COURSES DESCRIPTIONS

Courses with an asterisk (*) have been converted to the Community College System Common Course Numbers. For your information, former course numbers are listed after the title.

◆◆◆◆ 298 Special Topics Courses 1–6 S.H.
Provides students the opportunity to enroll in courses that address a specific need or demand within a particular discipline. For specific course content, please consult the semester course schedule. Special Topics courses may not be used to meet program requirements; however, they do carry elective credit in the specific discipline or as a general elective. A Special Topics course may or may not be transferable to other institutions. Students should seek the consent of their faculty advisor prior to selecting a Special Topics course. Prerequisites: Please consult semester course schedule.

ACCOUNTING

ACC* 113 Principles of Financial Accounting I (ACC 101) 3 S.H.
Provides a solid background in the theory of accounting practices and business procedures. Students will learn to interpret assets, liabilities, and net worth and prepare statements, books of original entry, ledgers, and work at the end of a fiscal period.

ACC* 114 Principles of Financial Accounting II (ACC 102) 3 S.H.
A continuation of ACC* 113. Presents fundamental accounting theory for partnerships and corporations. Additional topics include the preparation of cash flow statements and financial statement analysis. Prerequisite: ACC* 113.

ACC* 117 Principles of Managerial Accounting (ACC 110) 3 S.H.
Presents basic concepts and practice of accounting’s role in providing information to managers to assist in planning, control, and decision making. Topics include cost accounting systems, cost behavior relationships, analysis for managerial decisions, and the budget process. Prerequisite: ACC* 113.

ACC* 125 Accounting Computer Application I (ACC 106) 3 S.H.
Use accounting software to complete the accounting cycle. Topics include cash receipts, cash disbursements, accounts receivable, accounts payable, and payroll taxes. Various software packages will be presented, but emphasis will be on Quickbooks. Prerequisites: ACC* 113 or BOT* 165.

ACC* 241 Federal Taxes I (ACC 206) 3 S.H.
Interprets and applies laws in preparing federal income tax returns for individuals. Prerequisite: ACC* 113.

ALLIED HEALTH

HLT* 103 Investigations in Health Care 3 S.H.
Designed to assist students in meeting the expectations of a health care curriculum and career. Students will become familiar with the rigors of higher education and the specific skills needed to maximize their opportunity for academic and clinical success. Will include a comprehensive overview of the duties and responsibilities associated with clinical competency. Interdisciplinary learning strategies, correlating clinical and didactic education, life management skills, work ethics and critical thinking skills necessary for all health providers will be emphasized. Prerequisites: Eligibility for ENG* 101 and MAT* 115 or higher.

HLT* 107 Methods of Learning in a Clinical Curriculum 3 S.H.
Designed to assist traditional and non-traditional first year college students to meet the expectations of a curriculum in health related fields. The intent is to familiarize the students with the rigors of higher education and to provide specific skills which will maximize the students’ opportunity for academic and clinical success. The course will include a comprehensive overview of the duties and responsibilities associated with clinical education and clinical competency. Interdisciplinary learning strategies, correlating clinical and didactic education, life management skills, work ethics and critical thinking skills so critical for all health care providers will be emphasized. This course is a required prerequisite for all students wishing to enter the Pre-Dental Hygiene Program. Participation in field work and classroom visits are required.
## ANTHROPOLOGY

**ANT* 105 Introduction to Cultural Anthropology (ANT 105)**

Teaches the evolution of culture from its earliest state to the present, emphasizing an analysis of living non-Western cultures. An understanding of such aspects of social organization as religion, economics, political organization, language, kinship, and art are stressed. This course also presents a comparison of cultures and draws inferences to promote a better understanding of our own way of life.

## ARCHITECTURE

**ARC* 133 Technical Drafting (DFT 110)**

Introduces the principles of engineering drawing. Covers the use of drafting instruments, good lettering practices, geometric construction, orthographic projection, sectional and auxiliary views, surface developments, machine screw threads, dimensioning, fits, and tolerances. Introduces geometric dimensioning and tolerancing. Two hours of lecture / two hours of laboratory.

## ART

**ART* 101 Art History I (ART 103)**

Surveys art and architecture from prehistoric times through the Middle Ages. Presents art as a fundamental aspect of human existence during a wide range of periods and cultures. Includes the art of indigenous cultures in Africa and the Americas, as well as the art of the ancient world. Emphasizes history and formal appreciation of art through the use of text, slides, reproductions, and original works. Requires museum trips.

**ART* 102 Art History II (ART 104)**

Surveys art and architecture from the Renaissance to the late nineteenth century. Surveys the Renaissance in Italy and Northern Europe and the Baroque, Rococo, Romantic, Impressionist, and Post-Impressionist periods. Emphasizes history and formal appreciation of art through the use of text, slides, reproductions, and original works. Requires museum trips.

**ART* 103 Art History III (ART 102)**

Surveys modern and contemporary art and architecture from the mid nineteenth century to the present. Emphasizes history, issues, and formal appreciation of art through the use of text, slides, reproductions, and original works. Requires museum and gallery visits. Prerequisite: ART* 101 or 102.

**ART* 107 Introduction to Studio Art (ART 200)**

Introduces a wide range of studio activities. Teaches students to understand their creative abilities and develop an intellectual understanding of techniques, materials and approaches to various media in studio art. Requires museum and gallery trips. (6 studio hours)

**ART* 109 Color Theory (ART 212)**

Studies the interaction of color. Works with collage and paints to formulate presentations ranging from fundamental problem solving to individual expression. Emphasizes the use of color and its properties. Requires field trips and outside assignments. (6 studio hours)

**ART* 111 Drawing I (ART 201)**

Introduces traditional drawing materials and techniques and examines drawing, composition, design, and modes of expression. Students work with a variety of subjects, including still life, interior, landscape, and human form. Requires sketchbook, outside assignments, and museum visits. (6 studio hours)

**ART* 112 Drawing II (ART 202)**

Expands the fundamentals of drawing acquired in Drawing I. Focuses on the structure and development of drawing as a form of artistic expression. Requires figure drawing, sketchbook, outside assignments, and museum trips. Prerequisite: ART* 111 or instructor’s permission. (6 studio hours)

**ART* 113 Figure Drawing I (ART 203)**

Applies the knowledge acquired in Drawing I and II. Concentrates on traditional and contemporary approaches to the representation of the figure. Focuses on the costumed and nude figure as well as portraiture. Requires outside assignments and museum trips. (6 studio hours) Prerequisite: ART* 111 or instructor’s permission.
ART* 121  Two Dimensional Design (ART 211)  
3 S.H.  
Investigates elements and principles of two-dimensional design and the nature of design. Explores space, shape, color, line, texture, and value, beginning with simple relationships and building toward more complex systems of composition. Requires outside assignments and museum visits. (6 studio hours)

ART* 122  Three Dimensional Design (ART 210)  
3 S.H.  
Investigates the elements and principles of three-dimensional design, emphasizing forms and spatial organization. Studies the various types of three-dimensional forms found in both art and nature. Explores the use of various materials, tools, and techniques used to create three-dimensional forms. Requires outside assignments and museum visits. (6 studio hours)

ART* 131  Sculpture I (ART 204)  
3 S.H.  
Introduces ideas and materials that facilitate student response to three-dimensional forms. Stresses the concepts of modeling, carving, construction, portrait sculpture, and the possibilities of more contemporary modes of expression. Requires museum and gallery visits. (6 studio hours)

ART* 132  Sculpture II (ART 205)  
3 S.H.  
Sculpture II builds on Sculpture I by presenting more challenging work. Applies knowledge acquired in Sculpture I and concentrates on traditional and contemporary approaches to the representation of the human form. Requires outside assignments and museum visits. (6 studio hours) Prerequisite: ART* 131 or instructor’s permission.

ART* 141  Photography I (ART 130)  
3 S.H.  
Explores the fundamentals of still photography and processing, basic camera techniques, and dark room procedures. The course emphasizes examining photographic images and making pictures. Picture-making assignments cover camera operation and stress making deliberate artistic choices during picture taking. Most picture taking will be done outside of class time. Lab instruction will include black and white darkroom techniques, workshops, and demonstrations. Students are required to supply their own 35 mm SLR camera. (6 studio hours)

ART* 142  Photography II (ART 131)  
3 S.H.  
Builds on skills learned in Photography I by applying those skills to more challenging work. This is primarily a black and white photography course with an introduction to color. Combines picture-taking projects and darkroom printing techniques with the study of artistic photography. Includes lectures with slides and text. Requires outside assignments. Students are required to supply their own 35 mm SLR camera. (6 studio hours) Prerequisite: ART* 141 or instructor’s permission.

ART* 151  Painting I (ART 213)  
3 S.H.  
Introduces basic oil painting methods and procedures. Emphasizes composition, paint handling, and color. Explores still life, interior scenes, and landscape in both group and individual projects. Includes study of master works from various periods. Requires outside assignments and museum visits. (6 studio hours)

ART* 152  Painting II (ART 214)  
3 S.H.  
Builds on knowledge acquired in Painting I by presenting more challenging work. Encourages the pursuit of individual expression by stressing a painting sequence that works toward a personal statement. (6 studio hours) Prerequisite: ART* 151.

