well-being. Emphasis is placed on expanding critical thinking, and competence in animal handling and management skills necessary for development as a well-rounded, responsible animal handler. Upon completion, students should be able to demonstrate their ability to identify interaction risks, animal handling and training practices, and assess animal interaction effectiveness. S22768				
<b>AAI 210</b>	<b>Interaction Methodology</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (L) Take AAI 110 and PSY 150				
This course provides a comprehensive exposure to techniques, approaches, and experiential methodology for implementing animal interactions in all aspects of human services and education. Emphasis is placed on applying the knowledge and animal skills for creating safe and effective, goal oriented interactions within various human service and educational environments. Upon completion, students should be able to demonstrate the knowledge, judgment, safety and methodology skills appropriate for an entry-level position utilizing animal interactions. S22769				
<b>AAI 220</b>	<b>Interaction Documentation</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (L) Take AAI 110 and PSY 150				
This course covers the knowledge and skills necessary for program evaluation and outcome measurement processes used in animal interaction services. Topics include the effect of animal interactions on participant outcomes, assessment of outcome measures, and evaluation of overall program goals and objectives. Upon completion, students should be able to utilize basic concepts of outcome based evaluation processes to objectively evaluate animal interaction service within supervised settings. S22770				

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**ACADEMIC RELATED (ACA)**


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*Initial student placement in developmental courses is based on individual college placement testing policies and procedures. Students should begin developmental course work at the appropriate level indicated by the college's placement test.*

<b>ACA 090</b>	<b>Student Success Strategies</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course is intended to provide students with skills and strategies to promote success in college, career, and life. Topics include the College's physical, academic, and social environment, promotes personal development, and cultivates learning strategies essential for student success. Upon completion, students should be able to manage their learning experiences to meet educational and life goals. S23846				
<b>ACA 111</b>	<b>College Student Success</b>	<b>1</b>	<b>0</b>	<b>1</b>
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. S13509				

<b>ACA 118 College Study Skills</b>	<b>1</b>	<b>2</b>	<b>2</b>
This course covers skills and strategies designed to improve study behaviors. Topics include time management, note taking, test taking, memory techniques, active reading strategies, critical thinking, communication skills, learning styles, and other strategies for effective learning. Upon completion, students should be able to apply appropriate study strategies and techniques to the development of an effective study plan. S13503			
<b>ACA 122 College Transfer Success</b>	<b>1</b>	<b>0</b>	<b>1</b>
This course provides information and strategies necessary to develop clear academic and professional goals beyond the community college experience. Topics include the CAA, college policies and 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. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement. S24018			
Competencies			
1. Develop a strategic plan for completing community college academic goals, including certificates, diplomas, and/or associate degrees. 2. Develop a strategic plan for transferring to a university and preparing for a new career. 3. Identify the rights and responsibilities of transfer students under the Comprehensive Articulation Agreement (CAA), including Universal General Education Transfer Component (UGETC) designated courses, the Transfer Assured Admissions Policy (TAAP), the CAA appeals process, and university tuition surcharge. 4. Evaluate learning strategies, including note-taking, test-taking, information processing, time management, and memorization techniques, and identify strategies for improvement. 5. Identify essential college resources, including financial aid, advising, registration, tutoring, library services, computer labs, and counseling services and recognize the importance of these resources on student success. 6. Identify essential college policies and procedures, including academic integrity such as avoiding plagiarism; calculating a GPA, and maintaining satisfactory academic progress for financial aid eligibility and/or good academic standing.			

## ACCOUNTING (ACC)

<b>ACC 115 College Accounting</b>	<b>3</b>	<b>2</b>	<b>4</b>
This course introduces basic accounting principles for a business. Topics include the complete accounting cycle with end-of-period statements, bank reconciliation, payrolls, and petty cash. Upon completion, students should be able to demonstrate an understanding of accounting principles and apply those skills to a business organization. S20279			
<b>ACC 120 Principles of Financial Accounting</b>	<b>3</b>	<b>2</b>	<b>4</b>
This course introduces business decision-making using 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. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement. S20278			
<b>ACC 121 Principles of Managerial Accounting</b>	<b>3</b>	<b>2</b>	<b>4</b>
Prerequisites: (S) Take ACC 120			
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. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement. S20282			
<b>ACC 122 Principles of Financial Accounting II</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take ACC 120			
This course provides additional instruction in the financial accounting concepts and procedures introduced in ACC 120. Emphasis is placed on the analysis of specific balance sheet accounts, with in-depth instruction of the accounting principles applied to these accounts. Upon completion, students should be able to analyze data, prepare journal entries, and prepare reports in compliance with generally accepted accounting principles. S20286			
<b>ACC 129 Individual Income Taxes</b>	<b>2</b>	<b>2</b>	<b>3</b>
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 income tax returns. Upon completion, students should be able to analyze basic tax scenarios, research applicable tax law, and complete various individual tax forms. S20283			

<b>ACC 130 Business Income Taxes</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (L) Take ACC 129			
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. S20277			
<b>ACC 140 Payroll Accounting</b>	<b>1</b>	<b>2</b>	<b>2</b>
Prerequisites: (S) Take One: ACC 115 or ACC 120			
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. S20281			
<b>ACC 150 Accounting Software Application</b>	<b>1</b>	<b>2</b>	<b>2</b>
Prerequisites: (S) Take One: ACC 115 or ACC 120			
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. S20275			
<b>ACC 180 Practices in Bookkeeping</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take ACC 120			
This course provides advanced instruction in bookkeeping and record-keeping functions. Emphasis is placed on mastering adjusting entries, correction of errors, depreciation, payroll, and inventory. Upon completion, students should be able to conduct all key bookkeeping functions for small businesses. S20288			
<b>ACC 220 Intermediate Accounting I</b>	<b>3</b>	<b>2</b>	<b>4</b>
Prerequisites: (S) Take ACC 120			
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 extensive analysis of balance sheet components. Upon completion, students should be able to demonstrate competence in the conceptual framework underlying financial accounting, including the application of financial standards. S20836			
<b>ACC 221 Intermediate Accounting II</b>	<b>3</b>	<b>2</b>	<b>4</b>
Prerequisites: (S) Take ACC 220			
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. S10687			
<b>ACC 225 Cost Accounting</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take ACC 121			
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. S10695			

## AIR CONDITIONING, HEATING and REFRIGERATION (AHR)

<b>AHR 110 Intro to Refrigeration</b>	<b>2</b>	<b>6</b>	<b>5</b>
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. S23419			

## Competencies

## Student Learning Outcomes

1. Demonstrate safe practices and procedures with tools, materials, and industry accepted test equipment covered in the course. 2. Identify and explain the theory, operating principle, and components of the refrigeration cycle. 3. Identify tools, materials, and equipment used in the refrigeration industry. 4. Evacuate, charge, recover, and safely operate a basic refrigeration /cooling system in accordance with EPA regulations. 5. Demonstrate refrigeration piping and soldering techniques.

**AHR 112 Heating Technology**

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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. S23421

## Competencies

## Student Learning Outcomes

1. Demonstrate safe practices and procedures with tools, materials, and industry accepted test equipment covered in the course. 2. Use industry terminology to describe principles for oil, gas, and electric warm air heating systems. 3. Identify the major components of oil, gas, and electric heating systems. 4. Install and start-up warm air heating systems. 5. Identify various types of energy sources used in heating and describe the individual characteristics of each. 6. Describe service procedures for heating systems. 7. Use tools and instruments necessary to troubleshoot and test system efficiency.

**AHR 113 Comfort Cooling**

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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 psychrometrics, manufacturer specifications, and test instruments to determine proper system operation. S23422

## Competencies

## Student Learning Outcomes

1. Demonstrate safe practices and procedures with tools, materials, and industry accepted test equipment covered in the course. 2. Evaluate system operation using psychrometrics, manufacturer specifications, and test instruments. 3. Demonstrate methods of installing, testing, maintaining, and repairing comfort cooling systems. 4. Demonstrate use of test equipment and interpretation of test equipment results. 5. Identify refrigerants used in residential and light commercial comfort cooling systems and demonstrate the proper procedures for handling these refrigerants.

**AHR 114 Heat Pump Technology**

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Prerequisites: (S) Take One: AHR-110 or AHR-113

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. S23423

## Competencies

## Student Learning Outcomes

1. Demonstrate safe practices and procedures with tools, materials, and industry accepted test equipment covered in the course. 2. Diagram refrigerant flow through a heat pump in both the heating and cooling mode identifying refrigerant conditions and pressures. 3. Explain the defrost cycle for air-to-air heat pumps. 4. Identify and troubleshoot electrical control system components for heat pumps. 5. Identify and troubleshoot refrigeration system components for heat pumps. 6. Identify and describe the different types of heat pumps in relation to their source of heat.

**AHR 115 Refrigeration Systems**

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Prerequisites: (S) Take: AHR-110

This course introduces refrigeration systems and applications. Topics include defrost methods, safety and operational control, refrigerant piping, refrigerant recovery and charging, and leak testing. Upon completion, students should be able to assist in installing and testing refrigeration systems and perform simple repairs. S14137

<b>AHR 125 HVACR Electronics</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take One: AHR-111, ELC-111 or ELC-112			
This course introduces the common electronic control components in HVACR systems. Emphasis is placed on identifying electronic components and their functions in HVACR systems and motor-driven control circuits. Upon completion, students should be able to identify components, describe control circuitry and functions, and use test instruments to measure electronic circuit values and identify malfunctions. S23272			
<b>AHR 130 HVAC Controls</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take One: AHR-111, ELC-111 or ELC-112			
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. S23273			
<b>AHR 133 HVAC Servicing</b>	<b>2</b>	<b>6</b>	<b>4</b>
Prerequisites: (S) Take One: AHR-112 or AHR-113			
The course covers the maintenance and servicing of HVAC equipment. Topics include testing, adjusting, maintaining, and troubleshooting HVAC equipment and record keeping. Upon completion, students should be able to adjust, maintain, and service HVAC equipment. S13769			
<b>AHR 211 Residential System Design</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course introduces the principles and concepts of conventional residential heating and cooling system design. Topics include heating and cooling load estimating, basic psychrometrics, equipment selection, duct system selection, and system design. Upon completion, students should be able to design a basic residential heating and cooling system. S23445			
Competencies			
Student Learning Outcomes			
1. Design and draw a duct system in accordance with the ACCA Manual D. 2. Apply appropriate HVACR codes to the design of residential HVACR systems. 3. Calculate heating and cooling loads for residential structures in accordance with ACCA Manual J.			
<b>AHR 212 Advanced Comfort Systems</b>	<b>2</b>	<b>6</b>	<b>4</b>
Prerequisites: (S) Take: AHR-114			
This course covers water-cooled comfort systems, water-source/geothermal heat pumps, and high efficiency heat pump systems including variable speed drives and controls. Emphasis is placed on the application, installation, and servicing of water-source systems and the mechanical and electronic control components of advanced comfort systems. Upon completion, students should be able to test, analyze, and troubleshoot water-cooled comfort systems, water-source/geothermal heat pumps, and high efficiency heat pumps. S23446			
Competencies			
Student Learning Outcomes			
1. Demonstrate safe practices and procedures with tools, materials, and industry accepted test equipment covered in the course. 2. Identify components of water-cooled comfort systems, water-source/geothermal heat pumps, and high efficiency heat pumps. 3. Compare and contrast standard and high efficiency heat pumps. 4. Design and size earth coupled piping loops for geothermal heat pump systems. 5. Describe geothermal heat pump operation. 6. Test duct systems for proper airflow and make adjustments.			
<b>AHR 213 HVACR Building Code</b>	<b>1</b>	<b>2</b>	<b>2</b>
This course covers the North Carolina codes that are applicable to the design and installation of HVACR systems. Topics include current North Carolina codes as applied to HVACR design, service, and installation. Upon completion, students should be able to demonstrate the correct usage of North Carolina codes that apply to specific areas of the HVACR trade. S23447			
Competencies			
Student Learning Outcomes			
1. Apply the mechanical, gas, and energy code of North Carolina for designing, installing, maintaining and servicing HVACR systems. 2. Define terms and abbreviations using codes applicable to the HVACR trade. 3. Analyze information to conform to North Carolina mechanical, gas, and energy code. 4. Describe sources of authority and methods of enforcement.			

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**ANTHROPOLOGY (ANT)**


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**ANT 210 General Anthropology** 3 0 3  
 This course introduces the physical, archaeological, linguistic, and ethnological fields of anthropology. Topics include human origins, genetic variations, archaeology, linguistics, primatology, and contemporary cultures. Upon completion, students should be able to demonstrate an understanding of the four major fields of anthropology. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. S13262

**ANT 221 Comparative Cultures** 3 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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. S10536

**ANT 240 Archaeology** 3 0 3  
 This course introduces the scientific study of the unwritten record of the human past. Emphasis is placed on the process of human cultural evolution as revealed through archaeological methods of excavation and interpretation. Upon completion, students should be able to demonstrate an understanding of how archaeologists reconstruct the past and describe the variety of past human cultures. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. S10965

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**ARCHITECTURE(ARC)**


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**ARC 112 Constr Mats & Methods** 3 2 4  
 This course introduces construction materials and methodologies. Topics include construction terminology, traditional and alternative 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. S23271  
 Competencies/Student Learning Outcomes  
 1. Identify construction methods. 2. Identify traditional and sustainable construction materials and their properties. 3. Describe basic construction sequences for residential and commercial applications. 4. Demonstrate an understanding of construction related terminology.

**ARC 132 Specifications & Contracts** 2 0 2  
 Prerequisites: (S) Take ARC 112  
 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. S12627

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**ART (ART)**


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**ART 111 Art Appreciation** 3 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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts. This is a Universal General Education Transfer Component (UGETC) course. S10139

**ART 114 Art History Survey I** 3 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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts. This is a Universal General Education Transfer Component (UGETC) course. S10200

<b>ART 115 Art History Survey II</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course covers the development of art forms from the Renaissance to the present. 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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts. This is a Universal General Education Transfer Component (UGETC) course. S10149			
<b>ART 131 Drawing I</b>	<b>0</b>	<b>6</b>	<b>3</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S10812			
<b>ART 132 Drawing II</b>	<b>0</b>	<b>6</b>	<b>3</b>
Prerequisites: (S) Take ART 131 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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S10831			
<b>ART 283 Ceramics I</b>	<b>0</b>	<b>6</b>	<b>3</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S11998			

## ASTRONOMY (AST)

<b>AST 111 Descriptive Astronomy</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course introduces an overall view of modern astronomy. Topics include an overview of the solar system, the sun, stars, galaxies, and the larger universe. Upon completion, students should be able to demonstrate an understanding of the universe around them. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This is a Universal General Education Transfer Component (UGETC) course. S10553			
<b>AST 111A Descriptive Astronomy Lab</b>	<b>0</b>	<b>2</b>	<b>1</b>
Corequisites: (S) Take AST 111 The course is a laboratory to accompany AST 111. Emphasis is placed on laboratory experiences which enhance the materials presented in AST 111 and which provide practical experience. Upon completion, students should be able to demonstrate an understanding of the universe around them. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This is a Universal General Education Transfer Component (UGETC) course. S13670			
<b>AST 151 General Astronomy I</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This is a Universal General Education Transfer Component (UGETC) course. S10092			
<b>AST 151A General Astronomy I Lab</b>	<b>0</b>	<b>2</b>	<b>1</b>
Corequisites: (S) Take AST 151 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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This is a Universal General Education Transfer Component (UGETC) course. S10019			



**AST 152 General Astronomy II** 3 0 3  
 Prerequisites: (S) Take AST 151  
 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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. S10028

**AST 152A General Astronomy II Lab** 0 2 1  
 Prerequisites: (S) Take AST 151  
 Corequisites: (S) Take AST 152  
 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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. S12436

**AUTOMATION AND ROBOTICS (ATR)**

**ATR 112 Introduction to Automation** 2 3 3  
 This course introduces the basic principles of automated systems and describes the tasks that technicians perform on the job. Topics include the history, development, and current applications of robots and automated systems including their configuration, operation, components, and controls. Upon completion, students should be able to understand the basic concepts of automation and robotic systems. S23467

**ATR 280 Robotic Fundamentals** 3 2 4  
 This course covers application, programming, and maintenance fundamentals for robotic devices. Emphasis is placed on terminology, problem solving, robotic systems controls, and hands-on projects. Upon completion, students should be able to apply basic concepts in application, programming, and robotic control systems. S12171

**ATR 282 Robotics and CIM** 3 2 4  
 This course covers robotics and computer integrated manufacturing (CIM). Topics include application, programming, and maintenance of robotic devices and the relationship between robotics and CIM. Upon completion, students should be able to safely program, operate, maintain robots and understand the relationship between robotics and CIM. S23473

**ALTERNATIVE TRANSPORTATION TECH (ATT)**

**ATT 115 Green Transmission Safety & Service** 1 2 2  
 This course covers workplace safety, hazardous material and environmental regulation relevant to electric, hybrid and alternative fueled vehicles. Topics include safety of high voltage vehicle systems, gaseous fuel systems and alternative liquid fuels. Upon completion, students should be able to demonstrate safe work practices, utilize appropriate shop tools and explain government regulations associated with alternative transportation. S23426

**ATT 125 Hybrid-Electric Transmission** 2 4 4  
 Prerequisites: (S) Take TRN 120  
 This course covers the theory and operation of hybrid-electric drive vehicles. Topics include maintenance, diagnostics, repair and safety procedures for electrically propelled and hybrid vehicles. Upon completion, students should be able to perform diagnostics, maintenance and repair hybrid-electric drive vehicles. S23428

**ATT 140 Emerging Transportation Technology** 2 3 3  
 This course covers emerging technologies in the automotive industry and diagnostic procedures associated with those technologies. Topics include exploring new technologies, diagnostic tools, methods and repairs. Upon completion, students should be able to demonstrate practical skills applicable to emerging automotive technologies. S23432

## AUTOMOTIVE (AUT)

<b>AUT 110 Introduction to Automotive Technology</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course covers workplace safety, hazardous material and environmental regulations, use of hand tools, service information resources, basic concepts, systems, and terms of automotive technology. Topics include familiarization with vehicle systems along with identification and proper use of various automotive hand and power tools. Upon completion, students should be able to describe safety and environmental procedures, terms associated with automobiles, identify and use basic tools and shop equipment. S21683			
<b>AUT 114 Safety and Emissions</b>	<b>1</b>	<b>2</b>	<b>2</b>
This course covers the laws, procedures, and specifications needed to perform a North Carolina State Safety and Emissions inspection. Topics include brake, steering and suspension, lighting, horn, windshield wiper, tire, mirrors, and emission control devices inspection. Upon completion, students should be able to perform complete and thorough North Carolina State Safety and Emissions inspections. S21685			
<b>AUT 114A Safety and Emissions Lab</b>	<b>0</b>	<b>2</b>	<b>1</b>
Corequisites: (S) Take AUT 114 This course is an optional lab that allows students to enhance their understanding of North Carolina State Emissions Inspection failures. Topics include evaporative, positive crankcase ventilation, exhaust gas recirculation and exhaust emissions systems operation, including catalytic converter failure diagnosis. Upon completion, students should be able to employ diagnostic strategies to repair vehicle emissions failures resulting from North Carolina State Emissions inspection. S21686			
<b>AUT 116 Engine Repair</b>	<b>2</b>	<b>3</b>	<b>3</b>
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. S21687			
<b>AUT 116A Engine Repair Lab</b>	<b>0</b>	<b>3</b>	<b>1</b>
Corequisites: (S) Take AUT 116 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. S21688			
<b>AUT 123 Powertrain Diagnosis &amp; Service</b>	<b>1</b>	<b>3</b>	<b>2</b>
This course covers the diagnosis, repair and service of the vehicle powertrain and related systems. Topics include fundamental operating principles of engines and transmissions and use of proper service procedures for diagnosis, service and removal and replacement of major components. Upon completion, students should be able to perform basic service and diagnosis of the powertrain and related systems, and to perform in vehicle repairs and remove and replace components. S21689			
<b>AUT 141 Suspension &amp; Steering Systems</b>	<b>2</b>	<b>3</b>	<b>3</b>
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. S21690			
<b>AUT 141A Suspension &amp; Steering Systems Lab</b>	<b>0</b>	<b>3</b>	<b>1</b>
Corequisites: (S) Take AUT 141 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. S21691			
<b>AUT 151 Brake Systems</b>	<b>2</b>	<b>3</b>	<b>3</b>
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. S21692			

<b>AUT 151A Brake Systems Lab</b>	<b>0</b>	<b>3</b>	<b>1</b>
Corequisites: (S) Take AUT 151			
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. S21693			
<b>AUT 161 Basic Automotive Electricity</b>	<b>4</b>	<b>3</b>	<b>5</b>
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. S21697			
<b>AUT 163 Advanced Automotive Electricity</b>	<b>2</b>	<b>3</b>	<b>3</b>
Prerequisites: (S) Take TRN 120			
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. S23604			
<b>AUT 171 Auto Climate Control</b>	<b>2</b>	<b>4</b>	<b>4</b>
This course covers the theory of refrigeration and heating, electrical/electronic/pneumatic controls, and diagnosis/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 describe the operation, diagnose, and safely service climate control systems using appropriate tools, equipment, and service information. S21700			
<b>AUT 181 Engine Performance 1</b>	<b>2</b>	<b>3</b>	<b>3</b>
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. S21701			
<b>AUT 181A Engine Performance 1 Lab</b>	<b>0</b>	<b>3</b>	<b>1</b>
Corequisites: (S) Take AUT 181			
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. S21702			
<b>AUT 183 Engine Performance 2</b>	<b>2</b>	<b>6</b>	<b>4</b>
Prerequisites: (S) Take AUT 181			
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. S21703			
<b>AUT 221 Auto Transmission/Transaxles</b>	<b>2</b>	<b>3</b>	<b>3</b>
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. S21707			

<b>AUT 231</b>	<b>Manual Transmissions/Axles/Drive Trains</b>	<b>2</b>	<b>3</b>	<b>3</b>
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 servicing 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. S22040				
<b>AUT 231A</b>	<b>Manual Transmissions/Axles/Drive Trains Lab</b>	<b>0</b>	<b>3</b>	<b>1</b>
Corequisites: (S) Take AUT 231 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. S21712				
<b>AUT 281</b>	<b>Advanced Engine Performance</b>	<b>2</b>	<b>2</b>	<b>3</b>
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. S21713				

## BIOLOGY (BIO)

*Initial student placement in developmental courses is based on individual college placement testing policies and procedures. Students should begin developmental course work at the appropriate level indicated by the college's placement test.*

<b>BIO 090</b>	<b>Foundations of Biology</b>	<b>3</b>	<b>2</b>	<b>4</b>
Corequisites: (S) Take One: DRE-098 or RED-090 This course introduces basic biological concepts. Topics include basic biochemistry, cell structure and function, interrelationships among organisms, scientific methodology, and other related topics. Upon completion, students should be able to demonstrate preparedness for college-level biology courses. S24051				
<b>BIO 094</b>	<b>Concepts of Human Biology</b>	<b>3</b>	<b>2</b>	<b>4</b>
Corequisites: (S) Take One: DRE-098, ENG 095 or RED 090 This course focuses on fundamental concepts of human biology. Topics include terminology, biochemistry, cell biology, tissues, body systems, and other related topics. Upon completion, students should be able to demonstrate preparedness for college-level anatomy and physiology courses. S24053				
<b>BIO 110</b>	<b>Principles of Biology</b>	<b>3</b>	<b>3</b>	<b>4</b>
This course provides a survey of fundamental biological principles for non-science majors. Emphasis is placed on basic chemistry, cell biology, metabolism, genetics, evolution, ecology, diversity, and other related topics. Upon completion, students should be able to demonstrate increased knowledge and better understanding of biology as it applies to everyday life. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This is a Universal General Education Transfer Component (UGETC) course. S24019				
<b>BIO 111</b>	<b>General Biology I</b>	<b>3</b>	<b>3</b>	<b>4</b>
This course introduces the principles and concepts of biology. Emphasis is placed on basic biological chemistry, molecular and cellular biology, metabolism and energy transformation, genetics, evolution, and other related topics. Upon completion, students should be able to demonstrate understanding of life at the molecular and cellular levels. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This is a Universal General Education Transfer Component (UGETC) course S24020				
<b>BIO 112</b>	<b>General Biology II</b>	<b>3</b>	<b>3</b>	<b>4</b>
Prerequisites: (S) Take BIO 111 This course is a continuation of BIO 111. Emphasis is placed on organisms, evolution, 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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This is a Universal General Education Transfer Component (UGETC) course. S24021				

<b>BIO 120</b>	<b>Introductory Botany</b>	<b>3</b>	<b>3</b>	<b>4</b>
Prerequisites: (S) Take One: BIO 110 or BIO 111				
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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. S13789				
<b>BIO 130</b>	<b>Introductory Zoology</b>	<b>3</b>	<b>3</b>	<b>4</b>
Prerequisites: (S) Take One: BIO 110 or BIO 111				
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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. S11571				
<b>BIO 140</b>	<b>Environmental Biology</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. S14156				
<b>BIO 140A</b>	<b>Environmental Biology Lab</b>	<b>0</b>	<b>3</b>	<b>1</b>
Corequisites: (S) Take BIO 140				
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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. S13084				
<b>BIO 145</b>	<b>Ecology</b>	<b>3</b>	<b>3</b>	<b>4</b>
Prerequisites: (S) Take One: BIO 110 or BIO 111				
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S14188				
<b>BIO 155</b>	<b>Nutrition</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S12502				
<b>BIO 161</b>	<b>Introduction to Human Biology</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course provides a basic survey of human biology. Emphasis is placed on the basic structure and function of body systems and the medical terminology used to describe normal and pathological states. Upon completion, students should be able to demonstrate an understanding of normal anatomy and physiology and the appropriate use of medical terminology. S13523				
<b>BIO 163</b>	<b>Basic Anatomy &amp; Physiology</b>	<b>4</b>	<b>2</b>	<b>5</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S13508				

<b>BIO 168</b>	<b>Anatomy and Physiology I</b>	<b>3</b>	<b>3</b>	<b>4</b>
Prerequisites: (L) Take BIO 094 (Required for Nursing Program)				
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S11555				
<b>BIO 169</b>	<b>Anatomy and Physiology II</b>	<b>3</b>	<b>3</b>	<b>4</b>
Prerequisites: (S) Take BIO 168				
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S11629				
<b>BIO 173</b>	<b>Microbes in World Affairs</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: BIO 110 or BIO 111				
This course provides an integrated and comprehensive study of the microbial world and its influence on global events and human affairs. Topics include plant and animal diseases caused by viral, bacterial, and fungal pathogens and their impacts on history, industrial microbiology, biotechnology, and microbial ecology. Upon completion, students should be able to demonstrate an understanding of the importance of microbes in human and world affairs. S12302				
<b>BIO 175</b>	<b>General Microbiology</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: Take One: BIO 110, BIO 111, or BIO 168				
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S20491				
<b>BIO 224</b>	<b>Local Flora Spring</b>	<b>1</b>	<b>2</b>	<b>2</b>
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. This course has been approved for transfer under the CAA as a premajor and/or elective course requirement. S14262				
<b>BIO 225</b>	<b>Local Flora Summer</b>	<b>1</b>	<b>2</b>	<b>2</b>
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. S14233				
<b>BIO 226</b>	<b>Local Flora Fall</b>	<b>1</b>	<b>2</b>	<b>2</b>
This course provides an introduction to the identification of native plants. Emphasis is placed on fall wildflowers. Upon completion, students should be able to identify a variety of fall wild flowers and native plants. S14245				
<b>BIO 242</b>	<b>Natural Resource Conservation</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One Set: Set 1: BIO 112 Set 2: BIO 140 and BIO 140A				
This course covers the importance of natural resources and their role in our environment. Emphasis is placed on the physical, biological, and ecological principles underlying natural resource conservation with attention to the biological consequences of human impacts. Upon completion, students should be able to demonstrate an understanding of natural resource conservation. This course has been approved for transfer under the CAA as a premajor and/or elective course requirement. S22584				

**BIO 243 Marine Biology** 3 3 4

Prerequisites: (S) Take One: BIO 110 or BIO 111

This course covers the physical and biological components of the marine environment. Topics include major habitats, the diversity of organisms, their biology and ecology, marine productivity, and the use of marine resources by humans. Upon completion, students should be able to identify various marine habitats and organisms and to demonstrate a knowledge of their biology and ecology. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S13534

**BIO 271 Pathophysiology** 3 0 3

Prerequisites: (S) Take One: BIO 163, BIO 166, or BIO 169

This course provides an in-depth study of human pathological processes and their effects on homeostasis. Emphasis is placed on interrelationships among organ systems in deviations from homeostasis. Upon completion, students should be able to demonstrate a detailed knowledge of pathophysiology. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S13002

**BLUEPRINT READING (BPR)****BPR 111 Blueprint Reading** 1 2 2

This course introduces the basic principles of reading. Topics include line types, orthographic projections, dimensioning methods, and notes. Upon completion, students should be able to interpret basic prints and visualize the features of a part or system. S23466

Competencies/Student Learning Outcomes

1. Interpret symbols, abbreviations, and line types. 2. Identify and describe types of projection and use of views. 3. Draw freehand sketches. 4. Calculate measurements of features. 5. Identify and interpret dimensioning and tolerancing.