ART* 167  Printmaking I (ART 220)  
3 S.H.  
An introductory studio course in the methods and materials of printmaking: etching, woodblock printing, linoleum printing, collagraph, monotype, and photo-transfer. The basic elements of art will be articulated through these printmaking methods. Prerequisites: ART* 111 and ART* 121.

ART* 176  Digital Video Art I (Film Making)  
3 S.H.  
Investigates digital video as an extension of the fine arts. Formal attributes which make up the language of video including time, sound, content, and composition will be investigated as tools of expression and devices for creating meaning. Basic production techniques such as story boarding, cinematography, lighting, and editing will be acquired through creative problem solving. Through both a survey of historical and contemporary video art and in responding to collective and individual assignments, students will become critically observant and sensitive to video as a time-based medium. Digital video art’s relationship to fine arts as well as to other media is covered.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ART* 204</td>
<td>History of Women in the Arts (ART 105)</td>
<td>3 S.H.</td>
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<tr>
<td>ART* 204</td>
<td>History of Women in the Arts (ART 105)</td>
<td>Surveys the lives and works of major women artists in Western Europe, America, Latin America, and the Caribbean from 1600 to present. Examines biographical and artistic aspects through the analysis of social, economic, historical, political, and educational factors that have affected women artists and their works. Requires museum and gallery visits. Prerequisite: ART* 101 or 102.</td>
</tr>
<tr>
<td>ART* 251</td>
<td>Painting III (ART 215)</td>
<td>3 S.H.</td>
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<tr>
<td>ART* 251</td>
<td>Painting III (ART 215)</td>
<td>Applies knowledge acquired in Painting I and II. Concentrates on traditional and contemporary approaches to the representation of the figure. Focuses on the nude and costumed figure and portraiture. Requires outside assignments and museum visits. (6 studio hours) Prerequisite: ART* 151 or instructor’s permission.</td>
</tr>
<tr>
<td>ART* 293</td>
<td>Internship in Art I</td>
<td>3 S.H.</td>
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<tr>
<td>ART* 293</td>
<td>Internship in Art I</td>
<td>Provides students with the opportunity to gain “real-life” experience in Studio Art/Graphic Design. The student is required to work 120 hours during the semester. Hours will be arranged by mutual consent of the student and the supervisor.</td>
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<tr>
<td>ART* 299</td>
<td>Independent Study (ART 291)</td>
<td>3 S.H.</td>
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<tr>
<td>ART* 299</td>
<td>Independent Study (ART 291)</td>
<td>Provides the opportunity to pursue, with greater depth, individual studio or research projects. Must be arranged in the semester prior to registration. Requires advance departmental approval and supervision by the art instructor. Prerequisites: Instructor’s permission and sophomore standing.</td>
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**ALTERNATIVE FUEL**

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<thead>
<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>AFV* 110</td>
<td>Introduction to Clean Energy</td>
<td>3.5 S.H.</td>
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<tr>
<td>AFV* 110</td>
<td>Introduction to Clean Energy</td>
<td>Provides a broad spectrum of information about clean and renewable fuels and modern energy storage technology. Laws, incentives, and sustainability issues are covered for all fuel/technology types. Current events and developments in the industry are discussed in open forums as well as the global environmental and economic impact of alternative energy as it relates to current petroleum oil-based energy trade and usage. Three hours lecture/one hour lab.</td>
</tr>
<tr>
<td>AFV* 120</td>
<td>Power Transmission</td>
<td>3.5 S.H.</td>
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<tr>
<td>AFV* 120</td>
<td>Power Transmission</td>
<td>Provides information about the basic building blocks for machinery, contextualized to Alternative Fueled Vehicles. Mechanisms for mechanical power transmission such as gears; levers; sprockets; chains; couplers; electric motors; heat engines; electrical systems; hydraulics; pneumatics and control systems are covered. Three hours lecture; one hour lab.</td>
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<tr>
<td>AFV* 130</td>
<td>Electric and Hybrid Vehicle Drive Systems I</td>
<td>3.5 S.H.</td>
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<tr>
<td>AFV* 130</td>
<td>Electric and Hybrid Vehicle Drive Systems I</td>
<td>Introduces the systems used in electric and hybrid vehicles and introductory information about hydraulic hybrid drive systems/vehicles. Examples are modern hybrid-electric automobiles; pure electric battery powered vehicles; plug-in (electric grid recharge) hybrid vehicles; hydrogen hybrid fuel cell powered vehicles; and hydraulic hybrid light and medium duty vehicles. Battery and accumulator storage technology; electric motor design; hybrid inverter components and driveline support systems are covered. Discussions about future technology; issues; sustainability; laws and incentives are included. High voltage electric and high pressure hydraulic system safety are covered as well as precautions for performing basic service on a hybrid vehicle. Two hours lecture/three hours lab.</td>
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<tr>
<td>AFV* 140</td>
<td>Gaseous and Liquid Fuels I</td>
<td>3.5 S.H.</td>
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<tr>
<td>AFV* 140</td>
<td>Gaseous and Liquid Fuels I</td>
<td>Focuses on the storage of gaseous hydrogen, natural gas (methane) and hydrocarbon fuels. Topics covered include instruction on compressed gaseous fuel storage systems, fueling systems, fuel delivery systems, and high pressure gaseous fuel safety. Issues concerning laws, emissions, regulation and incentives are discussed. The nature of different hydrocarbon fuels’ BTU content, volatility, flash point and volumetric/gravimetric energy as they relate to liquid hydrocarbon fuels is discussed as well as sustainability and renew-ability issues. Identification and operation of key system components is covered as well as leak detection and other safety measures. Two hours lecture/three hours lab.</td>
</tr>
<tr>
<td>AFV* 150</td>
<td>Internship I</td>
<td>3 S.H.</td>
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<tr>
<td>AFV* 150</td>
<td>Internship I</td>
<td>Student participate in seven weeks (300 hours) per one semester of practical training at a dealership or garage to provide experience in an automotive repair environment geared toward alternative energy transportation.</td>
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<tr>
<td>AFV* 238</td>
<td>Hybrid Vehicle</td>
<td>3 S.H.</td>
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<tr>
<td>AFV* 238</td>
<td>Hybrid Vehicle</td>
<td>Introduces the student to the basic concepts, designs and nomenclatures associated with hybrid vehicles. It covers procedures for servicing and repairing hybrid vehicles, along with how to safely address these areas while adhering to specific manufacturer’s repair guidelines. Two hours lecture/two hours laboratory.</td>
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<tr>
<td>AFV* 240</td>
<td>CNG Installation, and Maintenance (AUT 240)</td>
<td>4 S.H.</td>
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<tr>
<td>AFV* 240</td>
<td>CNG Installation, and Maintenance (AUT 240)</td>
<td>Introduces procedures associated with compressed natural gas vehicles. Covers installation of natural gas components, fuel systems, and emission control devices. Includes maintenance procedures for needed repairs, inspection of emission control devices, and fuel storage and delivery systems. Two hours of lecture / four hours of laboratory.</td>
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</table>
AFV*250 Internship I 3 S.H.  Students participate in seven weeks or 300 hours of practical training at a dealership or garage to provide experience in an automotive repair environment geared toward alternative energy transporation.

AFV* 244 Electric Fuel (AUT 244) 4 S.H.  Presents theories and operating principles of an electric engine as the power plant of an electric vehicle (EV). Includes the procedures to be followed in removing or bypassing the piston engine and the installation of an electric engine and all related components. This conversion creates an EV or a hybrid vehicle of mixed power plants. Four hours of lecture.

AFV* 246 CNG Diagnosis and Repair (AUT 246) 4 S.H.  Presents theories and principles of a natural gas engine as the power plant of a vehicle. Analyzes natural gas vehicle systems and the performance of diagnostic and repair procedures of natural gas components, supplemental systems, and fuel storage and delivery including an overview of current alternative fuel technologies. Two hours of lecture / four hours of laboratory.

**AUTOMOTIVE**

AUT* 110 GM Engine Repair (AUT 110) 3 S.H.  Focuses on basic engine theory, nomenclature, and skills necessary to service and repair current model year General Motors engines. Upon completion of the course, students should be able to identify engine problems and make repairs to return an automobile to satisfactory operating condition. One hour of lecture / four hours of laboratory.

AUT* 112 GM Specifications (AUT 112) 2. S.H.  Includes the selection, use, and care of specialized shop tools and manuals. Describes the many manipulation skills needed in simple mechanical operation. The course is designed for students with no previous experience as well as for advanced students who desire further knowledge. Four hours of laboratory.

AUT* 114 GM Electrical Systems (AUT 114) 3.5 S.H.  Presents basic electrical theory, nomenclature, and the skills necessary to service and repair General Motors electrical components. Upon completion of the course, students will have studied the most up-to-date electronic systems and should be able to identify and explain the electron theory, series and parallel circuits, battery construction and operation, starter construction and operation, alternator construction and operation, and voltage regulators; and test and/or repair generators, alternators, starters, and voltage regulators. Two hours of lecture / three hours of laboratory.