**BPR 121 Blueprint Reading: Mechanical** 1 2 2

Prerequisites: (S) Take One: BPR 111 or MAC 131

This course covers the interpretation of intermediate blueprints. Topics include tolerancing, auxiliary views, sectional views, and assembly drawings. Upon completion, students should be able to read and interpret a mechanical working drawing. S10436

**BPR 130 Blueprint Reading/Construction** 1 2 2

This course covers the interpretation of prints and specifications that are associated with design and construction projects. Topics include interpretation of documents for foundations, floor plans, elevations, and related topics. Upon completion, students should be able to read and interpret construction prints and documents. S23275

Competencies/Student Learning Outcomes

1. Identify the different symbols and line types in a set of working drawings. 2. Correctly measure lines to a specific scale using an architectural or engineering scale. 3. Demonstrate proficiency in interpreting construction prints in the form of floor plans, elevations, details, Schedules, and specifications. 4. Convert fractional dimensions to decimal dimensions and decimal dimensions to fractional dimensions. 5. Describe and explain the difference between working drawings and construction drawings.

**BUSINESS (BUS)****BUS 110 Introduction to Business** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11497

**BUS 115 Business Law I** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11427

<b>BUS 116 Business Law II</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take BUS 115			
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. S11517			
<b>BUS 121 Business Math</b>	<b>2</b>	<b>2</b>	<b>3</b>
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. S14289			
<b>BUS 125 Personal Finance</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S14300			
<b>BUS 137 Principles of Management</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S12782			
<b>BUS 139 Entrepreneurship I</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S22030			
<b>BUS 153 Human Resource Management</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S11845			
<b>BUS 225 Business Finance</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take ACC 120			
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. S13686			
<b>BUS 240 Business Ethics</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S14002			
<b>BUS 245 Entrepreneurship II</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take BUS 139			
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. S21146			
<b>BUS 260 Business Communications</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take ENG 111			
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. S23621			



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**CIVIL ENGINEERING AND GEOMATIC (CEG)**


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**CEG 211 Hydrology & Erosion Control**

2 3 3

Prerequisites: (S) Take One Set: Set 1: MAT-121 Set 2: MAT-171 Set 3: DMA-060, DMA-070, and DMA-080  
 This course introduces basic engineering principles and characteristics of hydrology, erosion and sediment control. Topics include stormwater runoff, gravity pipe flow, open channel flow, low impact development (LID), erosion control devices and practices. Upon completion, students should be able to analyze and design gravitational drainage structures, identify LID and erosion control elements, and prepare a stormwater drainage plan. S23951

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**CHEMISTRY (CHM)**


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*Initial student placement in developmental courses is based on individual college placement testing policies and procedures. Students should begin developmental course work at the appropriate level indicated by the college's placement test.*

**CHM 090 Chemistry Concepts**

4 0 4

This course provides a non-laboratory based introduction to basic concepts of chemistry. Topics include measurements, matter, energy, atomic theory, bonding, molecular structure, nomenclature, balancing equations, stoichiometry, solutions, acids and bases, gases, and basic organic chemistry. Upon completion, students should be able to understand and apply basic chemical concepts necessary for success in college-level science courses. S13027

**CHM 131 Introduction to Chemistry**

3 0 3

Prerequisites: (L) Take DMA 040

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Natural Science. S12692

**CHM 131A Introduction to Chemistry Lab**

0 3 1

Prerequisites: (L) Take DMA 040

Corequisites: (S) Take CHM 131

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Natural Science. S12403

**CHM 132 Organic and Biochemistry**

3 3 4

Prerequisites: (S) Take One Set: Set 1: CHM-131 and CHM-131A Set 2: CHM-151

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Natural Science. S20490

**CHM 135 Survey of Chemistry I**

3 2 4

This course provides an introduction to inorganic chemistry. Emphasis is placed on measurement, atomic structure, bonding, molecular geometry, nomenclature, reactions, the mole concept, stoichiometric calculations, states of matter, and the gas laws. Upon completion, students should be able to demonstrate a basic understanding of chemistry as it applies to other fields. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Natural Science. S12720

**CHM 136 Survey of Chemistry II**

3 2 4

Prerequisites: (S) Take CHM 135

This course is a continuation of CHM 135 with further study of inorganic reactions and an introduction to organic, biological, and nuclear chemistry. Topics include solutions, acid-base theory, redox reactions, chemical kinetics, organic chemistry, biochemistry, and nuclear chemistry. Upon completion, students should be able to demonstrate a basic understanding of chemistry as it applies to other fields. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Natural Science. S12583

<b>CHM 151 General Chemistry I</b>	<b>3</b>	<b>3</b>	<b>4</b>
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Prerequisites: (L) Take DMA 040  
 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Natural Science. This is a Universal General Education Transfer Component (UGETC) course. S12258

<b>CHM 152 General Chemistry II</b>	<b>3</b>	<b>3</b>	<b>4</b>
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Prerequisites: (S) Take CHM 151  
 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Natural Science. This is a Universal General Education Transfer Component (UGETC) course. S12137

## COMPUTER INFORMATION SYSTEMS (CIS)

<b>CIS 070 Fundamentals of Computing</b>	<b>0</b>	<b>2</b>	<b>1</b>
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This course covers fundamental functions and operations of the computer. Topics include identification of components, overview of operating systems, and other basic computer operations. Upon completion, students should be able to operate computers, access files, print documents and perform basic applications operations. S11239

<b>CIS 110 Introduction to Computers</b>	<b>2</b>	<b>2</b>	<b>3</b>
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Prerequisites: (L) Take CIS 070  
 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Mathematics (Quantitative). S21058

<b>CIS 111 Basic PC Literacy</b>	<b>1</b>	<b>2</b>	<b>2</b>
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Prerequisites: (L) Take CIS 070  
 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. S21059

<b>CIS 115 Introduction to Programming &amp; Logic</b>	<b>2</b>	<b>3</b>	<b>3</b>
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Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, and DMA-040 Set 2: MAT-121 Set 3: MAT-171  
 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Mathematics (Quantitative). S23954

<b>CIS 126 Graphics Software Introduction</b>	<b>2</b>	<b>2</b>	<b>3</b>
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This course provides an introduction to graphic design and execution of pictorial graphics using a variety of software packages. Emphasis is placed on creation and manipulation of images using graphic design software. Upon completion, students should be able to create graphic designs and incorporate these designs into printed publications. S10029

<b>CIS 165 Desktop Publishing I</b>	<b>2</b>	<b>2</b>	<b>3</b>
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This course provides an introduction to desktop publishing software capabilities. Emphasis is placed on efficient use of a page layout software package to create, design, and print publications; hardware/software compatibility; and integration of specialized peripherals. Upon completion, students should be able to prepare publications given design specifications. S10453

## CRIMINAL JUSTICE (CJC)

- |  |          |          |          |
|--|----------|----------|----------|
| <b>CJC 111 Introduction to Criminal Justice</b>  | <b>3</b> | <b>0</b> | <b>3</b> |
| 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S10631              |          |          |          |
| <b>CJC 112 Criminology</b>   | <b>3</b> | <b>0</b> | <b>3</b> |
| 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. S10598   |          |          |          |
| <b>CJC 113 Juvenile Justice</b>  | <b>3</b> | <b>0</b> | <b>3</b> |
| 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. S10602  |          |          |          |
| <b>CJC 114 Investigative Photography</b>   | <b>1</b> | <b>2</b> | <b>2</b> |
| 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. S20900   |          |          |          |
| <b>CJC 120 Interviews/Interrogations</b>   | <b>1</b> | <b>2</b> | <b>2</b> |
| This course covers basic and special techniques employed in criminal justice interviews and interrogations. Emphasis is placed on the interview/interrogation process, including interpretation of verbal and physical behavior and legal perspectives. Upon completion, students should be able to conduct interviews/interrogations in a legal, efficient, and professional manner and obtain the truth from suspects, witnesses, and victims. S11674  |          |          |          |
| <b>CJC 121 Law Enforcement Operations</b>  | <b>3</b> | <b>0</b> | <b>3</b> |
| 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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S11746   |          |          |          |
| <b>CJC 122 Community Policing</b>  | <b>3</b> | <b>0</b> | <b>3</b> |
| This course covers the historical, philosophical, and practical dimensions of community policing. Emphasis is placed on the empowerment of police and the community to find solutions to problems by forming partnerships. Upon completion, students should be able to define community policing, describe how community policing strategies solve problems, and compare community policing to traditional policing. S11648  |          |          |          |
| <b>CJC 131 Criminal Law</b>  | <b>3</b> | <b>0</b> | <b>3</b> |
| 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. S11110  |          |          |          |
| <b>CJC 132 Court Procedure &amp; Evidence</b>  | <b>3</b> | <b>0</b> | <b>3</b> |
| 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. S11046 |          |          |          |

<b>CJC 141</b>	<b>Corrections</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S12643				
<b>CJC 212</b>	<b>Ethics &amp; Community Relations</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S10970				
<b>CJC 213</b>	<b>Substance Abuse</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course is a study of substance abuse in our society. Topics include the history and classifications of drug abuse and the social, physical, and psychological impact of drug abuse. Upon completion, students should be able to identify various types of drugs, their effects on human behavior and society, and treatment modalities. S10983				
<b>CJC 214</b>	<b>Victimology</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course introduces the study of victims. Emphasis is placed on roles/characteristics of victims, victim interaction with the criminal justice system and society, current victim assistance programs, and other related topics. Upon completion, students should be able to discuss and identify victims, the uniqueness of victims' roles, and current victim assistance programs. S10951				
<b>CJC 215</b>	<b>Organization &amp; Administration</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S11008				
<b>CJC 221</b>	<b>Investigative Principles</b>	<b>3</b>	<b>2</b>	<b>4</b>
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. S12498				
<b>CJC 222</b>	<b>Criminalistics</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S12396				
<b>CJC 223</b>	<b>Organized Crime</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course introduces the evolution of traditional and non-traditional organized crime and its effect on society and the criminal justice system. Topics include identifying individuals and groups involved in organized crime, areas of criminal activity, legal and political responses to organized crime, and other related topics. Upon completion, students should be able to identify the groups and activities involved in organized crime and the responses of the criminal justice system. S12507				
<b>CJC 225</b>	<b>Crisis Intervention</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S12466				

<b>CJC 231</b>	<b>Constitutional Law</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S10090				
<b>CJC 232</b>	<b>Civil Liability</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course covers liability issues for the criminal justice professional. Topics include civil rights violations, tort liability, employment issues, and other related topics. Upon completion, students should be able to explain civil trial procedures and discuss contemporary liability issues. S10037				
<b>CJC 241</b>	<b>Community-Based Corrections</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course covers programs for convicted offenders that are used both as alternatives to incarceration and in post-incarceration situations. Topics include offenders, diversion, house arrest, restitution, community service, probation and parole, including both public and private participation, and other related topics. Upon completion, students should be able to identify/discuss the various programs from the perspective of the criminal justice professional, the offender, and the community. S12261				

## CONSTRUCTION MANAGEMENT (CMT)

<b>CMT 120</b>	<b>Codes and Inspections</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course covers building codes and the code inspections process used in the design and construction of residential and commercial buildings. Emphasis is placed on commercial, residential, and accessibility (ADA) building codes. Upon completion, students should understand the building code inspections process and apply building code principals and requirements to construction projects. S23269				
<b>CMT 210</b>	<b>Construction Management Fund</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course introduces the student to the fundamentals of effective supervision emphasizing professionalism through knowledge and applied skills. Topics include safety, planning and scheduling, contracts, problem-solving, communications, conflict resolution, recruitment, employment laws and regulations, leadership, motivation, teamwork, discipline, setting objectives, and training. Upon completion, students should be able to demonstrate the basic skills necessary to be successful as a supervisor in the construction industry. S23270				
<b>CMT 214</b>	<b>Planning and Scheduling</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take All: CMT-210 and BPR-130 This course covers the need for and the process of planning construction projects, as well as the mechanics and vocabulary of project scheduling. Topics include project preplanning, scheduling formats, planning for production, short interval planning, schedule updating and revising, and computer-based planning and scheduling. Upon completion, the student should be able to understand the need for planning and scheduling, the language and logic of scheduling, and use of planning skills. S13439				
<b>CMT 216</b>	<b>Costs and Productivity</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take CMT-210 This course covers the relationships between time, work completed, work-hours spent, schedule duration, equipment hours, and materials used. Topics include production rates, productivity unit rates, work method improvements, and overall total project cost control. Upon completion, the student should be able to demonstrate an understanding of how costs may be controlled and productivity improved on a construction project. S13478				
<b>CMT 218</b>	<b>Human Relations Issues</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take CMT-210 This course provides instruction on human relations issues as they relate to construction project supervision. Topics include relationships, human behavior, project staffing issues, teamwork, effective communication networks, laws and regulations, and identifying and responding to conflict, crisis, and discipline. Upon completion, the student will demonstrate an understanding of the importance of human relations in the success of a construction project. S13461				

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**COOPERATIVE EDUCATION (COE)**


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<b>COE 111 Co-op Work Experience I</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>1</b>
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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. S11680

**COMMUNICATION (COM)**


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<b>COM 110 Introduction to Communication</b>	<b>3</b>	<b>0</b>	<b>3</b>
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Prerequisites: (L) Take ENG 111

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in English Composition. S13264

<b>COM 120 Introduction to Interpersonal Communication</b>	<b>3</b>	<b>0</b>	<b>3</b>
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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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in English Composition. S21722

<b>COM 130 Nonverbal Communication</b>	<b>3</b>	<b>0</b>	<b>3</b>
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Prerequisites: (S) Take One: COM 110 or COM 120

This course introduces the contemporary study of nonverbal communication in daily life. Topics include haptics, kinesics, proxemics, facial displays, and appearance. Upon completion, students should be able to analyze/interpret nonverbal communication and demonstrate greater awareness of their own nonverbal communication habits. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S22359

<b>COM 140 Introduction Intercultural Communication</b>	<b>3</b>	<b>0</b>	<b>3</b>
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This course introduces techniques of cultural research, definitions, functions, characteristics, and impacts of cultural differences in public address. Emphasis is placed on how diverse backgrounds influence the communication act and how cultural perceptions and experiences determine how one sends and receives messages. Upon completion, students should be able to demonstrate an understanding of the principles and skills needed to become effective in communicating outside one's primary culture. This course has been approved for transfer under the CAA as a general education course in English Composition. S22118

<b>COM 150 Introduction to Mass Communication</b>	<b>3</b>	<b>0</b>	<b>3</b>
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Prerequisites: (S) Take ENG 111

This course introduces print and electronic media and the new information technologies in terms of communication theory and as economic, political, and social institutions. Topics include the nature, history, functions, and responsibilities of mass communication industries in a global environment and their role and impact in American society. Upon completion, students should be able to demonstrate awareness of the pervasive nature of mass media and how media operate in an advanced post-industrial society. This course has been approved for transfer under the CAA as a premajor and/or elective course requirement. S22466

<b>COM 160 Small Group Communication</b>	<b>3</b>	<b>0</b>	<b>3</b>
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This course provides an overview of the theory, practice, and critical analysis of communication in the small group setting. Emphasis is placed on group development, conflict, and conformity; leadership skills and styles; group roles and ranks; and decision making, problem solving, and conflict resolution. Upon completion, students should be able to apply topics of gender, culture, and social-emotional functions within group settings. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S21739

<b>COM 231 Public Speaking</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (L) Take ENG 111			
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in English Composition. This is a Universal General Education Transfer Component (UGETC) course. S12601			
<b>COM 233 Persuasive Speaking</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: ENG 112 or ENG 113			
This course introduces theory and history of persuasive speaking, covering critical thinking skills in analyzing problems, assessing solutions, and communicating the information to an audience. Emphasis is placed on analysis, evidence, reasoning, and library and field research used to enhance persuasive public speaking skills. Upon completion, students should be able to apply the principles of persuasive speaking in a public setting. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S12535			
<b>COM 251 Debate I</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course introduces the principles of debate. Emphasis is placed on argument, refutation, research, and logic. Upon completion, students should be able to use research skills and logic in the presentation of ideas within the context of formal debate. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S12166			

## COSMETOLOGY (COS)

<b>COS 111 Cosmetology Concepts I</b>	<b>4</b>	<b>0</b>	<b>4</b>
Corequisites: (S) Take COS 112			
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. S12363			
<b>COS 112 Salon I</b>	<b>0</b>	<b>24</b>	<b>8</b>
Corequisites: (S) Take COS 111			
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. S12316			
<b>COS 113 Cosmetology Concepts II</b>	<b>4</b>	<b>0</b>	<b>4</b>
Prerequisites: (L) Take COS 111 and COS 112			
Corequisites: (S) Take COS 114			
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. S12335			
<b>COS 114 Salon II</b>	<b>0</b>	<b>24</b>	<b>8</b>
Prerequisites: (L) Take COS 111 and COS 112			
Corequisites: (S) Take COS 113			
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. S12284			
<b>COS 115 Cosmetology Concepts III</b>	<b>4</b>	<b>0</b>	<b>4</b>
Prerequisites: (L) Take COS 113 and COS 114			
Corequisites: (S) Take COS 116			
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. S12373			

<b>COS 116 Salon III</b>	<b>0</b>	<b>12</b>	<b>4</b>
Prerequisites: (L) Take COS 113 and COS 114			
Corequisites: (S) Take COS 115			
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. S12300			
<b>COS 117 Cosmetology Concepts IV</b>	<b>2</b>	<b>0</b>	<b>2</b>
Prerequisites: (L) Take COS 111, COS 112, COS 113, COS 114, COS 115 and COS 116			
Corequisites: (S) Take COS 118			
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. S12343			
<b>COS 118 Salon IV</b>	<b>0</b>	<b>21</b>	<b>7</b>
Prerequisites: (L) Take COS 111, COS 112, COS 113, COS 114, COS 115 and COS 116			
Corequisites: (S) Take COS 117			
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. S20023			
<b>COS 119 Esthetics Concepts I</b>	<b>2</b>	<b>0</b>	<b>2</b>
This course covers the concepts of esthetics. Topics include orientation, anatomy, physiology, hygiene, sterilization, first aid, chemistry, basic dermatology, and professional ethics. Upon completion, students should be able to demonstrate an understanding of the concepts of esthetics and meet course requirements. S12170			
<b>COS 120 Esthetics Salon I</b>	<b>0</b>	<b>18</b>	<b>6</b>
This course covers the techniques of esthetics in a comprehensive experience in a simulated salon setting. Topics include client consultation, facials, body treatments, hair removal, make-up applications, and color analysis. Upon completion, students should be able to safely and competently demonstrate esthetic services on clients in a salon setting. S10851			
<b>COS 121 Manicure/Nail Technology I</b>	<b>4</b>	<b>6</b>	<b>6</b>
This course covers techniques of nail technology, hand and arm massage, and recognition of nail diseases and disorders. Topics include OSHA/safety, sanitation, bacteriology, product knowledge, salesmanship, manicures, artificial applications, pedicures, massage, and other related topics. Upon completion, students should be able to safely and competently perform nail care, including manicures, pedicures, massage, decorating, and artificial applications in a salon setting. S14134			
<b>COS 125 Esthetics Concepts II</b>	<b>2</b>	<b>0</b>	<b>2</b>
This course covers more comprehensive esthetics concepts. Topics include nutrition, business management, make-up, and color analysis. Upon completion students should be able to demonstrate an understanding of the advanced esthetics concepts and meet course requirements. S10785			
<b>COS 126 Esthetics Salon II</b>	<b>0</b>	<b>18</b>	<b>6</b>
This course provides experience in a simulated esthetics setting. Topics include machine facials, aroma therapy, massage therapy, electricity, and apparatus. Upon completion, students should be able to demonstrate competence in program requirements and the areas covered on the Cosmetology licensing examination for Estheticians. S10869			
<b>COS 222 Manicure/Nail Technology II</b>	<b>4</b>	<b>6</b>	<b>6</b>
Prerequisites: (S) Take COS 121			
This course covers advanced techniques of nail technology and hand and arm massage. Topics include OSHA/safety, product knowledge, customer service, salesmanship, artificial applications, nail art, and other related topics. Upon completion, students should be able to demonstrate competence necessary for the licensing examination, including advanced nail care, artificial enhancements, and decorations. S10861			
<b>COS 260 Design Applications</b>	<b>1</b>	<b>3</b>	<b>2</b>
This course provides an overview of the design concepts used in cosmetology. Topics include the application of art principles and elements to artistically design hair, nails, and make-up and other related topics. Upon completion, students should be able to demonstrate knowledge and techniques associated with design concepts. S11199			



<b>COS 271 Instructor Concepts I</b>	<b>5</b>	<b>0</b>	<b>5</b>
Corequisites: (S) Take COS 272			
This course introduces the basic cosmetology instructional concepts. Topics include orientation, theories of education, unit planning, daily lesson planning, laboratory management, student assessment, record keeping, and other related topics. Upon completion, students should be able to identify theories of education, develop lesson plans, demonstrate supervisory techniques, and assess student performance in a classroom setting. S11990			
<b>COS 272 Instructor Practicum I</b>	<b>0</b>	<b>21</b>	<b>7</b>
Corequisites: (S) Take COS 271			
This course covers supervisory and instructional skills for teaching entry-level cosmetology students in a laboratory setting. Topics include demonstrations of services, supervision, and entry-level student assessment. Upon completion, students should be able to demonstrate salon services and instruct and objectively assess the entry-level student. S12026			
<b>COS 273 Instructor Concepts II</b>	<b>5</b>	<b>0</b>	<b>5</b>
Prerequisites: (S) Take All: COS 271 and COS 272			
Corequisites: (S) Take COS 274			
This course covers advanced cosmetology instructional concepts. Topics include practical demonstrations, lesson planning, lecture techniques, development and administration of assessment tools, record keeping, and other related topics. Upon completion, students should be able to develop lesson plans, demonstrate supervision techniques, assess student performance in a classroom setting, and keep accurate records. S11965			
<b>COS 274 Instructor Practicum II</b>	<b>0</b>	<b>21</b>	<b>7</b>
Prerequisites: (S) Take All: COS 271 and COS 272			
Corequisites: (S) Take COS 273			
This course is designed to develop supervisory and instructional skills for teaching advanced cosmetology students in a laboratory setting. Topics include practical demonstrations, supervision, and advanced student assessment. Upon completion, students should be able to demonstrate competence in the areas covered by the Instructor Licensing Examination and meet program completion requirements. This is a certificate-level course. S12083			

**CONSTRUCTION (CST)**

<b>CST 111 Construction I</b>	<b>3</b>	<b>3</b>	<b>4</b>
This course covers standard and alternative building methods to include wall framing. Topics include safety and footings, foundations, floor framing systems, and wall framing systems commonly used in the construction industry. Upon completion, students should be able to safely erect all framing necessary to begin roof framing. S10559			
<b>CST 112 Construction II</b>	<b>3</b>	<b>3</b>	<b>4</b>
Prerequisites: (S) Take CST-111			
This course covers building methods and materials used to dry-in a building. Topics include safety, ceiling/roof framing applications, roof finishes, windows, and exterior doors. Upon completion, students should be able to safely erect different roof types and properly install windows and exterior doors, roofing, and exterior finish materials. S10519			
<b>CST 150 Building Science</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course introduces concepts and techniques for the design and interaction of the mechanical systems of high performance buildings. Topics include building envelope, heating, ventilation and air conditioning (HVAC), indoor air quality, lighting, plumbing and electrical. Upon completion, students should be able to understand building systems interaction and performance. S23517			
<b>CST 221 Statics/Structures</b>	<b>3</b>	<b>3</b>	<b>4</b>
Prerequisites: (S) Take One Set: Set 1: MAT-121 and ARC-112 Set 2: MAT-121 and CAR-112 Set 3: MAT-121 and CST-112 Set 4: MAT-171 and ARC-112 Set 5: MAT-171 and CAR-112 Set 6: MAT-171 and CST-112			
This course covers the principles of statics and strength of materials as applied to structural building components. Topics include forces on columns, beams, girders, and footings and connection points when timber, steel, and concrete members are used. Upon completion, students should be able to accurately analyze load conditions present in structural members. S23982			

<b>CST 231</b>	<b>Soils &amp; Site Work</b>	<b>3</b>	<b>2</b>	<b>4</b>
Prerequisites: (S) Take One: MAT-121 or MAT-171				
This course covers site conditions and soil types and their physical properties. Topics include site preparation, access, mechanical analysis, classification of soils, and hydrostatics of groundwater. Upon completion, students should be able to adequately prepare a building site according to plans and specifications. S23983				
<b>CST 241</b>	<b>Planning/Estimating I</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take One: BPR-130, MAT-121, or MAT-171				
This course covers the procedures involved in planning and estimating a construction/building project. Topics include performing quantity take-offs of materials necessary for a building project. Upon completion, students should be able to accurately complete a take-off of materials and equipment needs involved in a construction project. S23984				
<b>CST 244</b>	<b>Sustainable Bldg Design</b>	<b>2</b>	<b>3</b>	<b>3</b>
This course is designed to increase student knowledge about integrating sustainable design principles and green building technologies into mainstream residential construction practices. Emphasis is placed on reducing negative environmental impact and improving building performance, indoor air quality and the comfort of a building's occupants. Upon completion, students should be able to identify principles of green building, environmental efficiency and conservation of natural resources in relation to basic construction practices. S22260				