AUT* 116 GM Suspension and Steering (AUT 116) 3 S.H.  Enables the student to study and understand the diagnosis and repair of General Motors steering and suspension systems, including wheel alignment. Provides a thorough knowledge of wheel and tire problems and repair. One hour of lecture / four hours of laboratory.

AUT* 118 GM Brakes (AUT 118) 3.5 S.H.  Covers the theory, diagnosis, and repair procedures for General Motors hydraulic systems, drum and disc brakes, and power assist units. Two hours of lecture / three hours of laboratory.

AUT* 130 Engines 3 S.H.  Focuses on basic engine and nomenclature as well as the skills necessary to service and repair current engines. One hour of lecture/four hours of lab. Co-requisite: AUT* 132.

AUT* 132 Automotive Specifications 2 S.H.  Includes the selection, use, and care of specialized shop tools and manuals. Describes the many manipulative skills needed in simple mechanical operation. The course is directed primarily at the student who desires basic knowledge in automotive technology. Four hours of lab.

AUT* 134 Electrical Systems 3.5 S.H.  Presents basic electrical theory and nomenclature, as well as the skills necessary to repair automotive electrical components. Upon completion, the student will have studied the most updated electronic systems. The student will become familiar with electrical circuits, alternators, starters, batteries and all automotive electrical components. Two hours of lecture/three hours of lab.

AUT* 136 Frames and Suspension 3 S.H.  Enables students to study and better understand the diagnosis and repair of steering and suspension systems including alignment. Includes a thorough presentation of wheel and tire problems and how to repair them. One hour of lecture/four hours of lab.
AUT* 138 Brakes 3.5 S.H.
Covers theory, diagnosis, and repair procedures for all automotive hydraulic brake systems. This covers all types of disc and drum brakes and repair procedures. Three hours of lecture/two hours of lab.

AUT* 140 Honda Engine Repair 3.5 S.H.
Utilizing both theory and practice, this course will cover the automotive engine and its' subsystems. Also, the skills necessary to service and repair current engines. Upon completion, the student should be able to diagnose engine problems and repair them properly. Two hours lecture/three hours lab.

AUT* 141 Honda Express Service 2 S.H.
Provides the student with fundamentals of operation and maintenance procedures including researching vehicle service information. Students will learn basic automotive shop safety, tool and equipment use. Upon completion of the course, students should be able to safely and accurately perform Honda’s A1-B1 vehicle inspection and maintenance service with efficiency and 100% accuracy. One hour lecture/two hours lab.

AUT* 144 Honda Electrical/Electronic Systems 3.5 S.H.
Utilizing both theory and practice, this course will cover automotive electrical and electronic systems. Upon completion, the student will have studied the most updated electronic systems and be familiar with electrical circuits, alternators, starters, batteries, and all automotive electrical components. Theory, operation, diagnosis, and repair procedures will be covered. Emphasizes lecture and related laboratory experiences in the diagnosis and service of automotive electrical systems and their components. Two hours lecture/three hours lab.

AUT* 146 Honda Suspension and Steering Systems 3.5 S.H.
Utilizing both theory and practice, this course will cover the diagnosis and repair of automotive steering and suspension systems including alignment. Includes a complete presentation of automotive wheel and tire problems and how to repair them. Theory, operation, diagnosis, and repair procedures will be covered. Two hours lecture/three hours lab.

AUT* 148 Honda Brake Systems 3.5 S.H.
Utilizing both theory and practice, this course will cover all automotive hydraulic brake systems, disc and drum brakes and repair procedures. Modern traction control and stability control systems will be explored. Theory, operation, diagnosis, and repair procedures will be covered. Two hours lecture/three hours lab.

AUT* 151 Honda Maintenance and Light Repair I 3.5 S.H.
Covers the fundamental automotive work environment. Safety, proper tool and equipment usage will be emphasized. Information acquisition, preparing vehicle for service and preparing vehicle for the customer will be presented. Theory, operation, diagnosis, and repair procedures will be included. Two hours of lecture / three hours of laboratory.

AUT* 152 Honda Maintenance and Light Repair II 3.5 S.H.
Covers the express/accelerated services tasks. Theory, operation, diagnosis, and repair procedures will be covered. Theory, operation, diagnosis, and repair procedures will be included. Two hours of lecture / three hours of laboratory.

AUT* 153 Honda Maintenance and Light Repair III 3.5 S.H.
Covers automotive systems light repair tasks. Theory, operation, diagnosis, and repair procedures including electrical systems and their components. Two hours of lecture / three hours of laboratory.

AUT* 154 Honda Maintenance and Light Repair IV 3.5 S.H.
Covers basic electrical and engine performance systems. Students will become familiar with electrical circuits, alternators, starters, batteries, and all automotive electrical components. Two hours of lecture / three hours of laboratory.

AUT* 160 Internship I (AUT 160) 1 S.H.
Students participate in a fifteen-hour course to review basic automotive training and to complete all paper work for the ten-week summer dealer internship. Prerequisite: Completion of Semester I courses.

AUT* 161 GM Internship 1A 1 S.H.
Students participate in three weeks of practical training at either a GM dealership or AC Delco repair facility during their freshman fall semester. Students will reinforce automotive skills and theory acquired during the freshman fall semester. All automotive students are required to attend an Internship Orientation session prior to starting their internship.

AUT* 162 GM Internship 1B 1 S.H.
Students participate in four weeks of practical training at either a GM dealership or AC Delco repair facility during their freshman winter intersession. Students will reinforce automotive skills and theory acquired during the freshman fall semester. All automotive students are required to attend an Internship Orientation session prior to starting their internship.
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<tr>
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<tbody>
<tr>
<td>AUT* 163</td>
<td>GM Internship 1C</td>
<td>1 S.H.</td>
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<tr>
<td></td>
<td>Students participate in three weeks of practical training at either a GM dealership or AC Delco repair facility during their freshman winter intersession. Students will reinforce automotive skills and theory acquired during the freshman fall semester. All automotive students are required to attend an Internship Orientation session prior to starting their internship.</td>
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<tr>
<td>AUT* 170</td>
<td>Internship II (AUT 170)</td>
<td>4 S.H.</td>
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<td></td>
<td>Students participate in a ten-week practical training (400 hours) at a dealership or garage. All automotive students are required to attend an Internship Orientation session prior to starting their internship. Prerequisite: Completion of Semester I courses.</td>
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<tr>
<td>AUT* 171</td>
<td>GM Internship 2</td>
<td>3 S.H.</td>
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<tr>
<td></td>
<td>Students participate in ten weeks of practical training (400 hours) at either a GM dealership or AC Delco repair facility during their freshman summer semester. Students will reinforce automotive skills and theory acquired during the freshman spring semester. All automotive students are required to attend an Internship Orientation session prior to starting their internship.</td>
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<tr>
<td>AUT* 180</td>
<td>Diesel Technology</td>
<td>3.5 S.H.</td>
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<td></td>
<td>Provides students up to date information on the construction, operation, service and repair of diesel engines. In addition to detailing the fundamentals of operation, this course will cover engine control systems, fuel management, and emissions control systems. Two hours lecture/three hours lab.</td>
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<tr>
<td>AUT* 201</td>
<td>GM Engine Performance (AUT 201)</td>
<td>3.5 S.H.</td>
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<td></td>
<td>Covers basic fuel theory, nomenclature, and the skills necessary to service and repair computerized automotive fuel systems. Upon completion, students should be able to identify and explain fuel circuits and fuel systems theory, and test and repair fuel pumps and computerized fuel injection systems to return an automobile to satisfactory operating condition. Two hours of lecture / three hours of laboratory.</td>
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<tr>
<td>AUT* 203</td>
<td>GM Manual Drive Train and Axles (AUT 203)</td>
<td>3.5 S.H.</td>
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<td></td>
<td>Presents the proper procedures for the diagnosis and repair of General Motors manual drive transmissions and transaxles. Places particular emphasis on clutches, drive (half) shaft, universal joint, and rear axle, and four-wheel drive components. Two hours of lecture / three hours of laboratory.</td>
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<tr>
<td>AUT* 205</td>
<td>GM Automatic Transmission and Transaxle (AUT 205)</td>
<td>3.5 S.H.</td>
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<td></td>
<td>Explains concepts and procedures of diagnosis, repair, and general overhaul of General Motors transmissions and transaxles. Places particular emphasis on applying classroom information to practical experience through on-vehicle and off-vehicle diagnosis and repair. Two hours of lecture / three hour of laboratory. Prerequisite: AUT* 203.</td>
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<tr>
<td>AUT* 207</td>
<td>GM Heating and Air Conditioning (AUT 207)</td>
<td>3.5 S.H.</td>
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<td></td>
<td>Presents the proper procedures for diagnosing and repairing General Motors air conditioning, heating, and engine cooling systems, operating systems, and related controls. Two hours of lecture / three hours of laboratory.</td>
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<tr>
<td>AUT* 231</td>
<td>Fuel Systems</td>
<td>3.5 S.H.</td>
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<tr>
<td></td>
<td>Covers basic fuel theory and nomenclature, as well as the skills necessary to service and repair computerized automotive fuel systems. Pre-requisite: AUT* 134.</td>
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<tr>
<td>AUT* 233</td>
<td>Manual Transmissions and Transaxles</td>
<td>3.5 S.H.</td>
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<tr>
<td></td>
<td>Provides students with the proper procedures for the diagnosis and repair of automotive manual drive transmissions and transaxles. Places particular emphasis on clutches, drive (half) shafts, and universal joints, along with rear axle and four-wheel drive components. Two hours of lecture/three hours of lab.</td>
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<tr>
<td>AUT* 235</td>
<td>Automatic Transmissions and Transaxles</td>
<td>3.5 S.H.</td>
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<tr>
<td></td>
<td>Explains concepts and procedures of diagnosis, repair, and general overhaul of transmissions and transaxles. Places particular emphasis on converting classroom information into practical laboratory experience through on-vehicle and off-vehicle diagnosis and repair. Two hours of lecture/three hours of lab. Pre-requisite: AUT* 233.</td>
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<tr>
<td>AUT* 237</td>
<td>Heating &amp; Air Conditioning</td>
<td>3.5 S.H.</td>
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<tr>
<td></td>
<td>Provides students with proper procedures for the diagnosis and repair of air conditioning systems, heating, and engine cooling systems, operating systems, and related controls. Two hours of lecture/three hours of lab.</td>
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</table>
AUT* 241 Honda Engine Performance Systems 3.5 S.H.
Utilizing both theory and practice, this course will cover basic performance and emissions theory and nomenclature as well as the skills necessary to service and repair computerized automotive fuel and ignition systems. Theory, operation, diagnosis, and repair procedures will be covered. Two hours lecture/three hours lab.