## CUSTOMER SERVICE TECHNOLOGY (CSV)

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<b>CSV 110</b>	<b>Introduction to Customer Service</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course introduces the fundamentals of customer service technology. Topics include retail sales, order entry, credit, collection, authorization services, and fraud control. Upon completion, students should be able to exhibit an extensive vocabulary of customer service terminology and be prepared for advanced study in customer service technology. S14181				
<b>CSV 210</b>	<b>Advanced Customer Service</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take CSV-110				
This course focuses on improving communication and negotiation skills within a customer service environment. Emphasis is placed on working in fast-paced operations where speed and accuracy are important. Upon completion, students should be able to respond to complex customer requirements and efficiently handle stressful situations. S13537				
<b>CSV 220</b>	<b>Consumer Credit</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course introduces the techniques and regulatory requirements of installment lending. Emphasis is placed on establishing credit, obtaining and checking credit information, servicing loans, and collecting amounts due. Upon completion, students should be able to demonstrate knowledge of the consumer lending process from application through closing and collection. S12161				
<b>CSV 221</b>	<b>Letters of Credit</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course introduces the use of letters of credit and the examination of related documents. Topics include shipping documents, mechanics of the letter of credit, payment and reimbursement, and document examination. Upon completion, students should be able to demonstrate knowledge of the documents required, processes included, and closing procedures for letters of credit. S12192				

## COMPUTER SCIENCE (CSC)

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<b>CSC 134</b>	<b>C++ Programming</b>	<b>2</b>	<b>3</b>	<b>3</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S21066				

**CSC 139 Visual BASIC Programming** 2 3 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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S21071

**CSC 151 JAVA Programming** 2 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S21076

## COMPUTER INFORMATION TECHNOLOGY (CTS)

*Initial student placement in developmental courses is based on individual college placement testing policies and procedures. Students should begin developmental course work at the appropriate level indicated by the college's placement test.*

**CTS 080 Computing Fundamentals** 2 3 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. S20994

**CTS 112 Windows** 1 2 2  
 This course includes the fundamentals of the Windows software. Topics include graphical user interface, icons, directories, file management, accessories, and other applications. Upon completion, students should be able to use Windows software in an office environment. S20995

**CTS 115 Information Systems Business Concept** 3 0 3  
 The 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S20996

**CTS 118 IS Professional Communication** 2 0 2  
 This course prepares the information systems professional to communicate with corporate personnel from management to end-users. Topics include information systems cost justification tools, awareness of personal hierarchy of needs, addressing these needs, and discussing technical issues with non-technical personnel. Upon completion, students should be able to communicate information systems issues to technical and non-technical personnel. S20997

**CTS 120 Hardware/Software Support** 2 3 3  
 Prerequisites: (S) Take One: CIS 110 or CIS 111  
 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. S23679

**CTS 125 Presentation Graphics** 2 2 3  
 Prerequisites: (S) Take One: CIS 110 or CIS 111  
 This course provides hands-on experience with a graphics presentation package. Topics include terminology, effective chart usage, design and layout, integrating hardware components, and enhancing presentations with text, graphics, audio and video. Upon completion, students should be able to design and demonstrate an effective presentation. S20999

<b>CTS 130 Spreadsheet</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take One: CIS 110 or CIS 111 or OST 137 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. S21000			
<b>CTS 135 Integrated Software Introduction</b>	<b>2</b>	<b>4</b>	<b>4</b>
Prerequisites: (S) Take One: CIS 110 or CIS 111 This course instructs students in the Windows or Linux based program suites for word processing, spreadsheet, database, personal information manager, and presentation software. This course prepares students for introductory level skills in database, spreadsheet, personal information manager, word processing, and presentation applications to utilize data sharing. Upon completion, students should be able to design and integrate data at an introductory level to produce documents using multiple technologies. S21001			
<b>CTS 155 Tech Support Functions</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course introduces a variety of diagnostic and instructional tools that are used to evaluate the performance of technical support technologies. Emphasis is placed on technical support management techniques and support technologies. Upon completion, students should be able to determine the best technologies to support and solve actual technical support problems. S21002			
<b>CTS 210 Computer Ethics</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: Take One: CIS 110 or CIS 111 or NET 110 or TNE 111 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. S21003			
<b>CTS 217 Computer Training/Support</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course introduces computer training and support techniques. Topics include methods of adult learning, training design, delivery, and evaluation, creating documentation, and user support methods. Upon completion, students should be able to design and implement training and provide continued support for computer users. S21004			
<b>CTS 220 Advanced Hardware/Software Support</b>	<b>2</b>	<b>3</b>	<b>3</b>
Prerequisites: (S) Take CTS 120 This course provides advanced knowledge and competencies in hardware and operating system technologies for computer technicians to support personal computers. Emphasis is placed on: configuring and upgrading; diagnosis and troubleshooting; as well as preventive maintenance of hardware and system software. Upon completion, students should be able to install, configure, diagnose, perform preventive maintenance, and maintain basic networking on personal computers. S21005			
<b>CTS 230 Advanced Spreadsheet</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take CTS 130 This course covers advanced spreadsheet design and development. Topics include advanced functions and statistics, charting, macros, databases, and linking. Upon completion, students should be able to demonstrate competence in designing complex spreadsheets. S21006			
<b>CTS 235 Integrated Software Advanced</b>	<b>2</b>	<b>4</b>	<b>4</b>
Prerequisites: (S) Take CTS 135 This course provides strategies to perform data transfer among software programs. Emphasis is placed on data interchange among word processors, spreadsheets, presentation graphics, databases and communications products. Upon completion, students should be able to integrate data to produce documents using multiple technologies. S21007			
<b>CTS 240 Project Management</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take One: CIS 110 or CIS 111 This course introduces computerized project management software. Topics include identifying critical paths, cost management, and problem solving. Upon completion, students should be able to plan a complete project and project time and costs accurately. S21542			

<b>CTS 250</b>	<b>User Support &amp; Software Evaluations</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take All: CTS 120 and NOS 130				
This course provides an opportunity to evaluate software and hardware and make recommendations to meet end-user needs. Emphasis is placed on software and hardware evaluation, installation, training, and support. Upon completion, students should be able to present proposals and make hardware and software recommendations based on their evaluations. S21009				
<b>CTS 255</b>	<b>Advanced Tech Support Functions</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take CTS 155				
This course introduces a variety of diagnostic and instructional tools that are used to evaluate the performance of technical support technologies. Topics include technical support management techniques, evaluation, and methods of deployment for technical support technologies. Upon completion, students should be able to determine the best technologies to support and solve more complex technical support problems. S21010				
<b>CTS 270</b>	<b>Essentials of System Performance</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take CTS 255				
This course introduces performance factors that affect the reliability and performance of networks. Topics include service-oriented indicators such as availability, response time, and accuracy, as well as efficiency-oriented indicators including throughput and utilization. Upon completion, students should be able to estimate how the limitations of network components affect the overall performance of a network. S21011				
<b>CTS 285</b>	<b>Systems Analysis &amp; Design</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take CIS 115				
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. S21012				
<b>CTS 286</b>	<b>Network Support</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take One: NOS 230 or NOS 231				
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. S21013				
<b>CTS 287</b>	<b>Emerging Technologies</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course introduces emerging information technologies. Emphasis is placed on evolving technologies and trends in business and industry. Upon completion, students should be able to articulate an understanding of the current trends and issues in emerging technologies for information systems. S21014				
<b>CTS 288</b>	<b>Professional Practices in IT</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course provides students with the business skills needed for success in the information technology field. Topics include portfolio development, resume design, interviewing techniques and professional practices. Upon completion, students should be able to present themselves and their work in the information technology field in a professional manner. S20944				
<b>CTS 289</b>	<b>System Support Project</b>	<b>1</b>	<b>4</b>	<b>3</b>
Prerequisites: (S) Take CTS 285				
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. S21015				

**CULINARY ARTS (CUL)**

<b>CUL 110</b>	<b>Sanitation &amp; Safety</b>	<b>2</b>	<b>0</b>	<b>2</b>
This course introduces the basic principles of sanitation and safety relative to the hospitality industry. Topics include personal hygiene, sanitation and safety regulations, use and care of equipment, the principles of food-borne illness, and other related topics. Upon completion, students should be able to demonstrate an understanding of the content necessary for successful completion of a nationally recognized food/safety/sanitation exam. S22835				

<b>CUL 112 Nutrition for Foodservice</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course covers the principles of nutrition and its relationship to the foodservice industry. Topics include personal nutrition fundamentals, weight management, exercise, nutritional adaptation/analysis of recipes/menus, healthy cooking techniques and marketing nutrition in a foodservice operation. Upon completion, students should be able to apply basic nutritional concepts to food preparation and selection. S22837			
<b>CUL 130 Menu Design</b>	<b>2</b>	<b>0</b>	<b>2</b>
This course introduces menu design and its relationship to foodservice operations. Topics include layout, marketing, concept development, dietary concerns, product utilization, target consumers and trends. Upon completion, students should be able to design, create and produce menus for a variety of foodservice settings. S22841			
<b>CUL 135 Food &amp; Beverage Service</b>	<b>2</b>	<b>0</b>	<b>2</b>
This course is designed to cover the practical skills and knowledge necessary for effective food and beverage service in a variety of settings. Topics include greeting/service of guests, dining room set-up, profitability, menu sales and merchandising, service styles and reservations. Upon completion, students should be able to demonstrate competence in human relations and the skills required in the service of foods and beverages. S22842			
<b>CUL 140 Culinary Skills I</b>	<b>2</b>	<b>6</b>	<b>5</b>
Corequisites: (S) Take CUL 110 This course introduces the fundamental concepts, skills and techniques in basic cookery, and moist, dry and combination heat. Emphasis is placed on recipe conversion, measurements, terminology, classical knife cuts, safe food/equipment handling, flavorings/seasonings, stocks/sauces/soups, and related topics. Upon completion, students should be able to exhibit the basic cooking skills used in the foodservice industry. S22844			
<b>CUL 160 Baking I</b>	<b>1</b>	<b>4</b>	<b>3</b>
Corequisites: (S) Take CUL 110 This course covers basic ingredients, techniques, weights and measures, baking terminology and formula calculations. Topics include yeast/chemically leavened products, laminated doughs, pastry dough batter, pies/tarts, meringue, custard, cakes and cookies, icings, glazes and basic sauces. Upon completion, students should be able to demonstrate proper scaling and measurement techniques, and prepare and evaluate a variety of bakery products. S22847			
<b>CUL 170 Garde Manger I</b>	<b>1</b>	<b>4</b>	<b>3</b>
Corequisites: (S) Take CUL 110 This course introduces basic cold food preparation techniques and pantry production. Topics include salads, sandwiches, appetizers, dressings, basic garnishes, cheeses, cold sauces, and related food items. Upon completion, students should be able to present a cold food display and exhibit an understanding of the cold kitchen and its related terminology. S22849			
<b>CUL 230 Global Cuisines</b>	<b>1</b>	<b>8</b>	<b>5</b>
Prerequisites: (S) Take All: CUL 110 and CUL 140 This course provides practical experience in the planning, preparation, and presentation of representative foods from a variety of world cuisines. Emphasis is placed on indigenous ingredients and customs, nutritional concerns, and cooking techniques. Upon completion, students should be able to research and execute a variety of international and domestic menus. S22808			
<b>CUL 240 Culinary Skills II</b>	<b>1</b>	<b>8</b>	<b>5</b>
Prerequisites: (S) Take All: CUL 110 and CUL 140 This course is designed to further students' knowledge of the fundamental concepts, skills, and techniques involved in basic cookery. Emphasis is placed on meat identification/fabrication, butchery and cooking techniques/methods; appropriate vegetable/starch accompaniments; compound sauces; plate presentation; breakfast cookery; and quantity food preparation. Upon completion, students should be able to plan, execute, and successfully serve entrees with complementary side items. S22853			
<b>CUL 250 Classical Cuisine</b>	<b>1</b>	<b>8</b>	<b>5</b>
Prerequisites: (S) Take All: CUL 110, CUL 140, and CUL 240 This course is designed to reinforce the classical culinary kitchen. Topics include the working Grand Brigade of the kitchen, signature dishes and classical banquets. Upon completion, students should be able to demonstrate competence in food preparation in a classical/upscale restaurant or banquet setting. S22855			

<b>CUL 260 Baking II</b>	<b>1</b>	<b>4</b>	<b>3</b>
Prerequisites: (S) Take All: CUL 110 and CUL 160			
This course is designed to further students' knowledge in ingredients, weights and measures, baking terminology and formula calculation. Topics include classical desserts, frozen desserts, cake and torte production, decorating and icings/glazes, dessert plating and presentation. Upon completion, students should be able to demonstrate pastry preparation, plating, and dessert buffet production skills. S22857			
<b>CUL 270 Garde Manger II</b>	<b>1</b>	<b>4</b>	<b>3</b>
Prerequisites: (S) Take All: CUL 110, CUL 140, and CUL 170			
This course is designed to further students' knowledge in basic cold food preparation techniques and pantry production. Topics include pâtés, terrines, galantines, decorative garnishing skills, carving, charcuterie, smoking, canapés, hors d'oeuvres, and related food items. Upon completion, students should be able to design, set up, and evaluate a catering/event display to include a cold buffet with appropriate showpieces. S22859			
<b>CUL 273 Career Development</b>	<b>1</b>	<b>0</b>	<b>1</b>
This course introduces students to career planning/management practices that serve as a foundation for success in the hospitality industry. Emphasis is placed on self assessment, goal/career pathway development and employment strategies such as résumé preparation, interviewing techniques, and developing/utilizing the portfolio as a credential. Upon completion, students should be able to develop a career path leading to an effective job search. S22812			

## DATABASE MANAGEMENT TECHNOLOGY (DBA)

<b>DBA 110 Database Concepts</b>	<b>2</b>	<b>3</b>	<b>3</b>
Prerequisites: (L) Take CIS 070			
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. S21017			
<b>DBA 112 Database Utilization</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take One: CIS 110 or CIS 111 or OST 137			
This course introduces basic database functions and uses. Emphasis is placed on database manipulation with queries, reports, forms, and some table creation. Upon completion, students should be able to enter and manipulate data from the end user mode. S21018			
<b>DBA 115 Database Applications</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take DBA 110			
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. S21019			
<b>DBA 120 Database Programming I</b>	<b>2</b>	<b>2</b>	<b>3</b>
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. S21020			
<b>DBA 210 Database Administration</b>	<b>2</b>	<b>3</b>	<b>3</b>
This course covers database administration issues and distributed database concepts. Topics include: database administrator (DBA) goals and functions, backup and recovery, standards and procedures, training, and database security and performance evaluations. Upon completion, students should be able to produce functional DBA documentation and administer a database. S21021			
<b>DBA 220 Oracle DB Programming II</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take DBA 120			
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. S21022			

<b>DBA 221</b>	<b>SQL Server DB Programming II</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take DBA 120				
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 a SQL Server DBMS application which includes a GUI front-end and report generation. S21023				
<b>DBA 222</b>	<b>DB2 DB Programming II</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take DBA 120				
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 a DB2 DBMS application which includes a GUI front-end and report generation. S21024				
<b>DBA 223</b>	<b>MySQL DB Programming II</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take DBA 120				
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 a MySQL DBMS application which includes a GUI front-end and report generation. S21025				
<b>DBA 224</b>	<b>SAS DB Programming II</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take DBA 120				
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 a SAS DBMS application which includes a GUI front-end and report generation. S21026				
<b>DBA 230</b>	<b>Database in Corporate Environments</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course covers database systems as they relate to the corporate environment. Topics include knowledge-based, decision-support, and expert systems; database choices; data warehousing; and corporate structure. Upon completion, students should be able to analyze and recommend database systems needed by a corporation. S21028				
<b>DBA 240</b>	<b>Database Analysis/Design</b>	<b>2</b>	<b>3</b>	<b>3</b>
This course is an exploration of the established and evolving methodologies for the analysis, design, and development of a database system. Emphasis is placed on business data characteristics and usage, managing database projects, prototyping and modeling, and CASE tools. Upon completion, students should be able to analyze, develop, and validate a database implementation plan. S21029				
<b>DBA 260</b>	<b>Oracle DBMS Administration</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course examines advanced Oracle database administration issues and distributed database concepts. Topics include backup and recovery, transporting of data between databases, database networking concepts, and resolution of database networking issues. Upon completion, students should be able to manage backup recovery and implement networked database solutions. S21030				
<b>DBA 261</b>	<b>SQL Server DBMS Administration</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course examines advanced SQL Server database administration issues and distributed database concepts. Topics include backup and recovery, transporting of data between databases, database networking concepts, and resolution of database networking issues. Upon completion, students should be able to manage backup recovery and implement networked database solutions. S21031				
<b>DBA 262</b>	<b>DB2 DBMS Administration</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course examines advanced DB2 database administration issues and distributed database concepts. Topics include backup and recovery, transporting of data between databases, database networking concepts, and resolution of database networking issues. Upon completion, students should be able to manage backup recovery and implement networked database solutions. S21032				
<b>DBA 263</b>	<b>MySQL DBMS Administration</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course examines advanced MySQL database administration issues and distributed database concepts. Topics include backup and recovery, transporting of data between databases, database networking concepts, and resolution of database networking issues. Upon completion, students should be able to manage backup recovery and implement networked database solutions. S21033				



<b>DBA 264 SAS DBMS Administration</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course examines advanced SAS database administration issues and distributed database concepts. Topics include backup and recovery, transporting of data between databases, database networking concepts, and resolution of database networking issues. Upon completion, students should be able to manage backup recovery and implement networked database solutions. S21034			
<b>DBA 270 Oracle Performance Tuning</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take NOS 130 This course covers Oracle performance tuning concepts and techniques. Topics include database tuning and Oracle performance tools. Upon completion, students should be able to configure and diagnose an Oracle database for optimal performance. S21036			
<b>DBA 271 SQL Server Performance Tuning</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take NOS 130 This course covers SQL Server performance tuning concepts and techniques. Topics include database tuning and SQL Server performance tools. Upon completion, students should be able to configure and diagnose an SQL Server database for optimal performance. S21038			
<b>DBA 272 DB2 Performance Tuning</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take NOS 130 This course covers DB2 performance tuning concepts and techniques. Topics include database tuning and DB2 performance tools. Upon completion, students should be able to configure and diagnose a DB2 database for optimal performance. S21039			
<b>DBA 273 MySQL Performance Tuning</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take NOS 130 This course covers MySQL performance tuning concepts and techniques. Topics include database tuning and MySQL performance tools. Upon completion, students should be able to configure and diagnose a MySQL database for optimal performance. S21041			
<b>DBA 274 SAS Performance Tuning</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take NOS 130 This course covers SAS performance tuning concepts and techniques. Topics include database tuning and SAS performance tools. Upon completion, students should be able to configure and diagnose a SAS database for optimal performance. S21042			
<b>DBA 285 Data Warehousing &amp; Mining</b>	<b>2</b>	<b>3</b>	<b>3</b>
Prerequisites: (S) Take NOS 130 This course introduces data warehousing and data mining techniques. Emphasis is placed on data warehouse design, data transference, data cleansing, retrieval algorithms, and mining techniques. Upon completion, students should be able to create, populate, and mine a data warehouse. S21043			
<b>DBA 289 Database Project</b>	<b>1</b>	<b>4</b>	<b>3</b>
Prerequisites: (S) Take All: DBA 240 & DBA 120 This course provides an opportunity to complete a significant database systems project with minimal instructor support. Emphasis is placed on written and verbal communication skills, documentation, presentation, and user training. Upon completion, students should be able to present an operational database system which they have created. S21044			

## DRAFTING (DFT)

<b>DFT 170 Engineering Graphics</b>	<b>2</b>	<b>2</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S20734			

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**DRAMA (DRA)**


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**DRA 111 Theatre Appreciation****3 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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts. S11248

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**DEVELOPMENTAL MATHEMATICS (DMA)**


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**DMA 010 Operations With Integers****.75 .50 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.

Competencies: ·Visually represent an integer and its opposite on the number line ·Explain the concept of the absolute value of an integer ·Demonstrate the conceptual understanding of operations with integers to solve application problems ·Correctly apply commutative and associative properties to integer operations ·Apply the proper use of exponents and calculate the principal square root of perfect squares ·Simplify multi-step expressions using the rules for order of operations ·Solve geometric application problems involving area and perimeter of rectangles and triangles, angles, and correctly apply the Pythagorean theorem S23164

**DMA 020 Fractions and Decimals****.75 .50 1**

Prerequisites: (S) Take DMA 010

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.

Competencies: ·Solve contextual application problems involving operations with fractions and decimals ·Visually represent fractions and their decimal equivalents ·Simplify fractions ·Find the lowest common denominator of two fractions ·Correctly perform arithmetic operations on fractions ·Explain the relationship between a number and its reciprocal ·Correctly order fractions and decimals on a number line ·Convert decimals between standard notation and word form ·Round decimals to a specific place value ·Estimate sums, differences, products, and quotients with decimals ·Demonstrate an understanding of the connection between fractions and decimals ·Convert between standard notation and scientific notation ·Solve geometric applications involving the circumference and area of circles S23168

**DMA 030 Proportions, Ratio, Rate and Percent****.75 .50 1**

Prerequisites: (S) Take DMA 010 and DMA 020

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. Competencies: ·Apply the concepts of ratio, rates, proportions, and percents to application problems ·Recognize and choose the correct units in application problems using ratios, rates, and proportions ·Calculate a unit rate ·Convert measurements within and between the U.S. customary and metric system using unit analysis ·Compare percents, decimals, and fractions ·Apply the concepts of part, whole, and percent to solve contextual applications S23169

**DMA 040 Expressions, Linear Equations and Inequalities****.75 .50 1**

Prerequisites: (S) Take One Set: Set 1: DMA 010, DMA 020 and DMA 030 Set 2: MAT 060

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.

Competencies: ·Differentiate between expressions, equations, and inequalities ·Simplify and evaluate, when appropriate, expressions, equations, and inequalities ·Effectively apply algebraic properties of equality ·Correctly represent the solution to an inequality on the number line ·Represent the structure of application problems pictorially and algebraically ·Apply effective problem solving strategies to contextual application problems ·Demonstrate conceptual knowledge by modeling and solving applications using linear equations and inequalities S23170

**DMA 050 Graphs and Equations of Lines****.75 .50 1**

Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030 and DMA-040 Set 2: DMA-040 and MAT-060

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. Competencies: ·Read and interpret basic graphs to solve problems ·Apply the concept of slope as a rate of change in real-world situations ·Write and graph linear equations in two variables to model real-world situations ·Represent real-world situations as linear equations in two variables in tabular form, graphically, and algebraically S23171

**DMA 060 Polynomial and Quadratic Applications****.75 .50 1**

Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, DMA-040 and DMA-050 Set 2: DMA-040, DMA-050, and MAT-060 Set 3: MAT-060 and MAT-070

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. Competencies: ·Represent real-world applications as quadratic equations in tabular, graphic, and algebraic forms ·Apply exponent rules ·Solve application problems involving polynomial operations ·Apply the principles of factoring when solving problems ·Represent contextual applications using function notation ·Analyze graphs of quadratic functions to solve problems S23172

**DMA 070 Rational Expressions and Equations****.75 .50 1**

Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, DMA-040, DMA-050 and DMA-060 Set 2: DMA-040, DMA-050, DMA-060, and MAT-060 Set 3: DMA-060, MAT-060, and MAT-070 Set 4: DMA-010, DMA-020, DMA-030, DMA-060, AND MAT-070

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.

Competencies: ·Solve contextual application problems involving operations on rational expressions and/or equations ·Represent real-world situations as rational equations and graphically using a graphing calculator ·Analyze the meaning of asymptotes using a graphing calculator ·Explain the reasonableness of solutions found S23173

**DMA 080 Radical Expressions and Equations****.75 .50 1**

Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, DMA-040, DMA-050, DMA-060 and DMA-070 Set 2: DMA-060, DMA-070, MAT-060, and MAT-070 Set 3: DMA-040, DMA-050, DMA-060, DMA-070, and MAT-060 Set 4: DMA-010, DMA-020, DMA-030, DMA-060, DMA-070, and MAT-070

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.

Competencies: ·Solve contextual application problems involving operations on radical expressions and/or equations ·Represent real world situations as radical equations and graphically using a graphing calculator ·Explain the reasonableness of solutions found ·Correctly perform operations with radical expressions ·Use a graphing calculator to analyze radical functions S23174

**DIGITAL MEDIA TECHNOLOGY (DME)****DME 110 Introduction to Digital Media****2 2 3**

This course introduces students to key concepts, technologies, and issues related to digital media. Topics include emerging standards, key technologies and related design issues, terminology, media formats, career paths, and ethical issues. Upon completion, students should be able to demonstrate the various media formats that are used in digital media technology. S20550

**DME 115 Graphic Design Tools****2 2 3**

This course provides students with an introduction to creative expression and art/design techniques in a digital environment. Emphasis is placed on designing, creating editing and integrating visual components consisting of bit-mapped and vector-based images, drawings, banners, text, simple animations, and multiple layers. Upon completion, students should be able to design and produce a range of visual products using digital processing techniques. S20551

<b>DME 120 Introduction to Multimedia Application</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: Take DME 110			
This course introduces storyboarding and multimedia application design. Topics include vector and bit-mapped graphics, interactive multimedia interfaces, layering techniques, image and animation libraries, and scripting. Upon completion, students should be able to produce basic high-quality interactive multimedia applications. S20552			
<b>DME 130 Digital Animation I</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take DME 110			
This course introduces concepts for planning and developing animation sequences. Emphasis will be placed on review of digital animation concepts and exploration of various animation software packages. Upon completion, students should be able to produce simple animations. S20553			
<b>DME 140 Introduction to Audio/Video Media</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take DME 110			
This course is designed to teach students how to manipulate digital and audio content for multimedia applications. Topics include format conversion and a review of current technologies and digital formats. Upon completion, students should be able to modify existing audio and video content to meet a range of production requirements associated with digital media applications. S20554			
<b>DME 210 User Interface Design</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take DME 110			
This course covers current design approaches and emerging standards related to the design and development of user interfaces. Emphasis is placed on conducting research, and analyzing and reviewing current practices in effective interface design. Upon completion, students should be able to intelligently discuss and evaluate new and existing digital media products in terms of the user interface. S20555			
<b>DME 220 Interactive Multi-Media Programming</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take DME 120			
This course is designed to build on concepts developed in DME 120 and teaches students to apply custom programming to develop advanced applications and components. Emphasis is placed on scripting language functionalities associated with a variety of software packages. Upon completion, students should be able to produce advanced, high-quality interactive multimedia applications. S20556			
<b>DME 230 Digital Animation II</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take DME 130			
This course introduces state-of-the-art 3D animation techniques and concepts. Emphasis is placed on utilizing the features of current animation software. Upon completion, students should be able to produce 3D animations as components of a multimedia application. S20557			
<b>DME 240 Media Compression</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take DME 110 and DME 140			
This course introduces software and usage of digital audio and video compression and streaming media technologies. Topics include compression techniques, file formats and Codecs, streaming media, streaming media services, and current and emerging trends. Upon completion, students should be able to utilize compressed media in a variety of video, web and multimedia applications. S21735			
<b>DME 260 Emerging Technology in Digital Media</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take DME 120 and DME 130			
This course provides students with the latest technologies and strategies in the field of digital media. Emphasis is placed on the evaluation of emerging digital media technologies and presenting those findings to the class. Upon completion, students should be able to critically analyze emerging digital media technologies and establish informed opinions. S20558			
<b>DME 270 Professional Practices in Digital Media</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take All: DME 120 and DME 130			
This course introduces students to business skills needed to succeed in the digital media workplace. Topics include portfolio development, resume design, and preparation of media contacts. Upon completion, students should be able to prepare themselves and their work for a career in the digital media workplace. S20559			

**DME 285 Systems Projects** 2 2 3

Prerequisites: (S) Take All: DME 120 and DME 130

This course provides an opportunity to complete a significant digital media 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, maintain and implement a digital media project. S20560

**DRAMA/THEATRE (DRA)****DRA 111 Theatre Appreciation** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S11248

**DRA 170 Play Production I** 0 9 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S10529

**DEVELOPMENTAL READING/ENGLISH (DRE)****DRE-096 Integrated Reading and Writing** 2.50 1 3

This course is designed to develop proficiency in specific integrated and contextualized reading and writing skills and strategies. Topics include reading and writing processes, critical thinking strategies, and recognition and composition of well-developed, coherent, and unified texts; these topics are primarily taught at the introductory level using texts primarily in a Lexile (TM) range of 960 to 1115. Upon completion, students should be able to apply those skills toward understanding a variety of academic and career-related texts and composing effective paragraphs. Please note: (TM) stands for registered trademark. S23641

**Competencies**

- Students will demonstrate the use of pre-reading, reading, and post-reading strategies, including using previewing strategies to comprehend texts; activating prior knowledge; identifying text attributes; using context clues; identifying stated main ideas in paragraph-length texts; and making text-to-self connections.
- Students will demonstrate the use of the writing process (prewriting, drafting, revising, editing, and proofreading), including narrowing the focus of the text, establishing a clear main idea, generating supporting details, and determining appropriate organization.
- Students will apply critical thinking strategies in reading and writing and demonstrate an understanding of technical and academic language, including the difference between formal and informal language.
- Students will demonstrate an understanding of purpose, point of view, and tense.
- Students will demonstrate an understanding of fact and opinion in reading and by writing paragraphs using facts and opinions for support of main ideas.
- Students will recognize inferences in texts and analyze and evaluate graphic materials in a text.
- Students will recognize and compose well-developed, coherent, and unified texts, including writing clear topic sentences and relevant body sentences; demonstrating an understanding of specific and adequate supporting information; and analyzing and evaluating body sentences in texts and student writings for specific and adequate support.
- Students will demonstrate an understanding of coherence through organizational patterns, including employing a variety of organizational patterns to draft texts; and using transitions, key words, and synonyms to connect ideas and achieve coherence in writing.
- Students will apply the conventions of Standard Written English.

**DRE-097 Integrated Reading Writing II** 2.50 1 3

Prerequisites: (S) Take DRE-096

This course is designed to develop proficiency in integrated and contextualized reading and writing skills and strategies. Topics include reading and writing processes, critical thinking strategies, and recognition and composition of well-developed, coherent, and unified texts; except where noted, these topics are taught at a reinforcement level using texts primarily in a Lexile (TM) range of 1070 to 1220. Upon completion, students should be able to demonstrate and apply those skills toward understanding a variety of complex academic and career texts and composing essays incorporating relevant, valid evidence. Please note: (TM) represents registered trademark. S23642

## Competencies

- Students will demonstrate the use of pre-reading, reading, and post-reading strategies, including applying a variety of previewing strategies to complex texts; activating prior knowledge; identifying important text attributes; using context clues; distinguishing between connotative and denotative meanings and between informal language and Standard Written English; employing introductory metacognitive strategies; identifying stated and implied main ideas at the introductory level; recognizing organizational patterns; responding in writing to complex texts using text-to-text connections; and paraphrasing and summarizing texts at an introductory level.
- Students will demonstrate the use of the writing process (prewriting, drafting, revising, editing, and proofreading), including narrowing the focus of the text; establishing a clear main idea (thesis statement); generating supporting details for a specific purpose and audience; determining appropriate organization; composing and revising drafts; and using MLA or APA guidelines.
- Students will apply critical thinking strategies to analyze complex texts and to inform and strengthen their writing, including making logical conclusions based on prior knowledge and inference; understanding the difference between formal and informal language; using types of technical and academic language in complex texts; recognizing figurative language—simile, metaphor, and personification; determining the author’s purpose, point of view, and tone in complex texts; identifying fact and opinion statements in complex texts; demonstrating an understanding of verbal and situational irony; and understanding bias, logical fallacies, and propaganda techniques.
- Students will identify and write clear thesis statements, including identifying thesis statements in multi-paragraph complex texts, and writing clear, focused thesis statements for essays.
- Students will demonstrate an understanding of specific and adequate supporting information, including analyzing and evaluating body paragraphs in complex texts and student writings for specific and adequate support; assessing, synthesizing, and integrating relevant and valid evidence from assigned readings to support a main idea; avoiding plagiarism by paraphrasing; and documenting source material using MLA or APA guidelines.
- Students will achieve unity and coherence in essays, including identifying points that are off-topic in complex texts, and composing body paragraphs that support the thesis statement of an essay.
- Students will apply the conventions of Standard Written English.
- Students will employ appropriate technology when composing texts.

**DRE-098 Integrated Reading Writing III****2.50****1****3**

Prerequisites: (S) Take DRE 097

This course is designed to develop proficiency in integrated and contextualized reading and writing skills and strategies. Topics include reading and writing processes, critical thinking strategies, and recognition and composition of well-developed, coherent, and unified texts; these topics are taught using texts primarily in the Lexile (TM) range of 1185 to 1385. Upon completion, students should be able to apply those skills toward understanding a variety of texts at the career and college ready level and toward composing a documented essay.

Note: (TM) represents registered trademark.S23643

## Competencies

- Students will demonstrate the use of pre-reading, reading, and post-reading strategies to comprehend texts at the career and college ready level, including activating prior knowledge; identifying important text attributes; using context clues; distinguishing between connotative and denotative meanings and between informal language and Standard Written English; employing metacognitive strategies; identifying stated and implied main ideas and details in career and college ready texts and student writing; recognizing organizational patterns in career and college ready texts; summarizing; and responding to texts using text-to-world connections.
- Students will demonstrate the use of the writing process (prewriting, drafting, revising, editing, and proofreading), including narrowing the focus of the text; establishing a clear main idea; generating supporting details for a specific purpose and audience; determine appropriate organization; composing and revising drafts; using editing and proofreading strategies to reflect Standard Written English; using MLA or APA guidelines.
- Students will apply critical thinking strategies to analyze texts at the career and college ready level and to inform and strengthen writing, including comprehending figurative language—simile, metaphor, personification; interpreting imagery, symbols, and analogies; determining the author’s purpose and point of view; identifying fact and opinion statements; using inference skills; demonstrating an understanding of verbal and situational irony; understanding bias, logical fallacies, and propaganda techniques; and demonstrating consistent point of view, clear purpose, appropriate tone, and appropriate use of facts and expert opinions.
- Students will recognize and compose well-developed, coherent, and unified texts, including clear thesis statements and specific and adequate supporting information; analyzing and evaluating body paragraphs in texts at the career and college ready level and student writing; assessing, synthesizing, and integrating relevant and valid evidence; employing a variety of organizational patterns to draft texts and using transitional strategies to connect ideas and achieve coherence; avoiding plagiarism by paraphrasing; and documenting source material using MLA or APA guidelines.
- Students will apply the conventions of Standard Written English.
- Students will employ appropriate technology when composing texts.

**DRE-099 Integrated Reading Writing III** 2 0 2

Prerequisites: (S) Take DRE 097

Corequisites: (S) Take ENG 111

This course is designed to develop proficiency in integrated and contextualized reading and writing skills and strategies by complementing, supporting and reinforcing material covered in ENG 111. Topics include reading and writing processes, critical thinking strategies, and recognition and composition of well-developed, coherent, and unified texts; except where noted, these topics are taught using texts primarily in the Lexile (TM) range of 1185 to 1385. Upon completion, students should be able to apply those skills toward understanding a variety of texts at the career and college ready level and toward composing a documented essay. Note: (TM) represents registered trademark. S23644

**Competencies**

- Students will demonstrate the use of pre-reading, reading, and post-reading strategies to comprehend texts at the career and college ready level, including activating prior knowledge; identifying important text attributes; using context clues; distinguishing between connotative and denotative meanings and between informal language and Standard Written English; employing metacognitive strategies; identifying stated and implied main ideas and details in texts at the career and college ready level and student writing; recognizing organizational patterns; summarizing; and responding to texts using text-to-world connections.
- Students will demonstrate the use of the writing process (prewriting, drafting, revising, editing, and proofreading), including narrowing the focus of the text; establishing a clear main idea; generating supporting details for a specific purpose and audience; determine appropriate organization; composing and revising drafts; using editing and proofreading strategies to reflect Standard Written English; using MLA or APA guidelines.
- Students will apply critical thinking strategies to analyze texts at the career and college ready level and to inform and strengthen writing, including comprehending figurative language - simile, metaphor, personification; interpreting imagery, symbols, and analogies; determining the author's purpose and point of view; identifying fact and opinion statements; using inference skills; demonstrating an understanding of verbal and situational irony; understanding bias, logical fallacies, and propaganda techniques; and demonstrating consistent point of view, clear purpose, appropriate tone, and appropriate use of facts and expert opinions.
- Students will recognize and compose well-developed, coherent, and unified texts, including clear thesis statements and specific and adequate supporting information; analyzing and evaluating body paragraphs in texts at the career and college ready level and student writing; assessing, synthesizing, and integrating relevant and valid evidence; employing a variety of organizational patterns to draft texts and using transitional strategies to connect ideas and achieve coherence; avoiding plagiarism by paraphrasing; and documenting source material using MLA or APA guidelines.
- Students will apply the conventions of Standard Written English.
- Students will employ appropriate technology when composing texts.

**ECONOMICS (ECO)****ECO 151 Survey of Economics** 3 0 3

This course introduces basic concepts of micro- and macroeconomics. Topics include supply and demand, optimizing economic behavior, prices and wages, money, interest rates, banking system, unemployment, inflation, taxes, government spending, and international trade. Upon completion, students should be able to explain alternative solutions for economic problems faced by private and government sectors. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S13257

**ECO 251 Principles of Microeconomics** 3 0 3

This course introduces economic analysis of individual, business, and industry choices 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. This is a Universal General Education Transfer Component (UGETC) course. S11774

**ECO 252 Principles of Macroeconomics** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. This is a Universal General Education Transfer Component (UGETC) course. S11710

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**EDUCATION (EDU)**


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<b>EDU 118 Principles &amp; Practice of Instructional Assistant</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take DRE-097			
This course covers the instructional assistant's role in the educational system. Topics include history of education, professional responsibilities and ethics, cultural diversity, communication skills, and identification of the optimal learning environment. Upon completion, students should be able to describe the supporting role of the instructional assistant, demonstrate positive communication skills, and discuss educational philosophy. S23689			
<b>EDU 119 Introduction to Early Childhood Education</b>	<b>4</b>	<b>0</b>	<b>4</b>
This course covers the foundations of the education profession, the diverse educational settings for young children, professionalism and planning developmentally appropriate programs for all children. Topics include historical foundations, program types, career options, professionalism and creating inclusive environments and curriculum responsive to the needs of all children and families. Upon completion, students should be able to design career plans and develop schedules, environments and activity plans appropriate for all children. S22283			
<b>EDU 131 Child, Family, &amp; Community</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take DRE-097			
This course covers the development of partnerships between culturally and linguistically diverse families, children, schools and communities. Emphasis is placed on developing skills and identifying benefits for establishing, supporting, and maintaining respectful, collaborative relationships between diverse families, programs/schools, and community agencies/resources. Upon completion, students should be able to explain appropriate relationships between families, educators, and professionals that enhance development and educational experiences of all children. S23692			
<b>EDU 144 Child Development I</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take DRE-097			
This course includes the theories of child development, needs, milestones, and factors that influence development, from conception through approximately 36 months. 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. S23693			
<b>EDU 145 Child Development II</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take DRE-097			
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. S23694			
<b>EDU 146 Child Guidance</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take DRE-097			
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. S23695			
<b>EDU 151 Creative Activities</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take DRE-097			
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, adapt, implement and evaluate developmentally supportive learning materials, experiences and environments. S23704			



<b>EDU 153 Health, Safety &amp; Nutrition</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take DRE-097			
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. S23699			
<b>EDU 162 Observation &amp; Assessment in ECE</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take DRE-097			
This course introduces the research, benefits, goals, and ethical considerations associated with observation and assessment in Early Childhood environments. Emphasis is placed on the implementation of multiple observation/assessment strategies including anecdotal records, event samples, rating scales, and portfolios to create appropriate learning experiences. Upon completion, students should be able to practice responsible assessment and use assessments to enhance programming and collaboration for children and families. S23748			
<b>EDU 163 Classroom Management &amp; Instruction</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take DRE-097			
This course covers management and instructional techniques with school-age populations. Topics include classroom management and organization, teaching strategies, individual student differences and learning styles, and developmentally appropriate classroom guidance techniques. Upon completion, students should be able to utilize developmentally appropriate behavior management and instructional strategies that enhance the teaching/learning process and promote students' academic success. S23749			
<b>EDU 184 Early Childhood Introduction Practicum</b>	<b>1</b>	<b>3</b>	<b>2</b>
Prerequisites: (S) Take EDU 119			
Corequisites: (S) Take DRE-097			
This course introduces students to early childhood settings and applying skills in a three star (minimum) or NAEYC accredited or equivalent, quality early childhood environment. Emphasis is placed on observing children and assisting in the implementation of developmentally appropriate activities/environments for all children; and modeling reflective/professional practices. Upon completion, students should be able to demonstrate developmentally appropriate interactions with children and ethical/professional behaviors as indicated by assignments and onsite faculty visits.S23620			
<b>EDU 216 Foundations of Education</b>	<b>4</b>	<b>0</b>	<b>4</b>
Corequisites: (S) Take DRE-098			
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. S23706			
<b>EDU 221 Children with Exceptionalities</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One Set: Set 1: EDU-144, EDU-145 Set 2: PSY-244 PSY-245			
Corequisites: (S) Take DRE-098			
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.S23708			
<b>EDU 222 Learners with Behavioral Disorders (EDU 222 replaced EDU 147)</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S)Take One Set: Set 1: EDU-144 and EDU-145 SET 2: PSY-244 and PSY-245			
Corequisites: (S) Take DRE-098			
This course provides a comprehensive study of learners with behavioral disorders encompassing characteristics, assessments, placement alternatives, inclusion and family interventions. Topics include legislation, appropriate management interventions, and placement options for children with behavior disorders. Upon completion, students should be able to identify, develop, and utilize positive behavior support systems. S23709			

<b>EDU 223 Specific Learning Disabilities</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One Set: Set 1: EDU-144 and EDU-145 Set 2: PSY-244 and PSY-245			
Corequisites: (S) Take DRE-098			
This course provides a comprehensive study of characteristics, alternative assessments, teaching strategies, placement options, inclusion, and family intervention for children with specific learning disabilities. Topics include causes, assessment instruments, learning strategies, and collaborative/inclusion methods for children with specific learning disabilities. Upon completion, students should be able to assist in identifying, assessing, and providing educational interventions for children with specific learning disabilities and their families. S23710			
<b>EDU 234 Infants, Toddlers, &amp; Twos</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take EDU 119			
Corequisites: (S) Take DRE-098			
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. S23712			
<b>EDU 235 School-Age Development &amp; Program</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take DRE-098			
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. S23714			
<b>EDU 241 Adult-Child Relations</b>	<b>2</b>	<b>0</b>	<b>2</b>
Corequisites: (S) Take DRE-098			
This course covers self-concept and effective and active listening skills in positive one-to-one interactions with individuals and groups of children. Emphasis is placed on self-concept development and effective communication techniques used with children. Upon completion, students should be able to identify principles underlying self-concept and demonstrate effective listening and communication skills used by adults with children. S23716			
<b>EDU 243 Learning Theory</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take DRE-098			
This course provides lateral entry teachers an introduction to learning theory, various styles of learning, and motivational factors involved in the learning process. Emphasis is placed on the development of cognitive skills using the eight types of intelligence and applying these to practical classroom situations. Upon completion, students should be able to describe theories and styles of learning and discuss the relationship between different types of intelligence to learning motivation. S23717			
<b>EDU 247 Sensory &amp; Physical Disabilities</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One Set: Set 1: EDU-144 and EDU-145 Set 2: PSY-244 and PSY-245			
Corequisites: (S) Take DRE-098			
This course covers characteristics, intervention strategies, assistive technologies, and inclusive practices for children with sensory and physical disabilities. Topics include inclusive placement options, utilization of support services, other health impairments and family involvement for children with sensory and physical disabilities. Upon completion, students should be able to identify and utilize intervention strategies and service delivery options for those specific disabilities. S23720			
<b>EDU 248 Developmental Delays</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One Set: Set 1: EDU-144 and EDU-145 Set 2: PSY-244 and PSY-245			
Corequisites: (S) Take DRE-098			
This course covers the causes and assessment of developmental delays and individualized instruction and curriculum for children with developmental delays. Emphasis is placed on definition, characteristics, assessment, educational strategies, inclusion, family involvement, and services for children with developmental delays. Upon completion, students should be able to identify, assess, and plan educational intervention strategies for children with developmental delays and their families. S23721			

<b>EDU 250 PRAXIS I Preparation</b>	<b>1</b>	<b>0</b>	<b>1</b>
Corequisites: (S) Take DRE-098			
This course is designed to prepare potential teachers for the PRAXIS I exam that is necessary to enter the field of education. Emphasis is placed on content specifications of the PRAXIS I exam, study skills and simulated examinations. Upon completion, students should be able demonstrate an understanding of the content necessary for successful completion of the PRAXIS I exam. S232722			
<b>EDU 251 Exploration Activities</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take DRE-098			
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. S23723			
<b>EDU 252 Math &amp; Science Activities</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take DRE-098			
This course introduces discovery experiences in math and science. Topics include concepts, facts, phenomena, and skills in each area. Upon completion, students should be able to identify, plan, select materials and equipment, and implement and evaluate developmentally appropriate curriculum materials. S23725			
<b>EDU 256 Instructional Strategies in Social Studies</b>	<b>2</b>	<b>2</b>	<b>3</b>
Corequisites: (S) Take DRE-098			
This course covers objectives, content, materials, and instructional approaches to social studies. Topics include the integration of history, geography, economics, and government materials; research/study techniques; and critical thinking. Upon completion, students should be able to assess, plan, implement, and evaluate developmentally appropriate experiences as it relates to the NC Standard Course of Study. S23726			
<b>EDU 259 Curriculum Planning</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S)Take EDU 119			
Corequisites: (S) Take DRE-098			
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. S23732			
<b>EDU 261 Early Childhood Administration I</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take All: DRE-098 and EDU 119			
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. S23733			
<b>EDU 262 Early Childhood Administration II</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take EDU 261			
Corequisites: (S) Take All: DRE-098 and EDU 119			
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. S23734			
<b>EDU 271 Educational Technology</b>	<b>2</b>	<b>2</b>	<b>3</b>
Corequisites: (S) Take DRE-098			
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. S23736			

<b>EDU 280 Language &amp; Literacy Experience</b>	<b>3</b>	<b>0</b>	<b>3</b>
Corequisites: (S) Take DRe-098			
This course is designed to expand students' understanding of children's language and literacy development and provides strategies for enhancing language/literacy experiences in an enriched environment. Topics include selection of diverse literature and interactive media, the integration of literacy concepts throughout the curriculum, appropriate observations/assessments and inclusive practices. Upon completion, students should be able to select, plan, implement and evaluate developmentally appropriate and diverse language/literacy experiences. S23738			
<b>EDU 281 Instructional Strategies in Reading &amp; Writing (EDU 281 replaced EDU 186)</b>	<b>2</b>	<b>2</b>	<b>3</b>
Corequisites: (S) Take DRE-098			
This course covers concepts, resources, and methods for teaching reading and writing to elementary through middle-grade children. Topics include the importance of literacy, learning styles, skills assessment, various reading and writing approaches and instructional strategies. Upon completion, students should be able to assess, plan, implement and evaluate school-age literacy experiences as related to the North Carolina Standard Course of Study. S23740			
<b>EDU 284 Early Child Capstone Practicum</b>	<b>1</b>	<b>9</b>	<b>4</b>
Prerequisites: (S) Take One Set: Set 1: EDU-119, EDU-144, EDU-145, EDU-146, and EDU-151 Set 2: EDU-119, PSY-244, PSY-245, EDU-146, and EDU-151 Set 3: EDU-119, PSY-245, EDU-144, EDU-146, and EDU-151 Set 4: EDU-119, PSY-244, EDU-145, EDU-146, and EDU-151			
Corequisites: (S) Take DRE-098			
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 onsite faculty visits. S23742			
<b>EDU 285 Internship Experience-School Age</b>	<b>1</b>	<b>9</b>	<b>4</b>
Prerequisites: (S)Take One Set: Set 1: EDU 144, EDU 145, EDU 118, EDU 163 Set 2: PSY 244, PSY 245, EDU 118, EDU 163 Set 3: PSY 244, EDU 145, EDU 118, EDU 163 Set 4: EDU 144, PSY 245, EDU 118, EDU 163 Set 5: PSY 244, PSY 245, EDU 216, EDU 163 Set 6: EDU 144, EDU 145, EDU 216, EDU 163 Set 7: EDU 144, PSY 245, EDU 216, EDU 163 Set 8: PSY 244, EDU 216, EDU 163			
Corequisites: (S) Take DRE-098			
This course is designed to allow students to apply skills in a quality public or private school environment. This course is designed to allow students to apply skills in a quality public or private school 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 lesson plans/assessments, appropriate guidance techniques, ethical/professional behaviors as indicated by assignments and onsite faculty visits. S23743			
<b>EDU 287 Leadership/Early Child Education</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One Set: Set 1: EDU 119, EDU 131, EDU 144, EDU 145 Set 2: EDU 119, EDU 131, PSY 244, PSY 245			
Corequisites: (S) Take DRE-098			
This course is designed to facilitate and guide the development of early childhood professionals preparing for leadership roles in improving community early childhood services. Topics include principles of social change, characteristics of effective leaders, techniques of action research, childcare funding mechanisms, quality initiatives, and key issues in early care. Upon completion, students should be able to identify key issues; develop strategic plans; establish relationships with community leaders; and identify opportunities and barriers for advocacy. S23744			
<b>EDU 288 Advanced Issues in Early Childhood Education</b>	<b>2</b>	<b>0</b>	<b>2</b>
Corequisites: (S) Take DRE-098			
This course covers advanced topics and issues in early childhood. Emphasis is placed on current advocacy issues, emerging technology, professional growth experiences, and other related topics. Upon completion, students should be able to list, discuss, and explain advanced current topics and issues in early childhood education. S23745			

**EDU 289 Advanced Issues in School Age** 2 0 2

Corequisites: (S) Take DRE-098

This course covers advanced topics and issues that relate to school-age programs. Emphasis is placed on current advocacy issues, emerging technology, professional growth, ethics, and organizations for providers/teachers working with school-age populations. Upon completion, students should be able to list, discuss, and explain advanced current topics and issues surrounding school-aged populations. S23746

## ENGINEERING (EGR)

**EGR 110 Introduction to Engineering Technology** 1 2 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. S20645

**EGR 120 Engineering and Design Graphics** 2 2 3

This course introduces the graphical tools for engineering and design communications. Emphasis is placed upon selecting the appropriate methods and tools and conveying ideas using sketches, orthographic views and projections, and computer graphics applications. Upon completion, students should be able to communicate essential features or two-dimensional and three-dimensional objects using the proper tools and methods. This course has been approved for transfer under the CAA as a premajor and/or elective course requirement. S23536  
Competencies / Student Learning Outcomes

1. Apply basic concepts of engineering graphics to problem solving. 2. Develop designs from initial concepts to final working drawings. 3. Utilize two dimensional computer aided drawing (CAD) tools to generate a working drawing. 4. Develop and prepare a drawing with orthographic views of an object. 5. Apply proper dimensions and tolerances per industry standard.