AUT* 243 Honda Manual Drive Train and Axles 3.5 S.H.
Utilizing both theory and practice, this course will cover the proper procedures for the diagnosis and repair of automotive manual drive transmissions and transaxles. Particular emphasis will be placed on clutches, drive (half) shafts, universal joints, rear axle and four-wheel drive components. Theory, operation, diagnosis, and repair procedures will be covered. Two hours lecture/three hours lab.

AUT* 244 Honda Advanced Electrical & Performance Systems 3.5 S.H.
Utilizing both theory and practice, this course will cover the advanced electrical and performance systems. Advanced diagnostic procedures will be covered. Will expand on concepts taught in AUT* 144 and AUT* 241. This is an advanced level course designed to prepare students for the L1 ASE certification. Two hours Lecture/three hours lab. Prerequisite: AUT* 144 and AUT* 241.

AUT* 245 Honda Automatic Transmission and Transaxle 3.5 S.H.
Utilizing both theory and practice, this course will cover the transference of engine power through transmission to final drive units on both front and rear wheel drive cars. Includes maintenance and repair of automatic transmissions, drive shaft assemblies and differentials, transmission/transaxle mechanical, hydraulic, and electrical operation. Service, overhaul, mechanical/electrical diagnosis procedures and use and application of diagnostic equipment will also be covered. Theory, operation, diagnosis, and repair procedures will be covered. Two hours lecture/three hours lab.

AUT* 247 Honda Heating and Air Conditioning 3.5 S.H.
Utilizing both theory and practice, this course will cover the proper procedures for the diagnosis and repair of air conditioning systems, heating, engine cooling systems, operating systems, and related controls. Theory, operation, diagnosis, and repair procedures will be covered. Two hours lecture/three hours lab.

AUT* 248 Advanced Electrical Systems Electronics (AUT 248) 3.5 S.H.
Covers Advanced Electronic Systems theory, nomenclature, and diagnosis and repair. Includes semiconductors, advanced cranking and charging, SIR, ABS control systems, on-board navigation, power DSO, and more. Two hours of lecture / three hours of laboratory. Prerequisites: AUT* 124 or AUT* 114.

AUT* 251 Honda Automotive Service Technology I 3.5 S.H.
Covers automotive drive train systems, engines, transmissions, and transaxle components. Theory, operation, diagnosis, and repair procedures will be covered. Two hours of lecture / three hours of laboratory. Prerequisites: AUT* 151, 152, 153, 154.

AUT* 252 Automotive Service Technology II 3.5 S.H.
Covers suspension/steering and brakes. Students will become familiar with diagnosis and repair of suspension/steering and brakes systems and components as defined by the NATEF. Two hours of lecture / three hours of laboratory. Prerequisites: AUT* 151, 152, 153, 154.

AUT* 253 Honda Automotive Service Technology III 3.5 S.H.
Covers electrical/electronic systems and engine performance. Students will become familiar with electrical circuits, alternators, starters, batteries, and all automotive electrical components. Two hours of lecture / three hours of laboratory. Prerequisites: AUT* 151, 152, 153, 154.

AUT* 254 Honda Automotive Service Technology IV 3.5 S.H.
Covers body systems, electrical/electronic, heating and air conditioning, suspension and steering, and brakes. Two hours of lecture / three hours of laboratory. Prerequisites: AUT* 151, 152, 153, 154.

AUT* 258 Honda Master Automobile Service Technology 5 S.H.
Covers advanced automotive systems. Heavy emphasis will be placed on safety and proper use of tools and equipment. Information acquisition will be presented. Theory, operation, diagnosis, and repair procedures will be covered. Three hours of lecture / four hours of laboratory. Prerequisites: AUT* 251, 252, 253, 254.

AUT* 260 Internship III (AUT 260) 2 S.H.
Students participate in 5 weeks of additional practical training (200 hours) at a dealership or automotive repair facility. All automotive students are required to attend an Internship Orientation session prior to starting their internship.
AUT* 261 GM Internship 3A
Students participate in three weeks of practical training at either a GM dealership or AC Delco repair facility during their sophomore fall semester. Students will reinforce automotive skills and theory acquired during the sophomore fall semester. All automotive students are required to attend an Internship Orientation session prior to starting their internship.

AUT* 263 GM Internship 3C
Students participate in three weeks of practical training at either a GM dealership or AC Delco repair facility during their sophomore spring semester. Students will reinforce automotive skills and theory acquired during the sophomore fall semester. All automotive students are required to attend an Internship Orientation session prior to starting their internship.

AUT* 270 Internship IV (AUT 270)
Students participate in 5 weeks of advanced practical training (200 hours) at a dealership or automotive repair facility. All automotive students are required to attend an Internship Orientation session prior to starting their internship.

AUT* 271 GM Internship 4
Students participate in ten weeks of practical training at either a GM dealership or AC Delco repair facility during their sophomore summer semester. Students will reinforce automotive skills and theory acquired during the sophomore spring semester. All automotive students are required to attend an Internship Orientation session prior to starting their internship.

AUT* 280 Internship V (AUT 280)
Students participate in 16 weeks of advanced practical training (640 hours) at a dealership or garage to learn advanced automotive electrical/electronic and fuel injection experience. All automotive students are required to attend an Internship Orientation session prior to starting their internship.

AUT 282 Advanced Fuel Injection Systems
Covers advanced fuel injection system theory, nomenclature, and diagnosis and repair, and includes OBDII, scan diagnostics, emission control systems, exhaust gas analyzer, and digital storage oscilloscopes. Two hours of lecture / three hours of laboratory. Prerequisite: AUT* 201 or AUT* 221.

BIOLOGY

BIO* 100 Basic Biology (BIO 110)
A one-semester course in Biology that introduces students to the chemical and cellular bases of life, diversity and classification of life and the mechanisms that different organisms require for survival and reproduction. Also introduces the basis principles of inheritance and evolution as well as interactions with other organisms and their environment.

BIO* 105 Introduction to Biology (BIO 118)

BIO* 110 Principles of the Human Body (BIO 115)
Introduces students to the basic structures and functions of the human body. An overview of chemical and cellular processes will be covered. Explores the major organs and systems. Students will gain insights into how their own bodies work. Lecture only.

BIO* 113 Physiology of Aging (BIO 112)
Studies the physical aging process of older individuals to give the student knowledge of age-related cognitive and physical changes and the impact those changes have on the social and psychological functioning of the individual.

BIO* 115 Human Biology (BIO 116)
Deals with the structure of the body in relation to function in both health and disease. The laboratory exercises explore the human body’s biological systems. Involves dissection. Three hours of lecture / three hours of laboratory.

BIO* 121 General Biology I (BIO 121)
Deals with basic chemistry, the molecular and cellular bases of life, metabolism, and the growth and reproduction of cells. Covers the molecular and chromosomal bases of heredity and evolution. Details of Prokaryotes, Protista, and Fungi are included. Involves some fieldwork and dissection. Prerequisites: High school biology, BIO* 100, BIO* 105, or instructor’s permission. Three hours of lecture / three hours of laboratory.
**BIO* 122  General Biology II (BIO 122)**

4 S.H.
Builds on concepts in General Biology. Deals with the diversity and classification of life, plant and animal structures, functions and evolution, animal behavior and the immune system, and the interaction between various forms of life and their environments. Involves some fieldwork and dissection. Prerequisite: BIO* 121 or instructor's permission. Three hours of lecture / three hours of laboratory.

**BIO* 211 Anatomy and Physiology I (BIO 127)**

4 S.H.
Covers human body structure and function, emphasizing the basic concepts of chemistry and cells, tissues and the integumentary, skeletal, joint, muscular, and nervous systems. Laboratory work parallels the material covered in lecture. Dissection is required. Prerequisite: BIO* 105. Three hours of lecture / three hours of laboratory.