**EGR 131 Introduction to Electronics Technology** 1 2 2

This course introduces the basic skills required for electrical/electronic technicians. Topics include soldering/desoldering, safety and sustainability practices, test equipment, scientific calculators, AWG wire table, the resistor color code, electronic devices, problem solving, and use of hand tools. Upon completion, students should be able to solder/desolder, operate test equipment, apply problem-solving techniques, and use a scientific calculator. S23480

**EGR 150 Introduction to Engineering** 1 2 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. This course has been approved for transfer under the CAA as a premajor and/or elective course requirement. S20709

**EGR 220 Engineering Statics Education** 3 0 3

Prerequisites: PHY 251

Corequisites: MAT 272

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S13929

## ELECTRICITY (ELC)

**ELC 111 Introduction to Electricity** 2 2 3

This course introduces the fundamental concepts of electricity and test equipment to non-electrical/electronic 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. S11841

- ELC 112 DC/AC Electricity** 3 6 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, and analyze simple DC/AC circuits. S23481  
 Competencies/ Student Learning Outcomes  
 1. Demonstrate safe practices and procedures with tools, materials, and industry accepted test equipment covered in the course. 2. Demonstrate appropriate use of test equipment, evaluate circuit performance and apply appropriate troubleshooting techniques to electrical circuits. 3. Construct and analyze series, parallel and combinations circuits using appropriate components. 4. Use appropriate laws and formulas to perform circuit calculations. 5. Interpret electrical schematics. 6. Describe the characteristics of various power sources.
- ELC 113 Basic Wiring I** 2 6 4  
 This course introduces the care/usage of tools and materials used in residential electrical installations and the requirements of the National Electrical Code. Topics include NEC, electrical safety, and electrical print 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 residential electrical installations. S23518  
 Competencies/Student Learning Outcomes  
 1. Identify and demonstrate safe practices and procedures with tools, materials and industry accepted test equipment covered in the course. 2. Demonstrate appropriate use of test equipment, evaluate circuit performance and apply appropriate troubleshooting techniques to residential electrical circuits. 3. Draw, plan and interpret electrical plans and symbols used in residential applications 4. Identify, size, and install wiring and electrical distribution equipment and devices associated with residential electrical installations in accordance with the National Electrical Code. 5. Recognize and demonstrate appropriate use of tools and materials that are used in residential wiring.
- ELC 114 Basic Wiring II** 2 6 4  
 This course provides instruction in the application of electrical tools, materials, and test equipment associated with commercial electrical installations. Topics include the NEC; safety; electrical blueprints; planning, layout, and installation of equipment and conduits; and wiring devices such as panels and overcurrent devices. Upon completion, students should be able to properly install equipment and conduit associated with commercial electrical installations. S23519  
 Competencies/Student Learning Outcomes  
 1. Identify and demonstrate safe practices and procedures with tools, materials and industry accepted test equipment covered in the course. 2. Demonstrate appropriate use of test equipment, evaluate circuit performance and apply appropriate troubleshooting techniques to commercial electrical circuits. 3. Draw, plan, and interpret electrical plans and symbols used in commercial applications. 4. Identify, size, and install wiring and electrical distribution equipment and devices associated with commercial electrical installations in accordance with the National Electrical Code. 5. Recognize and demonstrate appropriate use of tools and materials that are used in commercial wiring.
- ELC 117 Motors and Controls** 2 6 4  
 This course introduces the fundamental concepts of motors and motor controls. Topics include ladder diagrams, pilot devices, contactors, motor starters, motors, and other control devices. Upon completion, students should be able to properly select, connect, and troubleshoot motors and control circuits. S23521  
 Competencies/Student Learning Outcomes  
 1. Demonstrate safe practices and procedures with tools, materials and industry accepted test equipment covered in the course. 2. Demonstrate appropriate use of test equipment, evaluate circuit performance and apply appropriate troubleshooting techniques to control circuits. 3. Interpret and use ladder and wiring diagrams, symbols, and schematics. 4. Demonstrate and describe the use of relays, contactors, motor starters and pilot devices in electrical control circuits. 5. Describe principles and operations related to electrical control circuits. 6. Describe the concepts of rotating electrical machinery.
- ELC 118 National Electrical Code** 1 2 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. S11926
- ELC 119 NEC Calculations** 1 2 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. S11833

- ELC 128 Introduction to PLC** 2 3 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 understand basic PLC systems and create simple programs. S23522  
 Competencies / Student Learning Outcomes  
 1. Identify and demonstrate safe practices and procedures with tools, materials and industry accepted test equipment covered in the course. 2. List and describe the hardware components used in PLC systems. 3. Utilize numbering systems as applied to PLCs. 4. Demonstrate and describe the use of various PLC instruction sets. 5. Create various simple PLC programs using the appropriate instruction set. 6. Apply appropriate troubleshooting methods to PLCs.
- ELC 130 Advanced Motors/Controls** 2 2 3  
 Prerequisites: (S) Take One: ELC-111, ELC-112, or ELC-138  
 This course covers motors concepts, construction and characteristics and provides a foundation in motor controls. Topics include motor control ladder logic, starters, timers, overload protection, braking, reduced voltage starting, SCR control, AC/DC drives, system and component level troubleshooting. Upon completion, students should be able to specify, connect, control, troubleshoot, and maintain motors and motor control systems. S22727
- ELC 131 DC/AC Circuit Analysis** 3 3 4  
 This course introduces DC and AC electricity with an emphasis on circuit analysis, measurements, and operation of test equipment. Topics include DC and AC 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, verify, and analyze DC/AC circuits; and properly use test equipment. S23482  
 Competencies / Student Learning Outcomes  
 1. Identify and describe the operation of components used in DC/AC circuits. 2. Apply math formulas and circuit theorems in the analyses of DC/AC Circuits. 3. Locate and select DC/AC devices using component specifications based on circuit requirements. 4. Construct series, parallel and combination circuits. 5. Select and demonstrate the use of appropriate test equipment to analyze circuit operation. 6. Using appropriate troubleshooting techniques evaluate circuit performance applying suitable repair methods. 7. Identify and demonstrate safe workplace practices.
- ELC 132 Electrical Drawings** 1 3 2  
 This course introduces the technical documentation that is typically found or used in the industrial environment. Topics include interpretation of service manuals, freehand sketching, orthographic views and dimensions, and print reading. Upon completion, students should be able to interpret technical documents and prints and use basic drafting skills to prepare usable field drawings. S23523
- ELC 135 Electrical Machines** 2 2 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. S21596
- ELC 136 Electrical Machines II** 3 3 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. S21597
- ELC 228 PLC Applications** 2 6 4  
 This course covers programming and applications of programmable logic controllers. Emphasis is placed on programming techniques, networking, specialty I/O modules, and system troubleshooting. Upon completion, students should be able to specify, implement, and maintain complex PLC controlled systems. S21601
- ELC-231 Electric Power Systems** 3 2 4  
 This course covers the basic principles of electric power systems, including transmission lines, generator and transformer characteristics, and fault detection and correction. Emphasis is placed on line diagrams and per unit calculations for circuit performance analysis in regards to voltage regulation, power factor, and protection devices. Upon completion, students should be able to analyze simple distribution subsystems, calculate fault current, and compare different types and sizes of circuit protection devices. S21603

**ELC 233 Energy Management**

2 2 3

This course covers energy management principles and techniques typical of those found in industry and commercial facilities, including load control and peak demand reduction systems. Topics include load and peak demand calculations, load shedding, load balance and power factor, priority scheduling, remote sensing and control, and supplementary/alternative energy sources. Upon completion, students should be able to determine energy management parameters, calculate demand and energy use, propose energy management procedures, and implement alternative energy sources. S21604

**ELECTRONICS (ELN)****ELN 131 Analog Electronics I**

3 3 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 analog circuits using appropriate techniques and test equipment. S23487  
Competencies / Student Learning Outcomes

1. Identify and describe operation of semiconductor devices. 2. Analyze where and how analog components are used. 3. Locate and select analog devices using component specifications based on circuit requirements. 4. Construct operational circuits using analog devices. 5. Select and demonstrate the use of appropriate test equipment to analyze circuit operation. 6. Using appropriate troubleshooting techniques evaluate circuit performance applying suitable repair methods. 7. Identify and demonstrate safe workplace practices.

**ELN 133 Digital Electronics**

3 3 4

This course covers combinational and sequential logic circuits. Topics include number systems, Boolean algebra, logic families, medium scale integration (MSI) and large scale integration (LSI) circuits, analog to digital (AD) and digital to analog (DA) conversion, and other related topics. Upon completion, students should be able to construct, analyze, verify, and troubleshoot digital circuits using appropriate techniques and test equipment. S23488  
Competencies / Student Learning Outcomes

1. Identify and describe the operation of digital electronic devices and circuits. 2. Analyze where and how digital electronics circuits are used. 3. Locate and select digital electronic devices using component specifications based on circuit requirements. 4. Construct operational circuits using digital devices. 5. Select and demonstrate the use of appropriate test equipment to analyze circuit operation. 6. Using appropriate troubleshooting techniques evaluate circuit performance applying suitable repair methods. 7. Identify and demonstrate safe workplace practices.

**EMERGENCY MEDICAL SCIENCE (EMS)****EMS 110 EMT-Basic**

6 6 0 8

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 certification. S23869

**EMS 122 EMS Clinical Practicum I**

0 0 3 1

Prerequisites: (S) Take EMS-110

Corequisites: (S) Take EMS-130

This course provides the introductory hospital clinical experience for the paramedic student. Emphasis is placed on mastering fundamental paramedic skills. Upon completion, students should be able to demonstrate competence with fundamental paramedic level skills. S23872

**EMS 130 Pharmacology I for EMS**

3 3 0 4

Prerequisites: (S) Take EMS-110

Corequisites: (S) Take EMS-122

This course introduces the fundamental principles of pharmacology and medication administration and is required for paramedic certification. Topics include medical terminology, pharmacological concepts, weights, measures, drug calculations, vascular access for fluids and medication administration and legislation. Upon completion, students should be able to accurately calculate drug dosages, properly administer medications, and demonstrate general knowledge of pharmacology. S23874



<b>EMS 131 Advanced Airway Management</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>2</b>
Prerequisites: (S)Take EMS-110 This course is designed to provide advanced airway management techniques and is required for 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. S23875				
<b>EMS 160 Cardiology I</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>2</b>
Prerequisites: (S) Take EMS-110 This course introduces the study of cardiovascular emergencies and is required for paramedic certification. Topics include anatomy and physiology, pathophysiology, electrophysiology, and basic rhythm interpretation in the monitoring leads. Upon completion, students should be able to recognize and interpret basic rhythms. S23873				
<b>EMS 220 Cardiology II</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S)Take All: EMS-122, EMS-130, and EMS-160 This course provides an in-depth study of cardiovascular emergencies and is required for paramedic certification. Topics include assessment and treatment of cardiac emergencies, application and interpretation of advanced electrocardiography utilizing the twelve-lead ECG, cardiac pharmacology, and patient care. Upon completion, students should be able to assess and treat patients utilizing American Heart Association guidelines. S23878				
<b>EMS 221 EMS Clinical Practicum II</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>2</b>
Prerequisites: (S) Take All: EMS-122 and EMS-130 This course provides clinical experiences in the hospital and/or field. Emphasis is placed on increasing the proficiency of students' skills and abilities in patient assessments and the delivery of care. Upon completion, students should be able to demonstrate continued progress in advanced-level patient care. S23879				
<b>EMS 231 EMS Clinical Practicum III</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>3</b>
Prerequisites: (S) Take All: EMS-130 and EMS-221 This course provides clinical experiences in the hospital and/or field. Emphasis is placed on enhancing the students' skills and abilities in providing advanced-level care. Upon completion, students should be able to demonstrate continued progress in advanced-level patient care. S23880				
<b>EMS 235 EMS Management</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>
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. S11658				
<b>EMS 240 Patients W/ Special Challenges</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>2</b>
Prerequisites: (S) Take All: EMS-122 and EMS-130 This course includes concepts of crisis intervention and techniques of interacting with patients with special challenges and is required for paramedic certification. Topics include appropriate intervention and interaction for neglected, abused, terminally ill, chronically ill, technology assisted, bariatric, physically challenged, mentally challenged, or assaulted patients as well as behavioral emergencies. Upon completion, students should be able to recognize and manage the care of patients with special challenges. S23919				
<b>EMS 241 EMS Clinical Practicum IV</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>4</b>
Prerequisites: (S) Take All: EMS-130 and EMS-231 This course provides clinical experiences in the hospital and/or field. Emphasis is placed on mastering the skills/competencies required of the paramedic providing advanced-level care. Upon completion, students should be able to provide advanced-level patient care as an entry-level paramedic. S23920				
<b>EMS 250 Medical Emergencies</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>4</b>
Prerequisites: (S) Take All: EMS-122 and EMS-130 This course provides an in-depth study of medical conditions frequently encountered in the prehospital setting and is required for paramedic certification. Topics include appropriate interventions/treatments for disorders/diseases/injuries affecting the following systems: respiratory, neurological, abdominal/gastrointestinal, endocrine, genitourinary, musculoskeletal, and immunological as well as toxicology, infectious diseases and diseases of the eyes, ears, nose and throat. Upon completion, students should be able to recognize, assess and manage the care of frequently encountered medical conditions based upon initial patient assessment. S23921				

**EMS 260 Trauma Emergencies**

1 3 0 2

Prerequisites: (S) Take All: EMS-122 and EMS-130

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 an overview of thoracic, abdominal, genitourinary, orthopedic, neurological, and multi-system trauma, soft tissue trauma of the head, neck, and face as well as environmental emergencies. Upon completion, students should be able to recognize and manage trauma situations based upon patient assessment and should adhere to standards of care. S23922

**EMS 270 Life Span Emergencies**

2 3 0 3

Prerequisites: (S) Take All: EMS-122 and EMS-130

This course covers medical/ethical/legal issues and the spectrum of age-specific emergencies from conception through death required for paramedic certification. 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. S23923

**EMS 285 EMS Capstone**

1 3 0 2

Prerequisites: (S)Take All: EMS-220, EMS-250, and EMS-260

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. S10931

**ENGLISH (ENG)**

*Initial student placement in developmental courses is based on individual college placement testing policies and procedures. Students should begin developmental course work at the appropriate level indicated by the college's placement test.*

**ENG 101 Applied Communications I**

3 0 3

This course is designed to enhance reading and writing skills for the workplace. Emphasis is placed on technical reading, job-related vocabulary, sentence writing, punctuation, and spelling. Upon completion, students should be able to identify main ideas with supporting details and produce mechanically correct short writings appropriate to the workplace. This is a diploma-level course. S12858

**ENG 111 Writing & Inquiry**

3 0 3

Prerequisites: (S) Take DRE-098

This course is designed to develop the ability to produce clear writing in a variety of genres and formats using a recursive process. Emphasis includes inquiry, analysis, effective use of rhetorical strategies, thesis development, audience awareness, and revision. Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English. This course has been approved for transfer under the CAA as a general education course in English Composition. This is a Universal General Education Transfer Component (UGETC) course. S24022

Competencies:

1. Demonstrate writing as a recursive process. 2. Demonstrate writing and inquiry in context using different rhetorical strategies to reflect, analyze, explain, and persuade in a variety of genres and formats. 3. Students will reflect upon and explain their writing strategies. 4. Demonstrate the critical use and examination of printed, digital, and visual materials. 5. Locate, evaluate, and incorporate relevant sources with proper documentation. 6. Compose texts incorporating rhetorically effective and conventional use of language. 7. Collaborate actively in a writing community.

**ENG 112 Writing/Research in the Disciplines**

3 0 3

Prerequisites: (S) Take ENG 111

This course, the second in a series of two, introduces research techniques, documentation styles, and writing strategies. Emphasis is placed on analyzing information and ideas and incorporating research findings into documented writing and research projects. Upon completion, students should be able to evaluate and synthesize information from primary and secondary sources using documentation appropriate to various disciplines. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in English Composition. This is a Universal General Education Transfer Component (UGETC) course. S24024

<b>ENG 113 Literature-Based Research</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take ENG 111			
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. This course has been approved for transfer under the CAA as a general education course in English Composition. S13650			
<b>ENG 114 Professional Research &amp; Reporting</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take ENG 111			
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in English Composition. S13706			
<b>ENG 125 Creative Writing I</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take ENG 111			
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S16350			
<b>ENG 126 Creative Writing II</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take ENG 125			
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S12088			
<b>ENG 231 American Literature I</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: ENG 112, ENG 113, or ENG 114			
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 analyze and interpret literary works in their historical and cultural contexts. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. This is a Universal General Education Transfer Component (UGETC) course. S24025			
Competencies			
1. Describe, analyze, interpret and evaluate features of literary texts in several genres, applying appropriate literary and cultural terms. 2. Critically analyze and interpret American literature from its beginnings to 1865 within historical and cultural contexts. 3. Write critical essays about American literature that integrate primary and secondary sources using MLA documentation and standard academic written conventions.			
<b>ENG 232 American Literature II</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: ENG-112, 113, or ENG-114			
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 analyze and interpret literary works in their historical and cultural contexts. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S24026			
Competencies			
1. Describe, analyze, interpret, and evaluate features of literary texts in several genres, applying appropriate literary and cultural terms. 2. Critically analyze and interpret American literature from 1865 to the present within historical and cultural contexts. 3. Write critical essays about American literature that integrate primary and secondary sources using MLA documentation and standard academic written conventions.			
<b>ENG 233 Major American Writers</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: ENG 112, ENG 113 or ENG 114			
This course provides an intensive study of the works of several major American authors. Emphasis is placed on American history, culture, and the literary merits. Upon completion, students should be able to interpret, analyze, and evaluate the works studied. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S13908			

<b>ENG 241 British Literature I</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: ENG 112, ENG 113, or ENG 114			
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S11763			
<b>ENG 242 British Literature II</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: ENG 112, ENG 113, or ENG 114			
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S11698			
<b>ENG 243 Major British Writers</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: ENG 112, ENG 113, or ENG 114			
This course provides an intensive study of the works of several major British authors. Emphasis is placed on British history, culture, and the literary merits. Upon completion, students should be able to interpret, analyze, and evaluate the works studied. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S11728			
<b>ENG 251 Western World Literature I</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: ENG 112, ENG 113, or ENG 114			
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S14255			
<b>ENG 252 Western World Literature II</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: ENG 112, ENG 113, or ENG 114			
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S14203			
<b>ENG 261 World Literature I</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: ENG 112, ENG 113, or ENG 114			
This course introduces selected works from the Pacific, Asia, Africa, Europe, and the Americas from their literary beginnings through the seventeenth century. 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S12708			
<b>ENG 262 World Literature II</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: ENG 112, ENG 113, or ENG 114			
This course introduces selected works from the Pacific, Asia, Africa, Europe, and the Americas from the eighteenth century 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S12600			
<b>ENG 272 Southern Literature</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: ENG 112, ENG 113, or ENG 114			
This course provides an analytical study of the works of several Southern authors. Emphasis is placed on the historical and cultural contexts, themes, aesthetic features of individual works, and biographical backgrounds of the authors. Upon completion, students should be able to interpret, analyze, and discuss selected works. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S13535			

**ENG 273 African-American Literature** 3 0 3

Prerequisites: (S) Take One: ENG 112, ENG 113, or ENG 114

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S13578

**ENG 274 Literature by Women** 3 0 3

Prerequisites: (S) Take One: ENG 112, ENG 113, or ENG 114

This course provides an analytical study of the works of several women authors. Emphasis is placed on the historical and cultural contexts, themes and aesthetic features of individual works, and biographical backgrounds of the authors. Upon completion, students should be able to interpret, analyze, and discuss selected works. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S13548

**ENG 275 Science Fiction** 3 0 3

Prerequisites: (S) Take One: ENG 112, ENG 113 or ENG 114

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S13564

**ENTREPRENEURSHIP (ETR)****ETR 215 Law for Entrepreneurs** 3 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. S22096

**ETR 220 Innovation and Creativity** 3 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. S22099

**ETR 230 Entrepreneur Marketing** 3 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. S22100

**ETR 240 Funding for Entrepreneurs** 3 0 3

Prerequisites: Take ACC 120

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. S22101

**ETR 270 Entrepreneurship Issues** 3 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. S22102

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**FRENCH (FRE)**


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**FRE 111 Elementary French I** 3 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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts. S11554

**FRE 112 Elementary French II** 3 0 3  
 Prerequisites: (S) FRE 111  
 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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts. S11626

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**GEOLOGY (GEL)**


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**GEL 111 Introductory Geology** 3 2 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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This is a Universal General Education Transfer Component (UGETC) course. S24027  
 Competencies

1. Explain fundamental geologic concepts including earth structure, plate tectonics, rocks and minerals, rock cycle, crustal deformation, surficial processes, earth resources and geohazards. 2. Apply the basic methods of scientific inquiry in the context of geology. 3. Recognize and quantify the operation of Earth system processes over geologic and human timescales and over local, regional and global spatial scales. 4. Manipulate, interpret and construct visualizations of geologic data using maps, graphs, and contemporary technology. 5. Demonstrate an appreciation for the societal relevance of geology and the impact of humans on the earth system.

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**GEOGRAPHY (GEO)**


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**GEO 111 World Regional Geography** 3 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. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. This is a Universal General Education Transfer Component (UGETC) course. S13742

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**HEALTH (HEA)**


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**HEA 110 Personal Health/Wellness** 3 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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S10185

**HEA 112 First Aid & CPR** 1 2 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S10211

## HISTORY (HIS)

- HIS 111 World Civilizations I** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. This is a Universal General Education Transfer Component (UGETC) course. S10844
- HIS 112 World Civilizations II** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. This is a Universal General Education Transfer Component (UGETC) course. S10844
- HIS 115 Introduction to Global History** 3 0 3  
 This course introduces the study of global history. Emphasis is placed on topics such as colonialism, industrialism, and nationalism. Upon completion, students should be able to analyze significant global historical issues. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S10822
- HIS 116 Current World Problems** 3 0 3  
 This course covers current world events from an historical perspective. Topics include regional problems as well as international concerns. Upon completion, students should be able to analyze significant current world problems from an historical perspective. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S10826
- HIS 117 History of Religions** 3 0 3  
 This course surveys the historical development of the world's major religions. Topics include systems of belief and religious practice, polytheism, monotheism, and current religious movements. Upon completion, students should be able to analyze the world's major religious traditions. S10780
- HIS 121 Western Civilization I** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S13000
- HIS 122 Western Civilization II** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S13096
- HIS 131 American History I** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. This is a Universal General Education Transfer Component (UGETC) course. S10372
- HIS 132 American History II** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. This is a Universal General Education Transfer Component (UGETC) course. S10386

- HIS 141 Genealogy & Local History** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11285
- HIS 151 Hispanic Civilization** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11246
- HIS 161 Science and Technology** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S12942
- HIS 162 Women and History** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S12886
- HIS 163 The World Since 1945** 3 0 3  
This course surveys world developments since the end of World War II. Topics include the Cold War, nationalism, colonialism, the Third World, the arms race, and global capitalism and regionalism. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in the world since 1945. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S12914
- HIS 165 Twentieth-Century World** 3 0 3  
This course includes the major developments, issues, and ideas in twentieth-century world history. Emphasis is placed on contrasting political systems, the impact of science and technology, and the philosophical temperament of twentieth-century people. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in the twentieth century. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S12963
- HIS 212 Medieval History** 3 0 3  
This course traces the cultural, political, economic, social, religious, and intellectual history of Europe during the Middle Ages. Topics include the decline of the Roman Empire, the Frankish Kingdoms, the medieval church, feudalism, the rise of national monarchies, urbanization, and the rise of universities. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in medieval Europe. This course has been approved for transfer under the CAA as a premajor and/or elective course requirement. S10435
- HIS 221 African-American History** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11507



- HIS 226 The Civil War** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11444
- HIS 227 Native American History** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11493
- HIS 228 History of the South** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11422
- HIS 231 Recent American History** 3 0 3  
 This course is a study of American society from the post-Depression era to the present. Topics include World War II, the Cold War, social unrest, the Vietnam War, the Great Society, and current political trends. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in recent America. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11165
- HIS 233 History of Appalachia** 3 0 3  
 This course introduces the Appalachian region and its relationship to mainstream American history. Topics include regional settlement patterns and a study of Appalachian culture. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in Appalachia. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11169
- HIS 234 Cherokee History** 3 0 3  
 This course is a survey of the history and culture of the Cherokees. Topics include origins, belief systems, contact and conflict with European settlers, removals, and contemporary problems faced by the Cherokees. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in Cherokee history. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11138
- HIS 236 North Carolina History** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11126
- HIS 262 Middle East History** 3 0 3  
 This course surveys the history of the Middle East from the development of civilization in Mesopotamia to the present. Emphasis is placed on social, political, economic, religious, and governmental structures in the Middle East. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in the Middle East. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11865

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**HUMAN SERVICES (HSE)**


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<b>HSE 110 Introduction to Human Services</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course introduces the human services field, including the history, agencies, roles, and careers. Topics include personal/professional characteristics, diverse populations, community resources, disciplines in the field, systems, ethical standards, and major theoretical and treatment approaches. Upon completion, students should be able to identify the knowledge, skills, and roles of the human services worker. S12827			
<b>HSE 112 Group Process I</b>	<b>1</b>	<b>2</b>	<b>2</b>
Prerequisites: (L) Take HSE 110 This course introduces interpersonal concepts and group dynamics. Emphasis is placed on self-awareness facilitated by experiential learning in small groups with analysis of personal experiences and the behavior of others. Upon completion, students should be able to show competence in identifying and explaining how people are influenced by their interactions in group settings. S12789			
<b>HSE 123 Interviewing Techniques</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (L) Take HSE 110 This course covers the purpose, structure, focus, and techniques employed in effective interviewing. Emphasis is placed on observing, attending, listening, responding, recording, and summarizing of personal histories with instructor supervision. Upon completion, students should be able to perform the basic interviewing skills needed to function in the helping relationship. S13613			
<b>HSE 125 Counseling</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (L) Take HSE 110 This course covers the major approaches to psychotherapy and counseling, including theory, characteristics, and techniques. Emphasis is placed on facilitation of self-exploration, problem solving, decision making, and personal growth. Upon completion, students should be able to understand various theories of counseling and demonstrate counseling techniques. S21902			
<b>HSE 210 Human Services Issues</b>	<b>2</b>	<b>0</b>	<b>2</b>
Prerequisites: (L) Take HSE 110 This course covers current issues and trends in the field of human services. Emphasis is placed on contemporary topics with relevance to special issues in a multi-faceted field. Upon completion, students should be able to integrate the knowledge, skills, and experiences gained in classroom and clinical experiences with emerging trends in the field. S11975			
<b>HSE 225 Crisis Intervention</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (L) Take HSE 110 This course introduces the basic theories and principles of crisis intervention. Emphasis is placed on identifying and demonstrating appropriate and differential techniques for intervening in various crisis situations. Upon completion, students should be able to assess crisis situations and respond appropriately. S14034			

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**HOTEL & RESTAURANT MANAGEMENT (HRM)**


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<b>HRM 220 Cost Control-Food &amp; Beverage</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course introduces controls and accounting procedures as applied to costs in the hospitality industry. Topics include reports, cost control, planning and forecasting, control systems, financial statements, operational efficiencies, labor controls and scheduling. Upon completion, students should be able to demonstrate an understanding of food, beverage, and labor cost control systems for operational troubleshooting and problem solving. S22913			
<b>HRM 245 Human Resource Mgmt-Hosp</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course introduces a systematic approach to human resource management in the hospitality industry. Topics include training/development, staffing, selection, hiring, recruitment, evaluation, benefit administration, employee relations, labor regulations/laws, discipline, motivation, productivity, shift management, contract employees and organizational culture. Upon completion, students should be able to apply human resource management skills for the hospitality industry. S22919			

## HUMANITIES (HUM)

- HUM 101 Values in the Workplace** 2 0 2  
 This course is a study of the influence of human values in the workplace and of the workplace on human values. Emphasis is placed on the ways in which the workplace affects and is affected by human values. Upon completion, students should be able to demonstrate a broad-based awareness and appreciation of the interconnectedness between human values and the world of work. S12241
- HUM 110 Technology and Society** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S14059
- HUM 115 Critical Thinking** 3 0 3  
 Prerequisites: (S) Take DRE 098  
 This course introduces the use of critical thinking skills in the context of human conflict. Emphasis is placed on evaluating information, problem solving, approaching cross-cultural perspectives, and resolving controversies and dilemmas. Upon completion, students should be able to demonstrate orally and in writing the use of critical thinking skills in the analysis of appropriate texts. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S24055
- HUM 120 Cultural Studies** 3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S12973
- HUM 121 The Nature of America** 3 0 3  
 This course provides an interdisciplinary survey of the American cultural, social, and political experience. Emphasis is placed on the multicultural character of American society, distinctive qualities of various regions, and the American political system. Upon completion, students should be able to analyze significant cultural, social, and political aspects of American life. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S13080
- HUM-122 Southern Culture** 3 0 3  
 This course explores the major qualities that make the South a distinct region. Topics include music, politics, literature, art, religion, race relations, and the role of social class in historical and contemporary contexts. Upon completion, students should be able to identify the characteristics that distinguish Southern culture. This course has been approved for transfer under the CAA as a general education course in Humanities/Fine Arts. S13030
- HUM-123 Appalachian Culture** 3 0 3  
 This course provides an interdisciplinary study of the unique features of Appalachian culture. Topics include historical, political, sociological, psychological, and artistic features which distinguish this region. Upon completion, students should be able to demonstrate a broad-based awareness and appreciation of Appalachian culture. This course has been approved for transfer under the CAA as a premajor and/or elective course requirement. S13041
- HUM 130 Myth in Human Culture** 3 0 3  
 This course provides an in-depth study of myths and legends. Topics include the varied sources of myths and their influence on the individual and society within diverse cultural contexts. Upon completion, students should be able to demonstrate a general familiarity with myths and a broad-based understanding of the influence of myths and legends on modern culture. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S13721
- HUM 150 American Womens Studies** 3 0 3  
 This course provides an inter-disciplinary study of the history, literature, and social roles of American women from Colonial times to the present. Emphasis is placed on women's roles as reflected in American language usage, education, law, the workplace, and mainstream culture. Upon completion, students should be able to identify and analyze the roles of women as reflected in various cultural forms. This course has been approved for transfer under the CAA as a general education course in Humanities/Fine Arts. S11249

**HUM 160 Introduction to Film**

2 2 3

This course introduces the fundamental elements of film artistry and production. Topics include film styles, history, and production techniques, as well as the social values reflected in film art. Upon completion, students should be able to critically analyze the elements covered in relation to selected films. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S16395

**HUM 161 Advanced Film Studies**

2 2 3

Prerequisites: (S) Take HUM 160

This course provides an advanced study of film art and production, building on skills learned in HUM 160. Topics include film production techniques, film genres, examination of master directors' styles, and the relation of film to culture. Upon completion, students should be able to recognize and critically analyze advanced elements of film production. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S10896

**HUM 170 The Holocaust**

3 0 3

This course provides a survey of the destruction of European Jewry by the Nazis during World War II. Topics include the anti-Semitic ideology, bureaucratic structures, and varying conditions of European occupation and domination under the Third Reich. Upon completion, students should be able to demonstrate an understanding of the historical, social, religious, political, and economic factors which cumulatively resulted in the Holocaust. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S13684

**HUM 180 International Cultural Exploration**

2 3 3

This course provides a framework for students to visit, examine, and analyze a country/region outside the United States to learn about the place and people. Emphasis is placed on the distinctive cultural characteristics of a country or region. Upon completion, students should be able to identify similarities/differences, analyze causes/effects, and clearly articulate the impact of one or more cultural elements. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S22360

**HUM 211 Humanities I**

3 0 3

Prerequisites: (S) Take ENG 111

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S10430

**HUM 212 Humanities II**

3 0 3

Prerequisites: (S) Take ENG 111

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 early modern times to the present. Upon completion, students should be able to identify significant figures and cultural contributions of the periods studied. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S10487

**HUM 220 Human Values and Meaning**

3 0 3

Prerequisites: (S) Take ENG 111

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S11527

**HUM 230 Leadership Development**

3 0 3

Prerequisites: (S) Take ENG 111

This course explores the theories and techniques of leadership and group process. Emphasis is placed on leadership styles, theories of group dynamics, and the moral and ethical responsibilities of leadership. Upon completion, students should be able to identify and analyze a personal philosophy and style of leadership and integrate these concepts in various practical situations. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11154

**INDUSTRIAL SCIENCE (ISC)****ISC 112 Industrial Safety**

2 0 2

This course introduces the principles of industrial safety. Emphasis is placed on industrial safety and OSHA regulations. Upon completion, students should be able to demonstrate knowledge of a safe working environment and OSHA compliance. S23527

Competencies/Student Learning Outcomes

1. Describe and identify safety practices required to perform various job-related activities. 2. Describe the application of OSHA procedures and requirements for compliance.

**ITALIAN (ITA)****ITA 111 Elementary Italian I**

3 0 3

This course introduces the fundamental elements of the Italian 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 Italian and demonstrate cultural awareness. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S11164

**ITA 112 Elementary Italian II**

3 0 3

This course is a continuation of ITA 111 focusing on the fundamental elements of the Italian 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 Italian and demonstrate further cultural awareness. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S11116

**JOURNALISM (JOU)****JOU 110 Introduction to Journalism**

3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S12092

**JOU 216 Writing for Mass Media**

2 2 3

This course is an introduction to news writing for newspapers and other print media including the techniques of news gathering, reporting, and interviewing. Emphasis is placed on basic methods of gathering information, conducting interviews, organizing a story, writing leads, writing clear, concise copy, and upon developing research skills. Upon completion, students should be able to write clear, concise, accurate, complete, balanced and readable news stories according to guidelines set by industry standards. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S21391

**JOU 217 Feature/Editorial Writing**

2 2 3

Prerequisites: (S) Take ENG 111

This course covers the basics of persuasive writing for community newspapers and other print media. Emphasis is placed on writing features, reviews, and editorials including audience analysis, appropriate language, effective supporting details, completeness, and accuracy. Upon completion, students should be able to write effective feature stories, reviews, and editorials. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S20976

## MACHINING TECHNOLOGY (MAC)

<b>MAC 111 Machining Technology I</b>	<b>2</b>	<b>12</b>	<b>6</b>
This course introduces machining operations as they relate to the metalworking industry. Topics include machine shop safety, measuring tools, lathes, drilling machines, saws, milling machines, bench grinders, and layout instruments. Upon completion, students should be able to safely perform the basic operations of measuring, layout, drilling, sawing, turning, and milling. S11631			
<b>MAC 112 Machining Technology II</b>	<b>2</b>	<b>12</b>	<b>6</b>
This course provides additional instruction and practice in the use of precision measuring tools, lathes, milling machines, and grinders. Emphasis is placed on setup and operation of machine tools including the selection and use of work holding devices, speeds, feeds, cutting tools, and coolants. Upon completion, students should be able to perform basic procedures on precision grinders and advanced operations of measuring, layout, drilling, sawing, turning, and milling. S22988			
<b>MAC 113 Machining Technology III</b>	<b>2</b>	<b>12</b>	<b>6</b>
This course provides an introduction to advanced and special machining operations. Emphasis is placed on working to specified tolerances with special and advanced setups. Upon completion, students should be able to produce a part to specifications. S22989			
<b>MAC 114 Introduction to Metrology</b>	<b>2</b>	<b>0</b>	<b>2</b>
This course introduces the care and use of precision measuring instruments. Emphasis is placed on the inspection of machine parts and use of a wide variety of measuring instruments. Upon completion, students should be able to demonstrate the correct use of measuring instruments. S11725			
<b>MAC 121 Introduction to CNC</b>	<b>2</b>	<b>0</b>	<b>2</b>
This course introduces the concepts and capabilities of computer numerical control machine tools. Topics include setup, operation, and basic applications. Upon completion, students should be able to explain operator safety, machine protection, data input, program preparation, and program storage. S11049			
<b>MAC 122 Introduction to CNC Turning</b>	<b>1</b>	<b>3</b>	<b>2</b>
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. S11081			
<b>MAC 124 CNC Milling</b>	<b>1</b>	<b>3</b>	<b>2</b>
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. S11096			
<b>MAC 151 Machining Calculations</b>	<b>1</b>	<b>2</b>	<b>2</b>
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. S12105			
<b>MAC 152 Advanced Machining Calculations</b>	<b>1</b>	<b>2</b>	<b>2</b>
This course combines mathematical functions with practical machine shop applications and problems. Emphasis is placed on gear ratios, lead screws, indexing problems, and their applications in the machine shop. Upon completion, students should be able to calculate solutions to machining problems. S12224			
<b>MAC 214 Machining Technology IV</b>	<b>2</b>	<b>12</b>	<b>6</b>
This course provides advanced applications and practical experience in the manufacturing of complex parts. Emphasis is placed on inspection, gaging, and the utilization of machine tools. Upon completion, students should be able to manufacture complex assemblies to specifications. S22992			
<b>MAC 222 Advanced CNC Turning</b>	<b>1</b>	<b>3</b>	<b>2</b>
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. S22994			

**MAC 224 Advanced CNC Milling** 1 3 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. S23000

**MAC 229 CNC Programming** 2 0 2  
 This course provides concentrated study in advanced programming techniques for working with modern CNC machine tools. Topics include custom macros and subroutines, canned cycles, and automatic machining cycles currently employed by the machine tool industry. Upon completion, students should be able to program advanced CNC functions while conserving machine memory. S22995

## MATHEMATICS (MAT)

*Initial student placement in developmental courses is based on individual college placement testing policies and procedures. Students should begin developmental course work at the appropriate level indicated by that college's placement test.*

**MAT 101 Applied Mathematics I** 2 2 3  
 Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, and DMA-030  
 Set 2: MAT-060 Set 3: MAT-070 Set 4: MAT-080 Set 5: MAT-090 Set 6: MAT-095  
 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. This course is intended for diploma programs. S20906

**MAT 110 Mathematical Measurement** 2 2 3  
 Prerequisites: (S) Take All: DMA-010, DMA-020, and DMA-030  
 This course provides an activity-based approach that develops measurement skills and mathematical literacy using technology to solve problems for non-math intensive programs. Topics include unit conversions and estimation within a variety of measurement systems; ratio and proportion; basic geometric concepts; financial literacy; and statistics including measures of central tendency, dispersion, and charting of data. Upon completion, students should be able to demonstrate the use of mathematics and technology to solve practical problems, and to analyze and communicate results. S23926

### Competencies

#### Student Learning Outcomes

1. Demonstrate estimation skills and justify results. 2. Use dimensional analysis to convert units of measurement. 3. Employ fractions, percentages and proportions to solve contextual problems. 4. Compute geometric measurements of perimeter, area, volume and angles. 5. Use technology to analyze and interpret elements of personal finance. 6. Compare and contrast measures of center and measures of dispersion. 7. Interpret tables, charts, and graphs and communicate results.

**MAT 115 Mathematical Models** 2 2 3  
 Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, DMA-040, and DMA-050  
 Set 1: MAT-060\* and MAT-070 Set 2: MAT-060\* and MAT-080 Set 3: MAT-060\* and MAT-090  
 Set 4: MAT-095 Set 5: MAT-120 Set 6: MAT-121 Set 7: MAT-161 Set 8: MAT-171 Set 9: MAT-175  
 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. S20802

**MAT 121 Algebra/Trigonometry I** 2 2 3  
 Prerequisites: (S) Take All: DMA-010, DMA-020, DMA-030, DMA-040, DMA-050, and DMA-060  
 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 the properties of plane and solid geometry, area and volume, and basic proportion applications; simplification, evaluation, and solving of algebraic equations and inequalities and radical functions; complex numbers; right triangle trigonometry; and systems of equations. Upon completion, students will be able to demonstrate the ability to use mathematics and technology for problem-solving, analyzing and communicating results. S23927  
 Competencies/Student Learning Outcomes

1. Use geometric principles to solve industrial application problems involving perimeter, area, and volume. 2. Employ basic algebraic operations to simplify, evaluate, and solve proportions, radical and other algebraic functions, equations, and inequalities. 3. Perform basic algebraic operations involving complex numbers. 4. Solve applied problems using trigonometric principles involving right triangles. 5. Solve applied problems using systems of equations involving two and three variables. 6. Use technology to solve practical problems and communicate results.

**MAT 140 Survey of Mathematics****3 0 3**

Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, and DMA-040 Set 1: MAT-060\* and MAT-070 Set 2: MAT-060\* and MAT-080 Set 3: MAT-060\* and MAT-090 Set 4: MAT-095 Set 5: MAT-120 Set 6: MAT-121 Set 7: MAT-161 Set 8: MAT-171 Set 9: MAT-175

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. Under the Comprehensive Articulation Agreement, this course satisfies the general education Mathematics requirement for the AA and AFA degrees. It does not satisfy the general education Mathematics requirement for the AS degree. S20907

**MAT 140A Survey of Mathematics Lab****0 2 1**

Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, and DMA-040 Set 1: MAT-060\* and MAT-070 Set 2: MAT-060\* and MAT-080 Set 3: MAT-060\* and MAT-090 Set 4: MAT-095 Set 5: MAT-120 Set 6: MAT-121 Set 7: MAT-161 Set 8: MAT-171 Set 9: MAT-175

Corequisites: (S) MAT 140

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S20908

**MAT 141 Mathematical Concepts I****3 0 3**

Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, and DMA-040 Set 2: MAT-121 Set 3: MAT-171

This course is the first of a two-course sequence that develops a deeper understanding and appreciation of the basic concepts of mathematics. Emphasis is placed on sets, logic, number bases, elementary number theory, introductory algebra, measurement including metrics, and problem solving. Upon completion, students should be able to communicate orally and in writing these basic mathematical concepts. Under the Comprehensive Articulation Agreement, this course satisfies the general education Mathematics requirement for the AA and AFA degrees. It does not satisfy the general education Mathematics requirement for the AS degree. S23932

**MAT 141A Mathematical Concepts I Lab****0 2 1**

Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, and DMA-040 Set 2: MAT-060\* and MAT-080 Set 3: MAT-060\* and MAT-090 Set 4: MAT-095 Set 5: MAT-120 Set 6: MAT-121 Set 7: MAT-161 Set 8: MAT-171 Set 9: MAT-175

Corequisites: (S) MAT 141

This course is a laboratory for MAT 141. 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S20910

**MAT 142 Mathematical Concepts II****3 0 3**

Prerequisites: (S) Take MAT 141

This course is the second of a two-course sequence that develops a deeper understanding and appreciation of the basic concepts of mathematics. Emphasis is placed on probability, statistics, functions, introductory geometry, and mathematics of finance. Upon completion, students should be able to communicate orally and in writing these basic mathematical concepts and utilize technology as a mathematical tool. Under the Comprehensive Articulation Agreement, this course satisfies the general education Mathematics requirement for the AA and AFA degrees. It does not satisfy the general education Mathematics requirement for the AS degree. S20300

**MAT 142A Mathematical Concepts II Lab****0 2 1**

Prerequisites: (S) Take MAT 141

Corequisites: (S) Take MAT 142

This course is a laboratory for MAT 142. 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. This course has been approved for transfer under the CAA as a premajor and/or elective course requirement. S20301



**MAT 143 Quantitative Literacy** 2 2 3

Prerequisites: (S) Take All: DMA-010, DMA-020, DMA-030, DMA-040, DMA-050, and DRE-098

This course is designed to engage students in complex and realistic situations involving the mathematical phenomena of quantity, change and relationship, and uncertainty through project- and activity-based assessment. Emphasis is placed on authentic contexts which will introduce the concepts of numeracy, proportional reasoning, dimensional analysis, rates of growth, personal finance, consumer statistics, practical probabilities, and mathematics for citizenship. Upon completion, students should be able to utilize quantitative information as consumers and to make personal, professional, and civic decisions by decoding, interpreting, using, and communicating quantitative information found in modern media and encountered in everyday life. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Mathematics (Quantitative). This is a Universal General Education Transfer Component (UGETC) course. S23945

Competencies

Student Learning Outcomes

1. Judge the reasonableness of results using estimation, logical processes, and a proper understanding of quantity
2. Utilize proportional reasoning to solve contextual problems and make conversions involving various units of measurement
3. Identify, interpret, and compare linear and exponential rates of growth to make predictions and informed decisions based on data and graphs
4. Differentiate between simple and compound interest and analyze the long-term effects of saving, investing, and borrowing
5. Describe, analyze, and interpret statistical information such as graphs, tables, and summarized data to draw appropriate conclusions when presented with actual statistical studies
6. Determine probabilities and expected values and use them to assess risk and make informed decisions
7. Analyze civic and/or societal issues and critique decisions using relevant mathematics

**MAT 151 Statistics I** 3 0 3

Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, DMA-040, and DMA-050

Set 2: MAT-060\* and MAT-080 Set 3: MAT-060\* and MAT-090 Set 4: MAT-095 Set 5: MAT-120

Set 6: MAT-121 Set 7: MAT-140 Set 8: MAT-161 Set 9: MAT-171 Set 10: MAT-175

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Mathematics (Quantitative). S21171

**MAT 151A Statistics I Lab** 0 2 1

Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, DMA-040, and DMA-050

Set 2: MAT-060\* and MAT-080 Set 3: MAT-060\* and MAT-090 Set 4: MAT-095 Set 5: MAT-120

Set 6: MAT-121 Set 7: MAT-140 Set 8: MAT-161 Set 9: MAT-171 Set 10: MAT-175

Corequisites: MAT 151

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S21482

**MAT 152 Statistical Methods I** 3 2 4

Prerequisites: (S) Take All: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, and DRE 098

This course provides a project-based approach to introductory statistics with an emphasis on using real-world data and statistical literacy. Topics include descriptive statistics, correlation and regression, basic probability, discrete and continuous probability distributions, confidence intervals and hypothesis testing. Upon completion, students should be able to use appropriate technology to describe important characteristics of a data set, draw inferences about a population from sample data, and interpret and communicate results. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Mathematics (Quantitative). This is a Universal General Education Transfer Component (UGETC) course. S23994

**MAT 155 Statistical Analysis** 3 0 3

Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, DMA-040, and DMA-050 Set 2:

MAT-060\* and MAT-080 Set 3: MAT-060\* and MAT-090 Set 4: MAT-095 Set 5: MAT-120 Set 6: MAT-121

Set 7: MAT-161 Set 8: MAT-171 Set 9: MAT-175

This course is an introduction to descriptive and inferential statistics. Topics include sampling, distributions, plotting data, central tendency, dispersion, Central Limits Theorem, confidence intervals, hypothesis testing, correlations, regressions, and multinomial experiments. Upon completion, students should be able to describe data and test inferences about populations using sample data. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Mathematics (Quantitative). S20914

### **MAT 155A Statistical Analysis Lab**

**0 2 1**

Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, DMA-040, and DMA-050 Set 2: MAT-060\* and MAT-080 Set 3: MAT-060\* and MAT-090 Set 4: MAT-095 Set 5: MAT-120 Set 6: MAT-121 Set 7: MAT-161 Set 8: MAT-171 Set 9: MAT-175

Corequisites: (S) Take MAT-155

This course is a laboratory for MAT 155. 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S20915

### **MAT 161 College Algebra**

**3 0 3**

Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, DMA-040, DMA-050, DMA-060, DMA-070, and DMA-080 Set 2: MAT-060\* and MAT-080 Set 3: MAT-060\* and MAT-090 Set 4: MAT-095

This course provides an integrated technological approach to algebraic topics used in problem solving. Emphasis is placed on applications involving equations and inequalities; polynomial, 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. Under the Comprehensive Articulation Agreement, this course satisfies the general education Mathematics requirement for the AA and AFA degrees. It does not satisfy the general education Mathematics requirement for the AS degree. S20916

### **MAT 161A College Algebra Lab**

**0 2 1**

Prerequisites: (S) Take One Set: Set 1: DMA-010, DMA-020, DMA-030, DMA-040, DMA-050, DMA-060, DMA-070, and DMA-080 Set 2: MAT-060\* and MAT-080 Set 3: MAT-060\* and MAT-090 Set 4: MAT-095

Corequisites: (S) MAT 161

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S20917

### **MAT 165 Finite Mathematics**

**3 0 3**

Prerequisites: (S) Take One: MAT-161, MAT-171, or MAT-175

This course provides topics used to formulate models and to solve and interpret solutions using an algorithmic approach. Topics include linear algebra, linear programming, simplex method, sets and counting, probability, mathematics of finance, and logic. Upon completion, students should be able to demonstrate both an understanding of the theoretical concepts of finite mathematics and the ability to solve related problems.

Under the Comprehensive Articulation Agreement, this course satisfies the general education Mathematics requirement for the AA and AFA degrees. It does not satisfy the general education Mathematics requirement for the AS degree. S20918

### **MAT 165A Finite Mathematics Lab**

**0 2 1**

Prerequisites: (S) Take One: MAT-161, MAT-171, or MAT-175

Corequisites: (S) Take MAT-165

This course is a laboratory for MAT 165. 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S20919

### **MAT 167 Discrete Mathematics**

**3 0 3**

Prerequisites: (S) Take One: MAT 121 or MAT-171

This course is designed to develop problem-solving and reasoning skills using an algorithmic approach. Topics include sets, number theory, numeration systems, linear programming, traditional and propositional logic, truth tables, Venn diagrams, elementary proofs, and Boolean algebra. Upon completion, students should be able to apply logic and other mathematical concepts to solve a variety of problems. S23933

Competencies/Student Learning Outcomes

1. Construct and use truth tables to solve logical problems. 2. Solve application problems in set theory using appropriate notation. 3. Set up and solve linear programming problems using various appropriate methods. 4. Construct elementary direct proofs, indirect proofs, and proofs by contradiction. 5. Analyze, construct, and verify algorithms. 6. Formulate and assess Boolean functions.

**MAT 171 Precalculus Algebra****3 2 4**

Prerequisites: (S)Take One Set: Set 1: DMA-010, DMA-020, DMA-030, DMA-040, DMA-050, DMA-060, DMA-070, DMA-080 Set 2: MAT-121

This course is designed to develop topics which are fundamental to the study of Calculus. Emphasis is placed on solving equations and inequalities, solving systems of equations and inequalities, and analysis of functions (absolute value, radical, polynomial, rational, exponential, and logarithmic) in multiple representations. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to algebra-related problems with and without technology. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Mathematics. This is a Universal General Education Transfer Component (UGETC) course. S23934

Competencies/Student Learning Outcomes

1. Use analytical, graphical, and numerical representations to solve absolute value, radical, polynomial, rational, exponential, and logarithmic equations with both real and complex solutions. 2. Use analytical, graphical, and numerical representations to solve absolute value, polynomial and rational inequalities with real solutions. 3. Use analytical, graphical, and numerical representations to analyze absolute value, radical, polynomial, rational, exponential and logarithmic functions with both real and complex zeros. 4. Use multiple methods to solve problems involving systems of equations and apply to decomposing partial fractions. 5. Construct the composition and inverse of functions. 6. Use polynomial, exponential and logarithmic functions to model various real world situations in order to analyze, draw conclusions, and make predictions.

**MAT 172 Precalculus Trigonometry****3 2 4**

Prerequisites: (S) Take MAT-171

This course is designed to develop an understanding of topics which are fundamental to the study of Calculus. Emphasis is placed on the analysis of trigonometric functions in multiple representations, right and oblique triangles, vectors, polar coordinates, conic sections, and parametric equations. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to trigonometry-related problems with and without technology. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Mathematics. This is a Universal General Education Transfer Component (UGETC) course. S23935

Competencies/Student Learning Outcomes

1. Use the unit circle and right triangle definitions to evaluate and graph trigonometric functions and their inverses, to derive trigonometric identities, and to simplify trigonometric expressions. 2. Use multiple methods to solve problems involving trigonometric equations, right triangles, and oblique triangles. 3. Demonstrate knowledge of vector definitions and perform vector operations. 4. Convert equations and graphs between rectangular and polar coordinate systems, and apply to complex numbers. 5. Use multiple representations to define, construct and analyze conic sections. 6. Create, graph, and analyze parametric equations.

**MAT 175 Precalculus****4 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Mathematics S11270

**MAT 175A Precalculus Lab****0 2 1**

Corequisites: (S) Take MAT 175

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11867

**MAT 252 Statistics II****3 2 4**

Prerequisites: (S) Take One Set: Set 1: MAT-152 and MAT-121 Set 2: MAT-152 and MAT-171

This course is designed to provide a technology-based treatment of multiple sample inferential statistics. Emphasis is placed on two sample hypothesis tests and confidence intervals, linear and multiple regression, analysis of variance, experimental design, and non-parametric techniques. Upon completion, students should be able to draw statistical inferences and communicate results on multiple sample data taken from business and health, social, natural, and applied sciences. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S23938

## Competencies/Student Learning Outcomes

1. Perform tests of normality on univariate and multivariate data and select the appropriate test, either parametric or non-parametric, perform the analysis, and communicate the results. 2. Detect the difference between independent and dependent data and select the appropriate inferential test, analyze and communicate results. 3. Perform a regression, analyze and communicate the results. 4. Perform a one and two factor analysis of variance, analyze and communicate the results. 5. Design an experiment, collect data, construct a data file and run the appropriate test and analyze and communicate the results. 6. Employ a variety of software to run analyses, construct reports and communicate results in both written and oral presentations.

**MAT 271 Calculus I**

3 2 4

Prerequisites: (S) Take MAT 172

This course is designed to develop the topics of differential and integral calculus. Emphasis is placed on limits, continuity, derivatives and integrals of algebraic and transcendental functions of one variable. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to derivative-related problems with and without technology. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Mathematics. This is a Universal General Education Transfer Component (UGETC) course. S23939

## Competencies/Student Learning Outcomes

1. Apply the definition of limit to evaluate limits by multiple methods and use it to derive the definition and rules for differentiation and integration. 2. Use derivatives to analyze and graph algebraic and transcendental functions. 3. Select and apply appropriate models and differentiation techniques to solve problems involving algebraic and transcendental functions; these problems will include but are not limited to applications involving optimization and related rates. 4. Apply the definition of indefinite integral to solve basic differential equations. 5. Apply the definition of definite integral to evaluate basic integrals. 6. Use the fundamental theorem of calculus to evaluate integrals involving algebraic and transcendental functions.

**MAT 272 Calculus II**

3 2 4

Prerequisites: (S) Take MAT 271

This course is designed to develop advanced topics of differential and integral calculus. Emphasis is placed on the 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 select and use appropriate models and techniques for finding solutions to integral-related problems with and without technology. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Mathematics. S23940

## Competencies/Student Learning Outcomes

1. Select and apply appropriate models and integration techniques to solve problems involving algebraic and transcendental functions; these problems will include but are not limited to applications involving volume, arc length, surface area, centroids, force and work. 2. Evaluate proper and improper integrals using various integration techniques. 3. Analyze the convergence and divergence of infinite sequences and series and find the Taylor and McLaurin representations for transcendental functions. 4. Use differentiation and integration to analyze the graphs of polar form equations and parametric form equations. 5. Solve separable and first-order linear differential equations. 6. Analyze and graph conic sections using calculus techniques.

**MAT 273 Calculus III**

3 2 4

Prerequisites: (S) Take MAT 272

This course is designed to develop the topics of multivariate calculus. Emphasis is placed on multivariate functions, partial derivatives, multiple integration, solid analytical geometry, vector valued functions, and line and surface integrals. Upon completion, students should be able to select and use appropriate models and techniques for finding the solution to multivariate-related problems with and without technology. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Mathematics. S23941

## Competencies/Student Learning Outcomes

1. Perform operations with vectors in two and three dimensional space and apply to analytic geometry. 2. Differentiate and integrate vector-valued functions and apply calculus to motion problems in two and three dimensional space. 3. Determine the limits, derivatives, gradients, and integrals of multivariate functions. 4. Solve problems in multiple integration using rectangular, cylindrical, and spherical coordinate systems. 5. Select and apply appropriate models and techniques to define and evaluate line and surface integrals; these techniques will include but are not limited to Green's, Divergence, and Stoke's theorems. 6. Demonstrate proficiency in using CAS technology to analyze, solve and interpret the various applications.