**BIO* 212 Anatomy and Physiology II (BIO 128)**

4 S.H.
Builds on the knowledge learned in BIO* 211. Covers the endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary, and reproductive systems. Laboratory work parallels the material covered in lecture. Prerequisite: BIO* 211 with a grade of C or better. Dissection is required. Three hours of lecture / three hours of laboratory.

**BIO* 235 Microbiology (BIO 201)**

4 S.H.
Considers the general characteristics of microorganisms, emphasizing host-parasite relationships, details of morphology and physiology, and the control of epidemiological problems. Emphasizes human and animal pathogens. Laboratory work parallels the material covered in lectures and provides experience in microbial techniques. Prerequisite: BIO* 105 and BIO* 121 or 122 or BIO* 211 or 212 or instructor’s permission.

**BIOMEDICAL ENGINEERING TECHNOLOGY***

**BME* 110 Biomedical Technology**

2 S.H.
Introduces the interdisciplinary nature of the Biomedical Engineering Technology program through engineering and medical terminology. Presents hospital and industrial policies, procedures, and codes with an emphasis on safety. Introduces biomedical instrumentation, control systems, and the man-machine interface.

**BME* 112 Biomedical Electrical Circuits**

5 S.H.
Presents electrical circuits for biomedical instrumentation. Introduces and develops concepts of voltage, resistance, current, and power in DC and AC circuits. Analyzes RLC circuits in DC and AC circuit applications. Presents Thevenin, maximum power transfer, and superposition theorems. Introduces electromagnetism and its effects. Four hours of lecture / two hours of laboratory.

**BME* 114 Biomedical Electronics (Course has not been offered in the past two years)**

5 S.H.
Presents electronics for biomedical instrumentation. Stresses reliability and safety. Introduces electron tubes and solid-state devices. Presents design and application of amplifiers, oscillators, high input impedance devices, and precision timers. Introduces and develops power supply design, voltage regulation, and high power-high speed switching. Four hours of lecture / two hours of laboratory. Prerequisite: BME* 112.

**BME* 116 Physiological Systems**

4 S.H.
Examines human anatomy and physiology, using chemical, mechanical, and electrical system models. Presents biopotential generation and regulatory control systems. Develops computer simulations of physiological events. Three hours of lecture / two hours of laboratory.

**BME* 210 Biomedical Instrumentation**

4 S.H.
Presents the principles, applications, and design of biomedical instrumentation. Includes discussion of measuring, monitoring therapeutic, and clinical laboratory equipment. Presents imaging techniques and computers. Three hours of lecture / two hours of laboratory. Prerequisite: EET* 136.

**BME* 212 Biomedical Equipment Design**

4 S.H.
Develops instrumentation standards and construction techniques for biomedical equipment. Presents the documentation and hardware components of a biomedical instrumentation system. Uses commercial instrumentation systems for analysis and testing. Two hours of lecture / four hours of laboratory. Prerequisite: BME* 210.

**BME* 214 Advanced Biomedical Instrumentation**

4 S.H.
Presents applications of data acquisition and analysis, imaging, and control systems. Develops microprocessor- and computer-based instrumentation. Systems studied include Medical Networking, Expert Systems, Fiberoptics, Lasers, and Tomography. Three hours of lecture / three hours of laboratory. Prerequisite: BME* 210.
BME 219  Special Topics in Biomedical Engineering  3 S.H.
Presents special topics in biomedical engineering on which students work independently and which are not covered in the regular program. Open to seniors only. Prerequisite: Approval of Division Director.

BME* 220  Biomedical Practicum  3 S.H.
Applies safety, calibration, and troubleshooting techniques to practical situations. Also provides on-site practical experience in a hospital. Prerequisites: Approval of Program Coordinator.

BUSINESS (GENERAL)

BBG* 101  Introduction to Business (BUS 110)  3 S.H.
Introduces the principles and practices of business management. Applies management principles to various types of business and industrial organizations and organizational problems.

BBG* 115  Business Software Applications (BUS 105)  3 S.H.
Stresses the usefulness of computers in business. Students will learn in this hands-on course how to use word processing software for writing and editing, data base software to organize and search for information, and spreadsheet software to perform calculations on tables of numbers.

BBG* 200  Principles of Business Statistics (BUS 200)  3 S.H.
Presents the statistical techniques appropriate for dealing with problems in business and social science. Students will learn basic statistical concepts and methods of solving statistical problems, becoming familiar with those problems on a microcomputer. Considers the measures of central tendency and dispersion, index numbers, time series, probability, statistical inference, regression and correlation analysis, and decision-making theory. Prerequisites: Sufficient score on the placement exam or MAT* 137 or instructor’s permission.

BBG* 210  Business Communication (BUS 214)  3 S.H.
Emphasizes basic communication skills in a business environment. After a review of grammar, punctuation and sentence structure, students will plan, organize, and edit several forms of business communications, including memos, letters, resumes, and reports. Oral presentations are part of the curriculum. Social networking for business purposes and its various uses is also discussed; students evaluate the advantages and potential risks.

BBG* 231  Business Law I (BUS 121)  3 S.H.
Provides knowledge and understanding of fundamental legal principles and their application to business transactions. Stresses laws relating to administrative regulations, consumer protection, environmental protection, torts and crimes, and contracts.

BBG* 232  Business Law II (BUS 122)  3 S.H.
Emphasizes laws relating to personal property, bailments, sales, negotiable instruments, agency and employment, and business organizations. Prerequisite: BBG* 231.

BBG* 240  Business Ethics (BUS 216)  3 S.H.
Introduces students with little or no background in philosophy or ethics to traditional and contemporary ethical theory. This course critically examines both the theories and applications of moral problems in business. Topics include employee rights and responsibilities, pay equity and comparable worth, whistle blowing, trade secrets and confidentiality, conflict of interest, discrimination and sexual harassment, pollution, consumer protection, professional ethics, truth-telling in business dealings, social responsibility of business, and fiduciary responsibility to stockholders and stakeholders. Prerequisite: ENG* 101.

BBG* 294  Business Internship (BUS 220)  3 S.H.
Provides an opportunity for students to gain experience in business and industry. Students will be required to spend a minimum of five hours per week at their internship site. Furthermore, in-class sessions will be held during the semester for orientation and evaluation purposes. Prerequisites: fifteen earned credits in Business courses, ENG* 101, a minimum GPA of 2.75. Students will be interviewed during the semester prior to taking this course. Instructor’s permission required for registration.

BUSINESS (ENTREPRENEURSHIP)

BES* 218  Entrepreneurship (BUS 236)  3 S.H.
Helps students gain the knowledge and skills needed to start and/or manage a small business. Explains how to start a small business, franchising, sources of funding, site selection, employee relations, sales promotion, credit, and legal aspects of businesses.
BES* 219 Management and Growth – Small Business (BUS 238) 3 S.H.
Builds upon the knowledge and skills needed to manage small business taxes (after cash flow). Emphasizes marketing, human resources, management, accounting, cash flow, and business plan review.

BES* 239 Business Plan (BUS 239) 3 S.H.
Demonstrates how to develop a business plan. Draws on earlier courses and emphasizes the substance and completeness of the business plan. Prerequisites: ACC* 113, BMK* 201, BES* 218, and BES* 219.

BUSINESS (FINANCE)

BFN* 110 Personal Finance (BUS 117) 3 S.H.
Examines the basic principles and important concepts of personal finance. Includes personal budgeting, consumer credit, insurance, real estate, personal income taxes, retirement, investments, and safeguarding of resources.

BFN* 126 Principles of Insurance (BUS 111) 3 S.H.
Examines the history, economics, and social values of insurance. Compares various contracts and coverage; studies the structure of the insurance industry; emphasizes principles such as sales, underwriting, claims, rate making and government regulations. Meets the education prerequisite for Connecticut Property and Casualty Insurance Broker examination.

BFN* 201 Principles of Finance (BUS 212) 3 S.H.
Surveys sources of short-, intermediate- and long-term funds for a business. Discusses stocks, bonds, investment, working capital, banking policy of systems, urban financing, and government financing. Prerequisites: ACC* 113, ACC* 114 or ACC* 117 (may be concurrent), CSA* 135, ECN* 101 or 102, MAT* 137 or instructor’s permission.

BUSINESS* (MANAGEMENT)

BMG* 201 Principles of Supervision (BUS 222) 3 S.H.
Develops supervisory ability and judgment through a presentation of the principles and techniques of effective supervision. Topics include communication, motivation, training, personnel selection, disciplining, counseling, and controlling performance. Uses both case and incident study methods.

BMG* 202 Principles of Management (BUS 225) 3 S.H.
Introduces the study of management, which is both a discipline and a process. Major topic areas include the evolution and scope of management, decision making, planning, organizing, leading, and controlling. Emphasizes the importance of managing in a global environment and understanding the ethical implications of managerial decisions.

BMG* 210 Organizational Behavior 3 S.H.
Presents the concepts and principles of modern management theory and practice as they apply to organizations. Emphasizes the functions of planning, organizing, directing, and controlling along with staffing and communications.