**MAT 285 Differential Equations**

2 2 3

Prerequisites: (S) Take MAT 272

This course provides an introduction to topics involving ordinary differential equations. Emphasis is placed on the development of abstract concepts and applications for first-order and linear higher-order differential

equations, systems of differential equations, numerical methods, series solutions, eigenvalues and eigenvectors, and LaPlace transforms. Upon completion, students should be able to demonstrate understanding of the theoretical concepts and select and use appropriate models and techniques for finding solutions to differential equations-related problems with and without technology. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S23943

Competencies/Student Learning Outcomes

1. Find general solutions to first-order, second-order, and higher-order homogeneous and non-homogeneous differential equations by manual and technology-based methods. 2. Identify and apply initial and boundary values to find particular solutions to first-order, second-order, and higher order homogeneous and non-homogeneous differential equations by manual and technology-based methods, and analyze and interpret the results. 3. Select and apply appropriate methods to solve differential equations; these methods will include, but are not limited to, undetermined coefficients, variation of parameters, eigenvalues and eigenvectors, LaPlace and inverse LaPlace transforms. 4. Select and apply series techniques to solve differential equations; these techniques will include but are not limited to Taylor series. 5. Select and apply numerical analysis techniques to solve differential equations; these techniques will include but are not limited to Euler, Improved Euler, and Runge-Kutta. 6. Demonstrate proficiency in using CAS technology to analyze, solve and interpret the various applications.

## MECHANICAL (MEC)

### MEC 110 Introduction to CAD/CAM

1 2 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. S14051

### MEC 111 Machine Processes

2 3 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. S20654

## MEDICAL ASSISTING (MED)

### MED 110 Orientation to Medical Assisting

1 0 1

This course covers the history of medicine and the role of the medical assistant in the health care setting. Emphasis is placed on professionalism, communication, attitude, behaviors, and duties in the medical environment. Upon completion, students should be able to project a positive attitude and promote the profession of medical assisting. S11175

### MED 121 Medical Terminology I

3 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. S12737

### MED 122 Medical Terminology II

3 0 3

Prerequisites: (S) Take MED 121

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. S12833

### MED 130 Administrative Office Procedures I

1 2 2

Prerequisites: (L) Take DRE 098

This course introduces medical office administrative procedures. Topics include appointment processing, written and oral communications, medical records, patient orientation, and safety. Upon completion, students should be able to perform basic administrative skills within the medical environment. S10285

### MED 131 Administrative Office Procedures II

1 2 2

Prerequisites: (S) Take MED 130

This course provides medical office procedures in both economic and management skills. Topics include physical plant maintenance, equipment and supplies, liability coverage, medical economics, and introductory insurance procedures. Upon completion, students should be able to manage the economics of the medical office and supervise personnel. S16431

<b>MED 134 Medical Transcription</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) (L) Take MED 121 and DRE 098 This course provides the basic knowledge, understanding, and skills required to complete medical reports and transcribe medical dictation. Emphasis is placed on correct punctuation, capitalization, and spelling. Upon completion, students should be able to demonstrate competence in medical transcription. S10271			
<b>MED 140 Exam Room Procedures I</b>	<b>3</b>	<b>4</b>	<b>5</b>
Prerequisites: (L) Take MED 150 and MED 272 This course provides instruction in clinical examining room procedures. Topics include asepsis, infection control, assisting with exams and treatment, patient education, preparation and administration of medications, EKG, vital signs, and medical emergencies. Upon completion, students should be able to demonstrate competence in exam room procedures. S11885			
<b>MED 150 Laboratory Procedures I</b>	<b>3</b>	<b>4</b>	<b>5</b>
Prerequisites: (L) Take BIO 161 and MED 121 This course provides instruction in basic lab techniques used by the medical assistant. Topics include lab safety, quality control, collecting and processing specimens, performing selective tests, phlebotomy, screening and follow-up of test results, and OSHA/CLIA regulations. Upon completion, students should be able to perform basic lab tests/skills based on course topics. S10688			
<b>MED 260 MED Clinical Practicum</b>	<b>0</b>	<b>0</b>	<b>15</b>
Prerequisites: (L) Take MED 110, MED 131, MED 134, MED 140, MED 150, MED 232 and OST 149 Corequisites: Take MED 262 This course provides the opportunity to apply clinical, laboratory, and administrative skills in a medical facility. Emphasis is placed on enhancing competence in clinical and administrative skills necessary for comprehensive patient care and strengthening professional communications and interactions. Upon completion, students should be able to function as an entry-level health care professional. Students must complete first three semesters prior to entering MED 260. S22977			
<b>MED 262 Clinical Perspectives</b>	<b>1</b>	<b>0</b>	<b>1</b>
Corequisites: (L) Take MED 260 This course is designed to explore personal and occupational responsibilities of the practicing medical assistant. Emphasis is placed on problems encountered during externships and development of problem-solving skills. Upon completion, students should be able to demonstrate courteous and diplomatic behavior when solving problems in the medical facility. S13608			
<b>MED 270 Symptomatology</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (L) Take BIO 161 This course covers the study of disease symptoms and the appropriate actions taken by medical assistants in a medical facility in relation to these symptoms. Emphasis is placed on interviewing skills and appropriate triage, preparing patients for procedures, and screening test results. Upon completion, students should be able to recognize how certain symptoms relate to specific diseases, recognize emergency situations, and take appropriate actions. S11862			
<b>MED 272 Drug Therapy</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (L) Take MAT-110 This course focuses on major drug groups, including their side effects, interactions, methods of administration, and proper documentation. Emphasis is placed on the theory of drug administration. Upon completion, students should be able to identify, spell, recognize side effects of, and document the most commonly used medications in a physician's office. S16433			

## MARKETING & RETAILING (MKT)

<b>MKT 120 Principles of Marketing</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S12573			
<b>MKT 123 Fundamentals of Selling</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S12662			

<b>MKT 125 Buying and Merchandising</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course includes an analysis of the organization for buying-what, when and how to buy-and the principles of effective inventory and stock control. Topics include organization for buying, analysis of buyers' responsibilities, pricing, inventory control, planning, cost effectiveness, and vendor relationships. Upon completion, students should be able to demonstrate an understanding of the concepts covered through application. S12675			
<b>MKT 220 Advertising and Sales Promotion</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S12356			
<b>MKT 222 Credit Procedures</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course covers areas of collection that provide an understanding of the expertise needed to manage collection operations. Topics include principles and practices in the extension of credit, collection procedures, and laws pertaining to credit extension and collection. Upon completion, students should be able to demonstrate an understanding of the concepts covered. S12329			

### **THERAPEUTIC MASSAGE (MTH)**

<b>MTH 110 Fundamentals of Massage</b>	<b>6</b>	<b>9</b>	<b>3</b>	<b>10</b>
This course introduces concepts basic to the role of the massage therapist in a variety of clinical settings. Emphasis is placed on beginning theory and techniques of body work as well as skill in therapeutic touch. Upon completion of the course, the student should be able to apply basic practical massage therapy skills. S22033				
<b>MTH 120 Therapeutic Massage Applications</b>	<b>6</b>	<b>9</b>	<b>3</b>	<b>10</b>
Prerequisites: (S) Take MTH 110 This course provides an expanded knowledge and skill base for the massage therapist in a variety of clinical settings. Emphasis is placed on selected therapeutic approaches throughout the lifespan. Upon completion, students should be able to perform entry level therapeutic massage on various populations. S22036				
<b>MTH 125 Ethics of Massage</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>
This course is designed to explore issues related to the practice of massage therapy. Emphasis is placed on ethical, legal, professional, and political issues. Upon completion, students should be able to discuss issues relating to the practice of massage therapy, client/therapist relationships as well as ethical issues. S20862				
<b>MTH 210 Advance Skills of Massage</b>	<b>4</b>	<b>9</b>	<b>3</b>	<b>8</b>
Prerequisites: (S) Take One: MTH 120 or MTH 121 This course provides knowledge and skills in diverse body work modalities in a variety of clinical settings. Emphasis is placed on selected techniques such as Neuromuscular Therapy, Sports Massage, Soft Tissue Release, Spa Approaches, Oriental Therapies, and energy techniques. Upon completion, students should be able to perform basic skills in techniques covered. S22034				
<b>MTH 220 Outcome-Based Massage</b>	<b>4</b>	<b>6</b>	<b>3</b>	<b>7</b>
Prerequisites: (S) Take MTH 120, MTH 121, or MTH 221 This course provides knowledge and skills in more complex body works modalities in a variety of clinical settings. Emphasis is placed on developing advanced skills in outcome-based Massage. Upon completion, students should be able to perform basic skills in techniques covered. S22035				

### **MUSIC (MUS)**

<b>MUS 110 Music Appreciation</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. This is a Universal General Education Transfer Component (UGETC) course. S13676			

<b>MUS 112 Introduction to Jazz</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. This is a Universal General Education Transfer Component (UGETC) course. S13646			
<b>MUS 113 American Music</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S13699			
<b>MUS 114 Non-Western Music</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course provides a basic survey of the music of the non-Western world. Emphasis is placed on non-traditional instruments, sources, and performing practices. Upon completion, students should be able to demonstrate skills in basic listening and understanding of the art of non-Western music. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S13659			
<b>MUS 131 Chorus I</b>	<b>0</b>	<b>2</b>	<b>1</b>
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 has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S14027			
<b>MUS 132 Chorus II</b>	<b>0</b>	<b>2</b>	<b>1</b>
Prerequisites: (S) Take MUS 131 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S13988			
<b>MUS 141 Ensemble I</b>	<b>0</b>	<b>2</b>	<b>1</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S13366			
<b>MUS 142 Ensemble II</b>	<b>0</b>	<b>2</b>	<b>1</b>
Prerequisites: (S) Take MUS 141 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S13271			

## NETWORKING TECHNOLOGY (NET)

<b>NET 110 Networking Concepts</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course introduces students to the networking field. Topics include 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. S21056			



<b>NET 125    Networking Basics</b>	<b>1</b>	<b>4</b>	<b>3</b>
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. S21095			
<b>NET 126    Routing Basics</b>	<b>1</b>	<b>4</b>	<b>3</b>
Prerequisites: (S) Take NET 125 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. S21096			
<b>NET 175    Wireless Technology</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take One: NET 110 or NET 125 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. S21097			
<b>NET 225    Routing &amp; Switching I</b>	<b>1</b>	<b>4</b>	<b>3</b>
Prerequisites: (S) Take NET 126 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. S21098			
<b>NET 226    Routing &amp; Switching II</b>	<b>1</b>	<b>4</b>	<b>3</b>
Prerequisites: (S) Take NET 225 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. S21099			
<b>NET 230    Wide Area Networking</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take NET 110 or NET 125 This course is designed to introduce significant aspects of network interconnectivity. Topics include LAN-to-LAN, LAN-to-host, LAN-to-WAN connectivity, Internet connections, and voice-video-data transmission. Upon completion, students should be able to demonstrate an understanding of wide area networking. S21100			
<b>NET 240    Network Design</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: NET 110 or NET 125 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. S21170			
<b>NET 260    Internet Development &amp; Support</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: NET 110 or NET 125 This course covers issues relating to the development and implementation of Internet related tools and services. Topics include Internet organization, site registration, e-mail servers, Web servers, Web page development, legal issues, firewalls, multimedia, TCP/IP, service providers, FTP, list servers, and gateways. Upon completion, students should be able to develop and support the Internet services needed within an organization. S21424			
<b>NET 270    Building Scalable Networks</b>	<b>1</b>	<b>4</b>	<b>3</b>
Prerequisites: (S) Take NET 226 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. S21101			

<b>NET 271 Remote Access Networks</b>	<b>1</b>	<b>4</b>	<b>3</b>
Prerequisites: (S) Take NET 226			
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. S21102			
<b>NET 272 Multi-Layer Networks</b>	<b>1</b>	<b>4</b>	<b>3</b>
Prerequisites: (S) Take NET 226			
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. S21103			
<b>NET 273 Internetworking Support</b>	<b>1</b>	<b>4</b>	<b>3</b>
Prerequisites: (S) Take NET 226			
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. S21104			
<b>NET 289 Networking Project</b>	<b>1</b>	<b>4</b>	<b>3</b>
Corequisites: (S) Take NET 226			
This course provides an opportunity to complete a significant networking 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 a project from the definition phase through implementation. S21106			

## NETWORKING OPERATING SYSTEMS (NOS)

<b>NOS 110 Operating System Concepts</b>	<b>2</b>	<b>3</b>	<b>3</b>
Prerequisites: (L) Take CIS 070			
This course introduces students to a broad range of operating system concepts, including installation and maintenance. Emphasis is place 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. S20980			
<b>NOS 111 Operating System - DOS</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course introduces operating system concepts for DOS operating systems. Topics include hardware management, file and memory management, system configuration/optimization, and utilities. Upon completion, students should be able to perform operating system functions at the support level in a DOS environment. S20981			
<b>NOS 120 Linux/UNIX Single User</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take NOS 110			
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. S24048			
<b>NOS 130 Windows Single User</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take NOS 110			
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. S24049			

- |   |   |          |          |          |
|---|---|----------|----------|----------|
| <b>NOS 149</b>  | <b>Operating System - MVSTM</b>         | <b>2</b> | <b>2</b> | <b>3</b> |
| This course introduces operating systems concepts for MVSä operating 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 at the support level in an MVSä environment. S20984   |   |          |          |          |
| <b>NOS 211</b>  | <b>AS/400 Maintenance And Operation</b> | <b>2</b> | <b>3</b> | <b>3</b> |
| This course is designed to cover the fundamental AS/400 System operations, screens, utilities, and terminology. Topics include an introduction to the AS/400 operating system, security, backup and restore, handling spooled files, and using commands and menus to create and manipulate objects. Upon completion, students should be able to use utilities, create libraries, save and restore files, monitor and control jobs and queues, and know AS/400 operations. S20985  |   |          |          |          |
| <b>NOS 220</b>  | <b>Linux/UNIX Administration I</b>      | <b>2</b> | <b>2</b> | <b>3</b> |
| Prerequisites: (S) Take NOS 120<br>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. S20986 |   |          |          |          |
| <b>NOS 221</b>  | <b>Linux/UNIX Administration II</b>     | <b>2</b> | <b>2</b> | <b>3</b> |
| Prerequisites: (S) Take NOS 220<br>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. S20987   |   |          |          |          |
| <b>NOS 222</b>  | <b>Linux/UNIX Administration III</b>    | <b>2</b> | <b>2</b> | <b>3</b> |
| Prerequisites: (S) Take NOS 221<br>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. S20988   |   |          |          |          |
| <b>NOS 230</b>  | <b>Windows Administration I</b>         | <b>2</b> | <b>2</b> | <b>3</b> |
| Prerequisites: (L) Take NOS 130<br>This course covers the installation and configuration of a Windows Server operating system. Emphasis is placed on the basic configuration of core network services, Active Directory and group policies. Upon completion, students should be able to install and configure a Windows Server operating system. S24041   |   |          |          |          |
| <b>NOS 231</b>  | <b>Windows Administration II</b>        | <b>2</b> | <b>2</b> | <b>3</b> |
| Prerequisites: (S) Take NOS 230<br>This course covers the management of a Windows Server operating system. Emphasis is placed on the deployment of print services, network services, Active Directory, group policies and access controls. Upon completion, students should be able to deploy and manage services on a Windows Server operating system. S24042  |   |          |          |          |
| <b>NOS 232</b>  | <b>Windows Administration III</b>       | <b>2</b> | <b>2</b> | <b>3</b> |
| Prerequisites: (S) Take NOS 230<br>This course covers implementing and administering security in a Windows Server network. Topics include implementing, managing, and trouble shooting 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. S24043   |   |          |          |          |
| <b>NOS 240</b>  | <b>Novell Administration I</b>          | <b>2</b> | <b>2</b> | <b>3</b> |
| Prerequisites: (S) Take NOS 110<br>This course will introduce students to the Novel network operating system. Topics include installing and using NetWare, managing printing, storage space, implementing internet services, and managing security. Upon completion, students should have basic knowledge about implementing NetWare and using its management tools. S20992   |   |          |          |          |

**NOS 244 Operating System - AS/400**

2 2 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. S20993

**NURSING (NUR)****NUR 111 Introduction 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. S22213

**NUR 112 Health-Illness Concepts**

3 0 6 5

Prerequisites: (S) Take NUR 111

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. S22212

**NUR 113 Family Health Concepts**

3 0 6 5

Prerequisites: (S) Take NUR 111

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. S22214

**NUR 114 Holistic Health Concepts**

3 0 6 5

Prerequisites: (S) Take NUR 111

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. S22215

**NUR 117 Pharmacology**

1 3 0 2

This course introduces information concerning sources, effects, legalities, and the safe use of medications as therapeutic agents. Emphasis is placed on nursing responsibility, accountability, pharmacokinetics, routes of medication administration, contraindications and side effects. Upon completion, students should be able to compute dosages and administer medication safely. S20178

**NUR 211 Health Care Concepts**

3 0 6 5

Prerequisites: (S) Take NUR 111

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. S22216

**NUR 212 Health System Concepts**

3 0 6 5

Prerequisites: (S) Take NUR 111

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. S22217

**NUR 213 Complex Health Concepts** 4 3 15 10

Prerequisites: Take NUR 111

Corequisites: Take All: NUR-112, NUR-113, NUR-114, NUR-211, and NUR-212

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. S23071

**NUTRITION (NUT)****NUT 110 Nutrition** 3 0 3

This course covers basic principles of nutrition and their relationship to human health. Topics include meeting nutritional needs of healthy people, menu modification based on special dietary needs, food habits, and contemporary problems associated with food selection. Upon completion, students should be able to apply basic nutritional concepts as they relate to health and well-being. S16468

**OFFICE SYSTEMS TECHNOLOGY (OST)**

*Initial student placement in developmental courses is based on individual college placement testing policies and procedures. Students should begin developmental course work at the appropriate level indicated by that college's placement test.*

**OST 080 Keyboarding Literacy** 1 2 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. S12295

**OST 122 Office Computations** 1 2 2

This course introduces the keypad and the touch method using the electronic calculator. Topics include mathematical functions in business applications. Upon completion, students should be able to use the electronic calculator to solve a wide variety of problems commonly encountered in business. S13297

**OST 131 Keyboarding** 1 2 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. S13790

**OST 134 Text Entry & Formatting** 2 2 3

Prerequisites: (L) Take OST 131

This course is designed to provide skills needed to increase speed, improve accuracy, and format documents. Topics include letters, memos, tables, and business reports. Upon completion, students should be able to produce documents and key timed writings at speeds commensurate with employability. S22142

**OST 136 Word Processing** 2 2 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. S22144

**OST 141 Medical Terms I-Medical Office** 3 0 3

This course uses a language-structure approach to present the terminology and vocabulary that will be encountered in medical office settings. Topics include word parts that relate to systemic components, conditions, pathology, and disorder remediation in approximately one-half of the systems of the human body. Upon completion, students should be able to relate words to systems, pluralize, define, pronounce, and construct sentences with the included terms. S11561

**OST 148 Medical Coding Billing & Insurance** 3 0 3

Prerequisites: Take MED 121

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. S22148

<b>OST 149 Medical Legal Issues</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S10679			
<b>OST 155 Legal Terminology</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course covers the terminology appropriate to the legal profession. Topics include legal research, court systems, litigation, civil and criminal law, probate, real and personal property, contracts and leases, domestic relations, equity, and corporations. Upon completion, students should be able to spell, pronounce, define, and accurately use legal terms. S22150			
<b>OST 156 Legal Office Procedures</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take OST 134 This course covers legal office functions involved in the operation of a law office. Emphasis is placed on procedures in the law office involving the court system, legal research, litigation, probate, and real estate, personal injury, criminal, and civil law. Upon completion, students should be able to demonstrate a high level of competence in performing legal office duties. This course is a unique requirement of the Legal Office Systems concentration in the Office Systems Technology program. S14189			
<b>OST 164 Text Editing Applications</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S12524			
<b>OST 165 Advanced Text Editing Applications</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take OST 164 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.			
<b>OST 181 Introduction to Office Systems</b>	<b>2</b>	<b>2</b>	<b>3</b>
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. S12232			
<b>OST 184 Records Management</b>	<b>2</b>	<b>2</b>	<b>3</b>
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. S22114			
<b>OST 233 Office Publications Design</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take OST 136 This course provides entry-level skills in using software with desktop publishing capabilities. Topics include principles of page layout, desktop publishing terminology and applications, and legal and ethical considerations of software use. Upon completion, students should be able to design and produce professional business documents and publications. S14246			
<b>OST 236 Advanced Word/Information Processing</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take OST 136 This course develops proficiency in the utilization of advanced word/information processing functions. Emphasis is placed on advanced word processing features. Upon completion, students should be able to produce a variety of complex business documents. S22156			
<b>OST 243 Medical Office Simulation</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take OST 148 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. S12315			

<b>OST 252 Legal Transcription I</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take One Set: Set 1: OST 134 and OST 155 Set 2: OST 136 and OST 155			
This course provides experience in transcribing legal correspondence, forms, and documents. Emphasis is placed on developing listening skills to transcribe documents. Upon completion, students should be able to transcribe documents with accuracy. S22160			
<b>OST 284 Emerging Technologies</b>	<b>1</b>	<b>2</b>	<b>2</b>
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. S10158			
<b>OST 286 Professional Development</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. S16501			
<b>OST 289 Administrative Office Management</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take One Set: Set 1: OST 134 and OST 164 Set 2: OST 136 and OST 164			
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. S22162			

## PHYSICAL EDUCATION (PED)

<b>PED 110 Fit and Well for Life</b>	<b>1</b>	<b>2</b>	<b>2</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S11789			
<b>PED 111 Physical Fitness I</b>	<b>0</b>	<b>3</b>	<b>1</b>
This course provides an individualized approach to physical fitness utilizing the five major components. Emphasis is placed on the scientific basis for setting up and engaging in personalized physical fitness programs. Upon completion, students should be able to set up and implement an individualized physical fitness program. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S11678			
<b>PED 121 Walk, Jog, Run</b>	<b>0</b>	<b>3</b>	<b>1</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S11039			
<b>PED 128 Golf-Beginning</b>	<b>0</b>	<b>2</b>	<b>1</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S11067			
<b>PED 129 Golf-Intermediate</b>	<b>0</b>	<b>2</b>	<b>1</b>
Prerequisites: (S) Take PED 128			
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S11033			

<b>PED 130 Tennis-Beginning</b>	<b>0</b>	<b>2</b>	<b>1</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S12680			
<b>PED 131 Tennis-Intermediate</b>	<b>0</b>	<b>2</b>	<b>1</b>
Prerequisites: (S) Take PED 130 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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S12604			
<b>PED 137 Badminton</b>	<b>0</b>	<b>2</b>	<b>1</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S12553			
<b>PED 138 Archery</b>	<b>0</b>	<b>2</b>	<b>1</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S12688			
<b>PED 139 Bowling-Beginning</b>	<b>0</b>	<b>2</b>	<b>1</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S12615			
<b>PED 142 Lifetime Sports</b>	<b>0</b>	<b>2</b>	<b>1</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S10204			
<b>PED 143 Volleyball-Beginning</b>	<b>0</b>	<b>2</b>	<b>1</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S10153			
<b>PED 144 Volleyball-Intermediate</b>	<b>0</b>	<b>2</b>	<b>1</b>
Prerequisites: Take PED 143 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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S10176			
<b>PED 145 Basketball-Beginning</b>	<b>0</b>	<b>2</b>	<b>1</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S10128			
<b>PED 146 Basketball-Intermediate</b>	<b>0</b>	<b>2</b>	<b>1</b>
Prerequisites: Take PED 145 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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S10225			



<b>PED 148 Softball</b>	<b>0</b>	<b>2</b>	<b>1</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S10188			
<b>PED 170 Backpacking</b>	<b>0</b>	<b>2</b>	<b>1</b>
This course covers the proper techniques for establishing a campsite, navigating in the wilderness, and planning for an overnight trip. Topics include planning for meals, proper use of maps and compass, and packing and dressing for extended periods in the outdoors. Upon completion, students should be able to identify quality backpacking equipment, identify the principles of no-trace camping, and successfully complete a backpacking experience. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S13081			
<b>PED 171 Nature Hiking</b>	<b>0</b>	<b>2</b>	<b>1</b>
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. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S13031			
<b>PED 172 Outdoor Living</b>	<b>1</b>	<b>2</b>	<b>2</b>
This course is designed to acquaint the beginning camper with outdoor skills. Topics include camping techniques such as cooking and preserving food, safety, and setting up camp. Upon completion, students should be able to set up camp sites in field experiences using proper procedures. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S13042			
<b>PED 186 Dancing for Fitness</b>	<b>0</b>	<b>2</b>	<b>1</b>
This course is designed to develop movement and recreational dance skills, safety, fitness, coordination, and techniques used to teach various groups. Emphasis is placed on participation and practice with adapting dances for ages and ability levels. Upon completion, students should be able to demonstrate knowledge of fitness through social, folk, and square dance participation and instruction. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S10428			
<b>PED 210 Team Sports</b>	<b>0</b>	<b>3</b>	<b>1</b>
This course introduces the fundamentals of popular American team sports. Emphasis is placed on rules, equipment, and motor skills used in various sports. Upon completion, students should be able to demonstrate knowledge of the sports covered. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement. S12519			

## PHILOSOPHY (PHI)

<b>PHI 215 Philosophical Issues</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take ENG 111			
This course introduces fundamental issues in philosophy considering the views of classical and contemporary philosophers. Emphasis is placed on knowledge and belief, appearance and reality, determinism and free will, faith and reason, and justice and inequality. Upon completion, students should be able to identify, analyze, and critically evaluate the philosophical components of an issue. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. This is a Universal General Education Transfer Component (UGETC) course. S24028			
Competencies			
1. Engage in critical thinking. 2. Identify, reconstruct, and evaluate philosophical arguments. 3. Analyze key philosophical concepts within epistemology, metaphysics, and ethics. 4. Demonstrate an understanding of major philosophical views, and how they relate to			
<b>PHI 220 Western Philosophy I</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take ENG 111			
This course covers Western intellectual and philosophic thought from the early Greeks through the medievalists. Emphasis is placed on such figures as the pre-Socratics, Plato, Aristotle, Epicurus, Epicetetus, Augustine, Suarez, Anselm, and Aquinas. Upon completion, students should be able to trace the development of leading ideas regarding reality, knowledge, reason, and faith. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S13045			

<b>PHI 221</b>	<b>Western Philosophy II</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take ENG 111				
This course covers Western intellectual and philosophic thought from post-medievalists through recent thinkers. Emphasis is placed on such figures as Descartes, Spinoza, Leibnitz, Locke, Berkeley, Hume, Kant, Hegel, Marx, Mill, and representatives of pragmatism, logical positivism, and existentialism. Upon completion, students should be able to trace the development of leading ideas concerning knowledge, reality, science, society, and the limits of reason. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S12988				
<b>PHI 230</b>	<b>Introduction to Logic</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take ENG 111				
This course introduces basic concepts and techniques for distinguishing between good and bad reasoning. Emphasis is placed on deduction, induction, validity, soundness, syllogisms, truth functions, predicate logic, analogical inference, common fallacies, and scientific methods. Upon completion, students should be able to analyze arguments, distinguish between deductive and inductive arguments, test validity, and appraise inductive reasoning. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S13741				
<b>PHI 240</b>	<b>Introduction to Ethics</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take ENG 111				
This course introduces theories about the nature and foundations of moral judgments and applications to contemporary moral issues. Emphasis is placed on moral theories such as consequentialism, deontology, and virtue ethics. Upon completion, students should be able to apply various ethical theories to moral issues such as abortion, capital punishment, poverty, war, terrorism, the treatment of animals, and issues arising from new technologies. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. This is a Universal General Education Transfer Component (UGETC) course. S24029				
Competencies				
1. Engage in critical thinking about moral issues. 2. Identify, reconstruct and evaluate ethical arguments. 3. Analyze key ethical concepts. 4. Demonstrate understanding of major views in moral philosophy and how they relate to contemporary ethical and social issues.				