BMG* 220 Human Resources Management (BUS 215) 3 S.H.
Introduces the legal and social function of Human Resource Management in today’s dynamic business environment. Topics include personnel, planning, recruitment, testing, training, compensation, motivation, appraisals, discipline, and career management.

BMG* 227 Risk Management (BUS 208) 3 S.H.
Covers risk management policies, business property risks, family property, and liability risks. Analyzes and discusses actual cases. Prerequisite: BFN* 126.

BUSINESS (MARKETING)

BMK* 103 Principles of Retailing (BUS 130) 3 S.H.
Explores the fundamentals of retailing and its scope and significance in our marketing system. Among the topics covered are the distinguishing characteristics of retailing, store classification, operations planning, location analysis, layout and design, the retail price, future trends, and retailing careers.

BMK* 201 Principles of Marketing (BUS 210) 3 S.H.
Presents the fundamentals of marketing and marketing theory. Emphasizes theories relevant to marketing and the business environment, marketing and the social environment, product strategies, distribution, promotion, and pricing.
BMK* 215  Principles of eBusiness (BUS 245) 3 S.H.
This course presents the fundamentals of eBusiness. Emphasis will be placed on business tools, not technology. This course will cover the concepts, tools, and strategies for exploring and understanding the opportunities and challenges associated with eBusiness.

BMK* 220  Sales (BUS 204) 3 S.H.
Stresses the characteristics of a good salesperson, describes the various types of sales jobs, and explores the psychology of selling and various sales techniques.

BMK* 230  Advertising and Promotion (BUS 230) 3 S.H.
Discusses special practices in retail advertising and sales promotion. Includes strategic promotional planning, preparing a media-wide retail promotional campaign, visual merchandising, and publicity. Discusses effective techniques in the preparation of retail copy.

BMK* 241  Principles of Advertising BUS 211) 3 S.H.
Analyzes principles and practices of advertising, including purposes of advertising, principles of advertising copy, layout, mechanics, media, and development of an advertising campaign. Prerequisite: BMK* 201.

BMK* 242  Retail Buying (BUS 231) 3 S.H.
Introduces the basic principles of buying merchandise for resale, sources of supply, determining and selecting suitable merchandise, negotiating for merchandise, basic buying considerations, and other related activities.

BMK* 255  Fashion Analysis (BUS 131) 3 S.H.
Analyzes the economic, psychological, and sociological factors in the development of fashion. Students obtain a knowledge of fashion terminology, fashion designers, color, line, design, and the stages in the fashion cycle. Studying the historical development of costume, from the Egyptian period through the twentieth century, helps the student interpret and discuss fashion trends.

BMK* 257  Textiles (BUS 232) 3 S.H.
Provides a background in and selling information for various textile products. Discusses standards for identifying high quality products and how to care for them. Focuses on materials, construction, methods of manufacturing, and basic styles in order to analyze the appeal of merchandise to customers.

BMK* 285  Current Marketing Topics (BUS 240) 3 S.H.
Emphasizes such current issues in marketing as database marketing, quality customer service, telemarketing, and marketing on the Internet. Prerequisite: BMK* 201.

BMK* 295  Field Experience I (BUS 234) 3 S.H.
Allows the student to gain knowledge of a store’s or manufacturer’s policies, systems, and basic job responsibilities. Students will be required to spend a minimum of six hours per week at their work site. Instructor’s permission is required for registration.

BMK* 296  Field Experience II (BUS 235) 3 S.H.
Builds upon Field experience II if student stays at the same work site. A student may select a different work site to expand exposure and experience in retailing, fashion, and manufacturing.

BUSINESS (REAL ESTATE)

BRE* 201  Real Estate Principles (BUS 205) 3 S.H.
Covers land, business and market ownership, leases, advertising, financing, and mortgages. Aids the student in taking the Connecticut examination for agent or broker licensing.

BUSINESS OFFICE TECHNOLOGY
All Business Office Technology courses may be taken as a business or computer elective.

BOT* 111  Keyboarding for Information Processing I (BOT 101) 3 S.H.
Presents the keyboard and correct stroking techniques by means of the touch method and word processing computer software packages. Practical applications include simple tabulations, letters, memoranda, and short reports. Note: May not be taken concurrently with BOT* 137.
BOT* 112 Keyboarding for Information Processing II (BOT 102)  
Improves on the skills developed in the beginning course and introduces a variety of production problems, including correspondence, tabulations, business forms, and reports. Prerequisite: BOT* 111. Note: may not be taken concurrently with BOT* 111.

BOT* 137 Word Processing Applications (Word) (BOT 215)  
Introduces students to the concepts of word processing and hands-on experience with computers and popular word processing software. Prerequisite: BOT* 111. Note: May not be taken concurrently with BOT* 111.

BOT* 165 Small Business Office Accounting (BOT 209)  
Provides students with knowledge of basic accounting procedures. Topics covered include preparation of financial reports, recording daily transactions, banking procedures, payroll preparation, and accounting applications on a computer. Recommended for students in career or one-year certificate programs only.

BOT* 181 Medical Coding I  
Provides students with an in-depth study of basic International Classification of Disease, 9th rev. Clinical Modification (ICD-9-CM) and Current Procedural Terminology (CPT-4) coding. Diagnoses, procedures, signs, and symptoms will be studied and coded by students using the assigned textbook. The flow of medical records from the physician’s office to hospital discharge will be tracked for insurance, risk management, and case study purposes.

BOT* 182 Medical Coding II  
Continues the concepts introduced in Medical Coding I using International Classification of Disease, Clinical Modification (ICD-9-CM) and Current Procedural Terminology (CPT-4). Students will utilize medical records and case histories to code the diagnoses and procedures according to the level of care received in the appropriate medical facilities. Prerequisite: BOT* 181.

BOT* 215 Word Processing Applications II (Word) (BOT 216)  
Concentrates on applications and projects to promote competency with microcomputers using popular word processing software. Emphasizes recording, formatting, editing, and temporary and permanent revising. Prerequisite: BOT* 137 or instructor’s permission.

BOT* 217 Desktop Publishing (BOT 218) (Course has not been offered in past two years)  
Prerequisite: Knowledge of Microsoft Windows and touch keyboarding (35 wpm).

BOT* 219 Integrated Microsoft Office (BOT 204)  
Students will work independently to solve production problems of increasing complexity using Microsoft Office (Word, Excel, Access, and PowerPoint). Prerequisites: BOT* 112, BOT* 137, and CSA* 135.

BOT* 220 Computerized Communication (Microsoft PowerPoint, e-mail, Internet) (BOT 219)  
Provides students with hands-on experience using the Internet, e-mail and Microsoft PowerPoint presentation and voice-recognition software. In this activity-oriented course, students will use state-of-the-art software and hardware to develop skills in these areas. Prerequisite: Knowledge of Microsoft Windows.

BOT* 251 Administrative Procedures (BOT 205)  
Includes letter composition, keyboarding rough drafts, handling incoming and outgoing mail, records management, preparing itineraries and reports, telephone etiquette, business ethics and etiquette. Prerequisite: BOT* 137 or instructor’s permission.

BOT* 271 Legal Document Production (BOT 213) (Course has not been offered in past two years)  
Helps students achieve the ability to type legal documents correctly and efficiently. Includes keyboarding legal terminology with speed and accuracy, understanding the use of legal documents, and knowing how to produce legal documents and correspondence. Offered in the fall semester of odd years (2005, 2007, etc.). Prerequisite: BOT* 112 and BOT* 137 or instructor’s permission.

BOT* 272 Legal Administrative Procedures (BOT 211) (Course has not been offered in past two years)  
Applies keyboarding skills to prepare legal papers and correspondence and presents the court system and the sources of laws, law office ethics, non-court documents, litigations, and appeals. Offered in the fall semester of odd years (2005, 2007, etc.). Prerequisites: BOT* 112 and BOT* 137 or instructor’s permission.
BOT* 280  Medical Transcription and Document Production (BOT 223)  3 S.H.
Introduces medical terms and develops transcription techniques to produce acceptable copy within a time frame that meets real employment requirements. Enlarges medical vocabulary through the study of prefixes and suffixes used in general medicine. Prerequisite: BOT* 137 or instructor’s permission.

BOT* 282  Medical Administrative Procedures (BOT 221)  3 S.H.
Presents the duties and responsibilities of the medical administrative assistant, including medical office ethics, how to deal with patients, health insurance, medical office software, telephone techniques, and filing. Prerequisite: BOT* 137 or instructor’s permission.

BOT* 295  Administrative Practicum (BOT 210)  3 S.H.
Provides on-the-job experience in the offices of the College, area businesses, local lawyers’ or doctors’ offices or hospitals. Students are required to work a total of 125 hours during the semester. Hours will be arranged by mutual consent of the student and employer. In-class sessions are held during the semester for orientation and evaluation purposes. Prerequisite: BOT* 251; Legal: BOT* 271 and BOT* 272; Medical: BOT* 280 and BOT*282. Note: Students must meet with instructor during the semester prior to taking this course. Instructor’s permission required for registration.

CHEMISTRY

CHE* 101  Introductory Chemistry (CHE 110)  3 S.H.
Surveys important chemical theories and applications, including the atomic structure of matter, chemical bonding and energy changes, gas laws, stoichiometry, solutions, electrochemistry, organic chemistry, and biochemistry. Prerequisite: MAT* 115 or 137 or placement in MAT* 142 or higher. Students wishing to transfer should take MAT* 137.

CHE* 111  Concepts of Chemistry (CHE 117)  4 S.H.
Serve either as a survey course or as a preparatory course for general chemistry. Intended for students with little or no background in Chemistry or for students who need to meet a readmission requirement for nursing or other allied health programs. Also serves students who require a laboratory science course. Discusses fundamental principles, theories, and laws of chemistry, including organic chemistry and biochemistry. Three hours of lecture / three hours of laboratory. Prerequisite: MAT* 115 or 137 or placement in MAT* 142 or higher. Students wishing to transfer should take MAT* 137.

CHE* 121  General Chemistry I (CHE 121)  4 S.H.
Presents the fundamental principles of chemistry, including atomic structure, stoichiometry, chemical bonding, chemical reactions, and chemical and physical changes. Laboratory experiments consist of the basic techniques used for chemical analysis and chemical reactions. Three hours of lecture / three hours of laboratory. Prerequisite: MAT* 115 or 137 or placement in MAT* 142 or higher. Students wishing to transfer should take MAT* 137.

CHE* 122  General Chemistry II (CHE 122)  4 S.H.
Builds on the knowledge learned in General Chemistry I. Includes reaction rates, electrochemistry, equilibrium conditions, pH, buffers and energy effects in chemical reactions. Three hours of lecture / three hours of laboratory. Prerequisite: CHE* 121.

CHE* 211  Organic Chemistry I (CHE 211)  4 S.H.
Presents bonding, formulation, and molecular shapes of organic molecules. Presents nomenclature, preparation, and creations of alkanes, cycloalkanes, alkenes, alkynes, and aromatics. Explains reaction mechanisms when necessary. The laboratory portion features the basic reaction and preparation techniques used in organic chemistry. The laboratory exercises investigate either the preparation or the reaction of the aforementioned chemical species. Three hours of lecture / four hours of laboratory. Prerequisite: CHE* 121 or instructor’s permission.

CHE* 212  Organic Chemistry II (CHE 212)  4 S.H.
Builds on the knowledge learned in Organic Chemistry I, presenting the nomenclature, preparation, and creation of alcohols, ethers, aldehydes, ketones, carboxylic acids, esters, amines, and biomolecules. Explains reaction mechanisms when necessary. The laboratory exercises investigate either the preparation or the reaction of the aforementioned chemical species. Other laboratory exercises include using modern instrumentation to identify organic compounds. Three hours of lecture / four hours of laboratory. Prerequisite: CHE* 211 or instructor’s permission.

CLEAN WATER MANAGEMENT

CWM* 106  Introduction to Utility Management  3 S.H.
Introduces areas of water and clean water (aka wastewater) including organization, planning, public relations, customer service, finances, environmental health and safety, security, operations and maintenance, human resources, information system and services, legal issues, support services, competition, continual improvement management and crisis communication.
CWM* 108 Chemistry, Biology & Mathematics of Clean Water 4 S.H.
Provides the biology, chemistry and mathematics knowledge necessary to succeed in subsequent courses covering the operation and maintenance of municipal wastewater facilities. Emphasis is placed on application to municipal wastewater facilities with a goal of preparing students to successfully pass Class I, II II and IV Wastewater Certification Examinations administered by the Connecticut Department of Environmental Protection.

CWM* 110 Clean Water I 3 S.H.
Introduces the safe and effective operation of wastewater treatment plants including preliminary, primary, and secondary treatment and disinfection.

CWM* 112 Clean Water II 3 S.H.
Introduces the safe and effective operation of wastewater treatment plants including security, surface and groundwater quality standards, sludge/biosolids handling, effluent disposal, biological processes and cycles, plant safety and maintenance, pumps, laboratory testing of wastewater and permits, records and reports. Two hours lecture/two hours lab. Prerequisite: CWM* 110, DEP Class 1 License or permission of instructor.

CWM* 114 Clean Water III 3 S.H.
Introduces the safe and effective operation of wastewater treatment plants including odor control, nitrogen and phosphorous removal, wastewater reclamation and recycling, instrumentation and residual solids management. Two hours lecture/two hours lab. Co-requisite: CWM* 112, DEP Class 2 license or permission of instructor.

COMMUNICATIONS

COM* 106 Introduction to Broadcasting (COM 103) 3 S.H.
Surveys broadcasting in the United States from its beginning to the present. Emphasizes the physical nature of the medium, the historical accidents of its origin and growth, the economic basis of its operation, and the role of the broadcaster in our society.

COM* 107 Mass Communication and Advertising (COM 106) 3 S.H.
Examines the social and economic aspects of advertising and consumer psychology, including the role of mass communication and advertising in marketing strategies. Presents legal restrictions, advertising practices, and issues and emphasizes the organization of the advertising industry today.

COM* 121 Journalism I (COM 102) 3 S.H.
Examines the role of the newspaper in our changing society and introduces the practical aspects of newspaper production. Includes assignments in reporting, editorializing, feature writing, and editing. May require students to participate in the production of collegewide periodicals. Prerequisite: ENG* 101 or instructor’s permission.

COM* 141 Television Production I 3 S.H.
Introduces the art, practice, theory and history of television production. Both experienced and non-experienced students will benefit from this course through study, hands-on production and editing techniques, workshops and actual studio practice during which students will work on actual live and taped programs.

COM* 171 Fundamentals of Human Communication (COM 101) 3 S.H.
Develops effective communication skills through a balance of theory and practice in interpersonal, small group, and public speaking contexts. Stresses verbal and non-verbal communication, critical listening, and the processes of preparing and delivering oral presentations. Prerequisite: Sufficient score on placement test. Developmental students should not take COM* 171 unless they have successfully completed ENG* 063, ESL* 161 and ESL* 178 with a grade of “C” or better (or instructor recommendation). (If students place into both ENG* 063 and ENG* 073 or ENG* 082, they must successfully complete both with a grade of “C” or better).

COM* 172 Interpersonal Communication (COM 109) 3 S.H.
Develops oral communication skills in personal, family, and business relationships through practical applications and exercises. Provides an understanding of self and others. Examines assertiveness and interactive strategies.