## PHYSICS (PHY)

*Initial student placement in developmental courses is based on individual college placement testing policies and procedures. Students should begin developmental course work at the appropriate level indicated by that college's placement test.*

<b>PHY 080</b>	<b>Introduction to Physics</b>	<b>3</b>	<b>2</b>	<b>4</b>
This course introduces applied principles of physics through hands-on activities and guided discussions. Emphasis is placed on basic graphical analysis, machines, friction, work, energy, power, hydraulics, heat transfer, and the gas laws. Upon completion, students should be able to use the basic language of physics and utilize problem-solving skills necessary for success in certificate-level physics courses. S10975				
<b>PHY 110</b>	<b>Conceptual Physics</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Natural Science. This is a Universal General Education Transfer Component (UGETC) course. S12004				
<b>PHY 110A</b>	<b>Conceptual Physics Lab</b>	<b>0</b>	<b>2</b>	<b>1</b>
Corequisites: Take PHY 110				
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Natural Science. This is a Universal General Education Transfer Component (UGETC) course. S13531				

<b>PHY 131</b>	<b>Physics-Mechanics</b>	<b>3</b>	<b>2</b>	<b>4</b>
Prerequisites: (S) Take One: MAT-121 or MAT-171				
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. S23976				
<b>PHY 151</b>	<b>College Physics I</b>	<b>3</b>	<b>2</b>	<b>4</b>
Prerequisites: (S) Take MAT 171				
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Natural Science. This is a Universal General Education Transfer Component (UGETC) course. S23977				
<b>PHY 152</b>	<b>College Physics II</b>	<b>3</b>	<b>2</b>	<b>4</b>
Prerequisites: (S) Take PHY 151				
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Natural Science. This is a Universal General Education Transfer Component (UGETC) course. S11553				
<b>PHY 251</b>	<b>General Physics I</b>	<b>3</b>	<b>3</b>	<b>4</b>
Prerequisites: (S) Take MAT 271				
Corequisites: (S) Take MAT 272				
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Natural Science. This is a Universal General Education Transfer Component (UGETC) course. S12543				
<b>PHY 252</b>	<b>General Physics II</b>	<b>3</b>	<b>3</b>	<b>4</b>
Prerequisites: (S) Take All: MAT 272 and PHY 251				
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Natural Science. This is a Universal General Education Transfer Component (UGETC) course. S12686				

## POLITICAL SCIENCE (POL)

<b>POL 110</b>	<b>Introduction to Political Science</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S13770				

**POL 120 American Government****3 0 3**

This course is a study of the origins, development, structure, and functions of American 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 process. Upon completion, students should be able to demonstrate an understanding of the basic concepts and participatory processes of the American political system. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. This is a Universal General Education Transfer Component (UGETC) course. S24030

## Competencies

1. Demonstrate an understanding of the essential concepts and theories in the course materials. 2. Illustrate an understanding of the roles, duties, and structural characteristics of the executive, legislative, and judicial branches in the US government. 3. Analyze how American political institutions and individual behaviors interact to create political outcomes, with an awareness of the global context. 4. Define the function of political parties, interest groups, public opinion, and the media. 5. Interpret how American's political history, constitutional structure, and political culture contribute to the state of contemporary American democracy.

**POL 210 Comparative Government****3 0 3**

This course provides a cross-national perspective on the government and politics of contemporary nations such as Great Britain, France, Germany, and Russia. Topics include each country's historical uniqueness, key institutions, attitudes and ideologies, patterns of interaction, and current political problems. Upon completion, students should be able to identify and compare various nations' governmental structures, processes, ideologies, and capacity to resolve major problems. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S14332

**POL 220 International Relations****3 0 3**

This course provides a study of the effects of ideologies, trade, armaments, and alliances on relations among nation-states. Emphasis is placed on regional and global cooperation and conflict, economic development, trade, non-governmental organizations, and international institutions such as the World Court and UN. Upon completion, students should be able to identify and discuss major international relationships, institutions, and problems. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S12877

**PSYCHOLOGY (PSY)****PSY 115 Stress Management****2 0 2**

This course covers stressors and techniques for stress management. Topics include anger, assertiveness, adaptation to change, conflict, coping skills, identification of stressors, time management, and the physiology of stress and burnout. Upon completion, students should be able to demonstrate an understanding of the effective management of stress. S11106

**PSY 118 Interpersonal Psychology****3 0 3**

This course introduces the basic principles of psychology as they relate to personal and professional development. Emphasis is placed on personality traits, communication/leadership styles, effective problem solving, and cultural diversity as they apply to personal and work environments. Upon completion, students should be able to demonstrate an understanding of these principles of psychology as they apply to personal and professional development. S11025

**PSY 135 Group Processes****3 0 3**

This course provides an examination of group dynamics and structure. Topics include team-building, interpersonal communication, leadership, decision making, and problem solving. Upon completion, students should be able to demonstrate the knowledge and skills necessary for effective group participation. S10198

**PSY 150 General Psychology****3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. This is a Universal General Education Transfer Component (UGETC) course. S10777

<b>PSY 183</b>	<b>Psychology of Addiction</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course covers historical and theoretical perspectives on addictive behavior and the genetic, familial, and sociocultural influences on addiction. Topics include addictions to eating, gambling, alcohol, drugs, relationships, work, and sex. Upon completion, students should be able to demonstrate a knowledge of the theories of addiction and the factors underlying addictive behaviors. S11416				
<b>PSY 237</b>	<b>Social Psychology</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take One: PSY 150 or SOC 210 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S10878				
<b>PSY 239</b>	<b>Psychology of Personality</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take PSY 150 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S10904				
<b>PSY 241</b>	<b>Developmental Psychology</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take PSY 150 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S13114				
<b>PSY 255</b>	<b>Introduction to Exceptionality</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take PSY 150 This course introduces the psychology of the exceptional person. Topics include theoretical perspectives, terminology, and interventions pertaining to various handicapping conditions as well as the resulting psychosocial adjustments. Upon completion, students should be able to demonstrate a basic understanding of the potentials and limitations of the exceptional person. S10456				
<b>PSY 256</b>	<b>Exceptional Children</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take PSY 150 This course introduces major exceptionalities in children including mental, emotional, and physical variations; learning disabilities; and giftedness. Emphasis is placed on theoretical perspectives, identification methods, and intervention strategies. Upon completion, students should be able to demonstrate a general knowledge of the exceptionalities of children and recommended intervention techniques. S10464				
<b>PSY 281</b>	<b>Abnormal Psychology</b>	<b>3</b>	<b>0</b>	<b>3</b>
Prerequisites: (S) Take PSY 150 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S12906				

## RELIGION (REL)

<b>REL 111</b>	<b>Eastern Religions</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course introduces the major Asian religious traditions. Topics include Hinduism, Buddhism, Taoism, Confucianism, and Shinto. Upon completion, students should be able to identify the origins, history, beliefs, and practices of the religions studied. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S13358				

<b>REL 112</b>	<b>Western Religions</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course introduces the major western religious traditions. Topics include Zoroastrianism, Islam, Judaism, and Christianity. Upon completion, students should be able to identify the origins, history, beliefs, and practices of the religions studied. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S13280				
<b>REL 211</b>	<b>Introduction to Old Testament</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S11707				
<b>REL 212</b>	<b>Introduction to New Testament</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S11723				
<b>REL 221</b>	<b>Religion in America</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S11026				

## SCIENCE (SCI)

*Initial student placement in developmental courses is based on individual college placement testing policies and procedures. Students should begin developmental course work at the appropriate level indicated by that college's placement test.*

<b>SCI 090</b>	<b>Skills for the Sciences</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course is designed to provide fundamental skills necessary for entry into college-level science courses. Topics include scientific vocabulary, measurement, scientific notation, the scientific method for solving problems, collaborative skills, and applications to various areas of science. Upon completion, students should be able to demonstrate a readiness for college-level science courses. S14242				

## INFORMATION SYSTEMS SECURITY (SEC)

<b>SEC 110</b>	<b>Security Concepts</b>	<b>2</b>	<b>2</b>	<b>3</b>
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. S23204				
<b>SEC 150</b>	<b>Secure Communications</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take One Set: Set 1: SEC-110 and NET-110 Set 2: SEC-110 and NET-125 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. S21054				
<b>SEC 160</b>	<b>Secure Administration I</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take One Set: Set 1: SEC-110 and NET-110 Set 2: SEC-110 and NET-125 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. S21109				

<b>SEC 170 SOHO Security</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take SEC 110			
This course introduces security principles and topics related to the small office/home office networking environment. Topics include network topologies, network protocols, security issues, and best practices for SOHO environments. Upon completion, students should be able to design, setup, secure, and manage a small office/home office network. This course is restricted to the Information Systems Security/Operating Systems curriculum. S21110			
<b>SEC 210 Intrusion Detection</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take SEC 160			
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. S21111			
<b>SEC 240 Wireless Security</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take All: SEC 110 and NET 175			
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. S21114			

## SOCIOLOGY (SOC)

<b>SOC 210 Introduction to Sociology</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. This is a Universal General Education Transfer Component (UGETC) course. S11919			
<b>SOC 213 Sociology of the Family</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S11798			
<b>SOC 215 Group Processes</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S11859			
<b>SOC 220 Social Problems</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S13948			
<b>SOC 225 Social Diversity</b>	<b>3</b>	<b>0</b>	<b>3</b>
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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S13923			

**SOC 240 Social Psychology**

3 0 3

This course examines the influence of culture and social groups on individual behavior and personality. Emphasis is placed on the process of socialization, communication, conformity, deviance, interpersonal attraction, intimacy, race and ethnicity, small group experiences, and social movements. Upon completion, students should be able to identify and analyze cultural and social forces that influence the individual in a society. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Social/Behavioral Sciences. S13849

**SOC 250 Sociology of Religion**

3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11715

**SOC 254 Rural and Urban Sociology**

3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a premajor and/or elective course requirement. S11677

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**SPANISH (SPA)**


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**SPA 111 Elementary Spanish I**

3 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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S13047

**SPA 112 Elementary Spanish II**

3 0 3

Prerequisites: (S) Take SPA 111

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. This course has been approved for transfer under the Comprehensive Articulation Agreement as a general education course in Humanities/Fine Arts. S12995

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**SHOOTING/HUNTING SPORTS MANAGEMENT (SSM)**


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**SSM 110 Intro to Shooting Sports**

3 3 4

This course covers the theories and fundamentals of shooting sports. Topics include shotgun shooting sports, rifle shooting sports, and handgun shooting sports. Upon completion, students should be able to identify, explain and demonstrate the rules, regulations and equipment used in various shooting sports currently in the United States. S21862

**SSM 111 Gun Shop Management**

3 0 3

This course introduces managing a gun shop. Topics include handling firearms safely, federal and state firearms laws, purchasing new and used firearms, purchasing related firearms equipment, supplies and firearms security. Upon completion, students should be able to safely and legally start working a firearms counter. S21863

**SSM 112 Sports Hunting**

3 0 3

This course covers the theories and fundamentals of hunting in the world today. Topics include hunting in the United States, as well as the popular hunting spots around the world. Upon completion, students should be able to identify, explain and demonstrate the firearms and related equipment needed to hunt locally, nationally and in today's world. S21864



**SSM 114 Shooting Sports Mgmt** 3 6 5  
 This course introduces shooting and hunting sports management techniques. Topics include firearms safety, metal finishes, checkering, wood finishing, stock fit, shotgun chokes, basic firearms design, and custom firearms. Upon completion, students should be able to discuss sports management needs with customers and receive firearms for Gunsmithing work. S21865

**SUSTAINABILITY TECHNOLOGIES (SST)**

**SST-140 Green Bldg & Design Concepts** 3 0 3  
 This course is designed to introduce the student to sustainable building design and construction principles and practices. Topics include sustainable building rating systems and certifications, energy efficiency, indoor environmental quality, sustainable building materials and water use. Upon completion, students should be able to identify the principles and practices of sustainable building design and construction. S23302  
 Competencies/Student Learning Outcomes  
 1.Demonstrate an understanding of the concepts of high performance green buildings and sustainability.  
 2.Identify current green building rating systems (i.e. LEED, NAHB). 3.Identify the energy efficiency methods that should be considered in a building design and/or construction project. 4.Select appropriate “green” materials for a building project. 5.Identify Indoor Environmental Quality factors to be considered in a construction project. 6.Identify water management strategies in a construction project.

**SOCIAL WORK (SWK)**

**SWK 110 Introduction to Social Work** 3 0 3  
 This course examines the historical development, values, orientation, and professional standards of social work and focuses on the terminology and broader systems of social welfare. Emphasis is placed on the various fields of practice including those agencies whose primary function is financial assistance, corrections, mental health, and protective services. Upon completion, students should be able to demonstrate an understanding of the knowledge, values, and skills of the social work professional. S11170

**SWK 113 Working With Diversity** 3 0 3  
 This course examines and promotes understanding, sensitivity, awareness, and knowledge of human diversity. Emphasis is placed on professional responsibilities, duties, and skills critical to multicultural human services practice. Upon completion, students should be able to integrate and expand knowledge, skills, and cultural awareness relevant to diverse populations. S11127

**SWK 115 Community Resources** 2 2 3  
 This course introduces community resources essential to social work practice. Emphasis is placed on awareness of and interaction with community service personnel. Upon completion, students should be able to identify resources and assess critical community needs. S21488

**SWK 214 Social Work Law** 3 0 3  
 Prerequisites: (S) Take SWK 110  
 This course introduces the major provisions of social services law, current trends, legislative developments, and court procedures. Emphasis is placed on the interpretation of the laws and court decisions related to various social services populations. Upon completion, students should be able to interpret these laws and their implications for social services practice. S10306

**SWK 220 Social Work Issues in Client Services** 3 0 3  
 This course introduces the professional standards, values, and issues in social services. Topics include confidentiality, assessment of personal values, professional responsibilities, competencies, and ethics. Upon completion, students should be able to understand and discuss multiple ethical issues applicable to social work and apply various decision-making models to current issues. S11955

**TRANSPORTATION TECHNOLOGY (TRN)**

**TRN-110 Intro to Transport Tech** 1 2 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. S23455

## Competencies / Student Learning Outcomes

1. Demonstrate work place safety and hazardous waste disposal per OSHA and EPA guidelines that apply to relevant transportation industry work. 2. Given a vehicle or piece of equipment, students will be able to identify it and locate relevant service information in one or more industry-standard databases. 3. Demonstrate proficiency hoisting transportation vehicles through use of lifts and floor jacks. 4. Complete service repair orders with appropriate information: customer contact information; VIN; cause, concern, correction. 5. Identify and communicate about basic systems and terms associated with the transportation industry. 6. Distinguish between different transportation systems terms and components either on a written exercise or in a lab environment. 7. Demonstrate proper use and care of related transportation industry tools and equipment. 8. Correctly identify or describe government regulations associated with the transportation industry.

**TRN-120 Basic Transp Electricity**

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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. S23456

## Competencies / Student Learning Outcomes

1. Demonstrate work place safety related to transportation electrical systems. 2. Interpret and apply wiring diagram information on a transportation vehicle electrical system. 3. Demonstrate the proper use of electrical diagnostic test equipment. 4. Use Ohm's law to calculate the value of any of the following given the values of the remaining variables:

• \* Voltage (V) • \* Resistance (R) • \* Amperage (A)

5. Given a transportation vehicle with a fault in the battery, starting, and charging system, students will be able to perform successful diagnosis and repairs. 6. Demonstrate the ability to obtain appropriate service information on electrical circuit construction.

**TRN-140 Transp Climate Control**

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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. S23460

## Competencies / Student Learning Outcomes

1. In a lab setting, demonstrate work place safety per OSHA and EPA guidelines that apply to relevant climate control systems found on transportation vehicles and equipment. 2. Given a transportation vehicle or related equipment with a fault to the climate control system, diagnose and repair the climate control system using the recommended lab equipment as outlined by the related service information. 3. Using the recommended equipment as outlined by the EPA, identify and perform the proper recovery and recycling procedures for any refrigerant in a transportation vehicle or related equipment. 4. Describe the operation of the heating, ventilation and air condition systems. 5. Describe the use of climate control testing equipment to aid diagnosis of the systems. 6. Describe the use of appropriate service information and capacity charts. 7. Describe the EPA regulations that govern the proper use of refrigerants in a transportation vehicle or related equipment.

**TRN-140A Transp Climate Cont Lab**

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Corequisites: (S) Take TRN-140

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. S23461

## Competencies / Student Learning Outcomes

1. Given a transportation vehicle or related equipment with a fault in the A/C system, diagnose and repair the system using the recommended lab equipment and service information. 2. Utilize proper equipment to identify a given A/C refrigerant type and the purity of the A/C refrigerant for the transportation industry. 3. Given a transportation vehicle or equipment with an A/C system, determine the recommended refrigerant oil and capacity levels as prescribed from related service information. 4. Given a transportation vehicle or equipment with an A/C system, use the recommended equipment to properly reclaim, recycle, evacuate and recharge the entire refrigerant system. 5. Given a Heating Ventilation and Air Conditioning (HVAC) system, properly drain, flush and refill the entire anti-freeze coolant system. 6. Given a Heating Ventilation and Air Conditioning (HVAC) system, evaluate the anti-freeze coolant condition and perform a systems test as recommended by service information for a transportation vehicle or equipment. 7. Diagnose and repair a transportation vehicle or equipment with a fault in a protection device for the given A/C system. 8. Given an A/C system, remove

and inspect system components and seals for damage which may cause the system to leak refrigerant. 9. Given a faulty climate control system, diagnose temperature control problems.

## WORK-BASED LEARNING (WBL)

<b>WBL 112 Work-Based Learning I</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>2</b>
This course provides a work-based learning 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.S23795				

## WEB TECHNOLOGIES (WEB)

<b>WEB 110 Internet/Web Fundamentals</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course introduces World Wide Web Consortium (W3C) standard markup language and services of the Internet. Topics include creating web pages, search engines, FTP, and other related topics. Upon completion, students should be able to deploy a hand-coded web site created with mark-up language, and effectively use and understand the function of search engines. S22058			
<b>WEB 111 Introduction to Web Graphics</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course introduces the creation of web graphics, and addressing problems peculiar to WWW display using appropriate software. Topics include web graphics file types, optimization, RGB color, web typography, elementary special effects, transparency, animation, slicing, basic photo manipulation, and other related topics. Upon completion, students should be able to create graphics, such as animated banners, buttons, backgrounds, logos, and manipulate photographic images for Web delivery. S22416			
<b>WEB 115 Web Markup and Scripting</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course introduces Worldwide Web Consortium (W3C) standard client-side Internet programming using industry-established practices. Topics include JavaScript, markup elements, stylesheets, validation, accessibility, standards, and browsers. Upon completion, students should be able to develop hand-coded web pages using current markup standards. S22059			
<b>WEB 119 Web Tech Prog Orient</b>	<b>1</b>	<b>2</b>	<b>2</b>
This course provides an opportunity for students to develop the knowledge and skills required to succeed in the Web Technologies program. Emphasis is placed on introducing students to the tools and resources available for Web Technologies. Upon completion, students should be able to use the tools, resources, and services available. S21483			
<b>WEB 120 Introduction to Internet Multimedia</b>	<b>2</b>	<b>2</b>	<b>3</b>
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. S21280			
<b>WEB 140 Web Development Tools</b>	<b>2</b>	<b>2</b>	<b>3</b>
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. S21133			
<b>WEB 179 JAVA Web Programming</b>	<b>2</b>	<b>3</b>	<b>3</b>
This course introduces the development of dynamic, database-driven web applications using the JAVA programming languages. Topics include Object Oriented Programming JAVA Server Pages, servlets, database interactions, and form handling. Upon completion, students should be able to create and modify JAVA-based internet applications. S21484			
<b>WEB 182 PHP Programming</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: Take CIS 115 This course introduces students to the server-side, HTML-embedded scripting language PHP. Emphasis is placed on programming techniques required to create dynamic web pages using PHP scripting language features. Upon completion, students should be able to design, code, test, debug, and create a dynamic web site using the PHP scripting language. S21306			

<b>WEB 183 Perl Programming</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take CIS 115			
This course introduces students to the Perl Programming language. Topics include programming techniques using CGI script, input/output operations, sequence, iteration, selection, arithmetic operations, subroutines, modules, integrating database, pattern matching and other related topics. Upon completion, students should be able to design, code, test, and debug Perl language programs. S21307			
<b>WEB 185 ColdFusion Programming</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take CIS 115			
This course introduces ColdFusion Programming. Topics include installing a ColdFusion development environment, using CFQUERY tags to send and receive database information, creating and displaying a form, and other related topics. Upon completion, students should be able to design, code, test, and debug using a ColdFusion environment. S21308			
<b>WEB 186 XML Technology</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take CIS 115			
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. S21309			
<b>WEB 187 Prog for Mobile Devices (Wireless/Internet Prog)</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take CIS 115			
This course introduces content development for mobile electronic devices with a focus on business-related, social media, and entertainment applications. Emphasis is placed on developing web content and creating applications for mobile devices, including internet/business practices and techniques for delivery on mobile platforms. Upon completion, students should be able to develop web content and business or entertainment applications for use on mobile electronic devices. S23016			
<b>WEB 210 Web Design</b>	<b>2</b>	<b>2</b>	<b>3</b>
This course introduces intermediate to advanced web design techniques. Topics include customer expectations, advanced markup language, multimedia technologies, usability and accessibility practices, and techniques for the evaluation of web design. Upon completion, students should be able to employ advanced design techniques to create high impact and highly functional web sites. S22061			
<b>WEB 211 Advanced Web Graphics</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take WEB 111			
This course covers the advanced concepts related to the creation and manipulation of graphic images for web delivery. Topics include graphics acquisition, use of masks and channels, advanced special effects, advanced photo manipulation, and other related topics. Upon completion, students should be able to create, manipulate, and optimize web graphics with advanced techniques and maintain an online coursework portfolio. S22417			
<b>WEB 215 Advanced Markup and Scripting</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take WEB 115			
This course covers advanced programming skills required to design Internet applications. Emphasis is placed on programming techniques required to support Internet applications. Upon completion, students should be able to design, code, debug, and document Internet-based programming solutions to various real-world problems using an appropriate programming language. S22062			
<b>WEB 220 Advanced Multimedia</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take WEB 120			
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. S21313			
<b>WEB 230 Implementing Web Servers</b>	<b>2</b>	<b>2</b>	<b>3</b>
Prerequisites: (S) Take One: NET 110 or NET 125			
This course covers web site 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. S21135			

**WEB 240 Internet Security** 2 2 3

Prerequisites: (S) Take One Set: Set 1: CIS-110, SEC-110, and WEB-110 Set 2: CIS-111, SEC-110, and WEB-110

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. S21131

**WEB-250 Database Driven Websites** 2 2 3

Prerequisites: (S) Take DBA-110

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. S22280

**WEB 260 E-Commerce Infrastructure** 2 2 3

Prerequisites: (S) Take WEB 250

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. S21314

**WEB 285 Emerging Web Technologies** 2 2 3

This course will explore, discuss, and research emerging technologies in the web arena. Emphasis is placed on exposure to up-and-coming technologies relating to the web, providing hands-on experience, and discussion of practical implications of these emerging fields. Upon completion, students should be able to articulate issues relating to these technologies. S21315

**WEB 289 Internet Technologies Project** 1 4 3

Prerequisites: (S) Take WEB 250

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. S23589

**WELDING (WLD)**

**WLD 110 Cutting Processes** 1 3 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. S23303

Competencies / Student Learning Outcomes

1. Identify the parts and functions of an oxy-acetylene cutting torch. 2. Identify the parts and functions of various cutting equipment. 3. List the safety practices of using oxy-fuel, plasma-arc, and other cutting equipment. 4. Set-up and adjust cutting equipment. 5. Use an oxy-acetylene outfit, plasma cutting equipment, and other equipment to: a. Cut a straight marked line on various thickness steel plate. b. Cut various shapes out of carbon steel plate. c. Cut carbon steel plate to a bevel and pipe.

**WLD 112 Basic Welding Processes** 1 3 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. S10926

**WLD 115 SMAW (Stick) Plate** 2 9 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. S23304

Competencies / Student Learning Outcomes

1. Demonstrate SMAW electrode classification in compliance with AWS codes. 2. Perform a groove weld according to AWS D1.1. 3. Demonstrate safe and proper SMAW equipment setup, operation, and shut-down practices in accordance to manufacturer's recommendations.

<b>WLD 116 SMAW (Stick) Plate/Pipe</b>	<b>1</b>	<b>9</b>	<b>4</b>
Prerequisites: (S) Take WLD 115			
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. S10935			
<b>WLD 121 GMAW (MIG) FCAW/Plate</b>	<b>2</b>	<b>6</b>	<b>4</b>
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. S23305			
Competencies / Student Learning Outcomes			
1.Demonstrate the use of GMAW electrode classification in compliance with AWS code for the selection of electrodes. 2.Demonstrate the use of FCAW electrode classification in compliance with AWS code for the selection of electrodes. 3. Perform a Fillet weld in accordance with AWS code. 4.Perform a groove weld in accordance with AWS code. 5.Demonstrate safe and proper GMAW equipment setup, operation, and shut-down practices in accordance to manufacturer's recommendations.			
<b>WLD 131 GTAW (TIG) Plate</b>	<b>2</b>	<b>6</b>	<b>4</b>
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. S23306			
Competencies / Student Learning Outcomes			
1.Demonstrate the use of GTAW electrode classification in compliance with AWS for the selection of electrodes. 2.Perform a groove weld in accordance with AWS code. 3.Perform a Fillet weld in accordance with AWS code. 4.Demonstrate safe equipment setup, operation, and shut-down practices according to manufacturer's recommendations.			
<b>WLD 141 Symbols &amp; Specifications</b>	<b>2</b>	<b>2</b>	<b>3</b>
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. S23307			
Competencies / Student Learning Outcomes			
1.Identify and read welding symbols. 2.Identify and explain various lines, notes, and specifications on a blueprint. 3.Identify the different types of lines on a blueprint. 4.Interpret destructive testing symbols and their methods. 5.Interpret non-destructive testing symbols and their methods. 6.Develop a working sketch. 7.Create a bill of materials from a blueprint.			
<b>WLD 212 Inert Gas Welding</b>	<b>1</b>	<b>3</b>	<b>2</b>
This course introduces inert gas-shielded welding methods (MIG/TIG). Topics include correct selection of consumable and non-consumable electrodes, equipment setup, safety, and welding techniques. Upon completion, students should be able to perform inert gas welding in flat, horizontal, and overhead positions. S16565			
<b>WLD 215 SMAW (Stick) Pipe</b>	<b>1</b>	<b>9</b>	<b>4</b>
Prerequisites: (S) Take One: WLD 115 or WLD 116			
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. S10353			
<b>WLD 262 Inspection and Testing</b>	<b>2</b>	<b>2</b>	<b>3</b>
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. S11961			