COM* 174 Advanced Public Speaking (COM 202) 3 S.H.
Builds on the theory and practice of public speaking. Designed for professionals, advanced communication students, and for students needing to improve their presentation skills beyond an entry-level course. Offered under the College’s independent study option as COM 209. Enrollment by application, subject to faculty and/or departmental approval. Prerequisite: COM* 171.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>COM* 208</td>
<td>Mass Media and Society (COM 205)</td>
<td>3 S.H.</td>
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<tr>
<td></td>
<td>Surveys the components of mass communication. Introduces the nature and complexity of mass media by examining its role in the political, economic, and social fabric of society.</td>
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<tr>
<td>COM* 299</td>
<td>Independent Study</td>
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<tr>
<td><strong>COMPUTER AIDED DRAFTING</strong></td>
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<tr>
<td>CAD* 108</td>
<td>CAD Introduction (CAD 110)</td>
<td>3 S.H.</td>
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<td></td>
<td>Introduces the procedures and techniques of Computer-Aided Design (CAD). Lectures cover production of orthographic and simple isometric drawings from basic entities and editing commands. One hour of lecture / four hours of laboratory. All classes are conducted in a computer laboratory. Corequisites: CET* 116 or equivalent and ARC*133 or equivalent.</td>
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<tr>
<td>CAD* 124</td>
<td>CAD: Electrical (EET 111)</td>
<td>1 S.H.</td>
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<td></td>
<td>Introduces students to the computer-aided drawing software of MultiSim and OrCAD. Students produce a variety of electrical and electronic schematics and diagrams. Students also learn to apply the principles of graphing to engineering technology. Three hours of laboratory. (CAD* 126 Electrical Graphics/CAD can be substituted for this course.)</td>
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<tr>
<td>CAD* 126</td>
<td>Electronics Graphics/CAD (ETC 110)</td>
<td>3 S.H.</td>
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<td></td>
<td>Introduces the concepts and practical applications of computer-aided design for electrical and electronic circuits, using software such as MultiSim and OrCAD. Also introduces the simulation of electrical and electronic circuits. Three hours of lecture in a laboratory setting. CAD* 126 can be substituted for CAD* 124.</td>
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<tr>
<td>CAD* 200</td>
<td>3D CAD Modeling (CAD* 132)</td>
<td>4 S.H.</td>
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<td></td>
<td>Improves students’ CAD competencies by presenting additional techniques and specialized commands. Two hours of lecture / four hours of laboratory. All classes are conducted in a computer laboratory. Prerequisite: CAD* 108 or equivalent.</td>
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<tr>
<td>CAD* 220</td>
<td>Parametric Design</td>
<td>3 S.H.</td>
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<td>Introduces the Solid Works parametric mechanical design software. Focuses on parametric modeling and includes topics such as the design process, rapid prototyping, and mechanism analysis. Students will design 3D solid parts, sheet metal parts, and assemblies and develop 2D documentation from them. Students will participate in individual and group design projects as appropriate. (Prior knowledge of CAD or permission of instructor required)</td>
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<tr>
<td>CAD* 271</td>
<td>CAD Solids Mechanical Pro-Engineer</td>
<td>3 S.H.</td>
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<td></td>
<td>Introduces the basic Pro-Engineer software operation including part creation, drawing and assembly. 3D objects are made and orthographic drawings are created. Pro-Engineer is 3D solid modeling software from parametric technology.</td>
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<tr>
<td><strong>COMPUTER ENGINEERING TECHNOLOGY</strong></td>
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<tr>
<td>CET* 110</td>
<td>DC/AC Circuits</td>
<td>5 S.H.</td>
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<td>Presents the fundamental concepts of electric circuit behavior. Students will also learn basic DC and AC circuit analysis involving resistive, inductive, and capacitive elements and how reactance, resonance, and transformer relationships affect AC circuit response. Four hours of lecture / two hours of laboratory. Prerequisite: MAT* 095 or higher level math class.</td>
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<tr>
<td>CET* 116</td>
<td>Computer Applications for Technology</td>
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<td>Introduces technology-driven reporting requirements for text, data and graphics, virtual instrumentation, computer simulations for technology problem solving, and determination of computer tools for technology issues. Stresses technical report preparation, including graphical and tabulated analysis of data, with appropriate calculations and conclusions displayed in a variety of formats. Computer skills used to access and apply technical information will also be included. Two hours of lecture / two hours of laboratory.</td>
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<tr>
<td>CET* 120</td>
<td>Computer Electronics</td>
<td>5 S.H.</td>
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<td>Surveys hardware and software computer elements beginning with semiconductor devices and theory. Topics covered include general and special purpose diodes and related circuits, rectifier circuits, clipping and clamping circuits, transistors (including BJT, FET and UJT), and amplifier, oscillator, power supply, and voltage regulation circuits. This course concludes with an introduction to op-amps and their basic applications. Four hours of lecture / two hours of laboratory. Prerequisite: CET* 110 or equivalent.</td>
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<td>CET* 124</td>
<td>Structured Programming</td>
<td>4 S.H.</td>
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<td>CET* 126</td>
<td>Computer Servicing</td>
<td>4 S.H.</td>
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<tr>
<td>CET* 145</td>
<td>Fundamentals of Voice and Cabling</td>
<td>4 S.H.</td>
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<tr>
<td>CET* 210</td>
<td>Computer Systems Software</td>
<td>4 S.H.</td>
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<tr>
<td>CET* 220</td>
<td>Digital/Data Communications</td>
<td>4 S.H.</td>
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<tr>
<td>CET* 270</td>
<td>Computer Engineering Technology Practicum</td>
<td>4 S.H.</td>
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<tr>
<td>CSA* 105</td>
<td>Introduction to Software Applications</td>
<td>3 S.H.</td>
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<tr>
<td>CSA* 135</td>
<td>Spreadsheet Applications (Excel) (BOT 216)</td>
<td>3 S.H.</td>
</tr>
<tr>
<td>CSA* 140</td>
<td>Database Applications (Access) (BOT 218)</td>
<td>3 S.H.</td>
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<tr>
<td>CSA* 295</td>
<td>Computer Science Applications Practicum</td>
<td>3 S.H.</td>
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**COMPUTERS (APPLICATIONS)**

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<td>CSA* 295</td>
<td>Computer Science Applications Practicum</td>
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CSA* 296  CWE - Computer Applications  3 S.H.
Places senior Computer Science students in positions where they can use the technical skills acquired in this program. Assignments may be in an educational or corporate environment. It is strongly recommended that students interested in securing internships take advanced courses in subjects such as: Visual BASIC, networking, and ‘C’ language. All of the organizations participating in our program require that interns earn excellent grades in advanced courses in the internship area prior to placement. Both the number and the type of internships vary from year to year and the most qualified applicants are awarded the internships available. Students are responsible to the department for proper documentation of their work assignments and a final report summarizing the overall work experience. The student will work a minimum of eight hours per week. Prerequisite: 24 earned credits in Computer Science courses; minimum QPA of 3.25; completion of CSC* 208; and formal notification of approval of internship application.

COMPUTERS (COMPUTER SCIENCE)

CSC* 101  Introduction to Computers (CSC 101)  3 S.H.
Introduces the fundamental components common to all computer systems, including a comprehensive overview of contemporary computer terminology and concepts. Utilizes the College’s computer resources for solving problems. Topics studied include the use of word processing, electronic spreadsheets, Microsoft Windows, the Internet, and other popular software packages.

CSC* 110  Computer Logic and Problem Solving (CSC 104)  3 S.H.
Presents the fundamentals of computer problem-solving techniques. Stresses flow-charting and algorithm development. Three hours of lecture / two hours of laboratory. Pre or co-requisite: CSA* 105 or CSC* 101.

CSC* 150  Database Applications and Design - Using SQL (CSC 150)  4 S.H.
Presents relational database concepts and organization. Students will learn to use SQL to query and change these databases and generate the output needed. Furthermore, students will design their own databases using one or more of the dominant relational databases, such as ACCESS or ORACLE. Three hours of lecture / two hours of laboratory.

CSC* 207  Introduction to Visual Basic I  4 S.H.
Presents both the design and implementation of computer programs using Microsoft Visual Basic for Windows. Students will build applications, work with controls, and design forms. Three hours of lecture / two hours of laboratory. Prerequisites: CSC* 101 or CSA* 105.

CSC* 208  Advanced Visual Basic (CSC 232)  4 S.H.
Covers the benefits of on-line systems while concentrating on Visual Basic as the supportive software. Topics will be related to the operating environment, screen layouts and design, program components, input, output, file commands, and maintenance control. Using Visual Basic, students will build applications for the interactive control of file maintenance, including inquiry, adds, deletes, updates, and browse. Students have control of the complete cycle of program development. Three hours of lecture / two hours of laboratory. Prerequisite: CSC* 205.

CSC* 210  C Programming (CSC 128)  4 S.H.
Introduces the basics of programming in C, emphasizing the development of programming tools, data structures, library functions, and bitwise operators. The laboratory portion provides laboratory exercises to reinforce the topics covered in the C programming language. Three hours of lecture / two hours of laboratory. Prerequisite: CSC* 101.

CSC* 212  Advanced C Programming (CSC 212)  4 S.H.
Covers the techniques and applications of such advanced topics in the C language as searching and sorting using arrays, file processing, data structures, pointers, and random access to files. The laboratory portion gives the student the opportunity to implement programs using the new concepts learned in lecture. Prerequisite: CSC* 210 or CSC* 213. Three hours of lecture / two hours of laboratory.

CSC* 215  Programming with Object Oriented C++  4 S.H.
Introduces computer programming using C++. Each student will design, test, debug, and document several programs during the semester. Three hours lecture/two hours lab. Prerequisite: CSA* 105 or CSC* 101.

CSC* 223  Introduction to Java Programming (CSC 145)  4 S.H.
Presents the fundamentals of Java programming as an object-oriented language. Topics include classes, objects, data structures, event handling, graphical user interfaces, control structures, and methods. Three hours of lecture / two hours of laboratory. Prerequisite: CSA* 105 or CSC* 101.
# Systems Analysis and Design (CSC 224)

Introduces systems analysis and design concepts and techniques. Using a case study method, students will conduct systems surveys, create feasibility studies, and design typical computer systems used in business and industry. Uses case studies to individualized student projects, reports, and PC systems. Prerequisite(s): CSC* 101 or CSA* 105 or departmental permission.

## COMPUTER SCIENCE (TECHNOLOGY)

**CST* 127 Server Operating System**

Analyzes the use of operating systems as a computer resource manager. It covers installation, configuration, maintenance and performance tuning of the operating system. Students will work on servers using the Microsoft Windows operating system. Also covers managing users and groups, computers and printers, file server management, and file system security. Microsoft Active Directory Services is a major topic in this course. Prerequisite: CST* 133.

**CST* 133 Networking Fundamentals I**

Presents the necessary knowledge and skills to complete the basic network management tasks of system administration in a Windows environment. Designed with frequent lab exercises, students will learn network fundamentals including the OSI layer, topology, TCP/IP (IPv4 & IPv6), network security, and troubleshooting procedures. Network hardware such as routers, hubs, switches, racks and cabling are introduced. Three hours lecture/two hours lab. Corequisite: CSC* 101.

**CST* 149 Computer Network Hardware**

Provides students with the technical knowledge and skills to maintain, troubleshoot and service Microsoft server and network equipment. Designed with frequent lab exercises to provide students with ample “hands-on” experience with the hardware and software components of a Windows network. Students will disassemble, reassemble, troubleshoot, and load device drivers for PC and server type computers. Also covers network hardware such as routers, switches, racks, uninterruptable power supplies, and tape drives. Three hours lecture/two hours lab. Prerequisite: CST* 133.

**CST* 152 Introduction to Web Page and Design (CSC 140)**

Discusses effective design of Web pages, emphasizing clarity, organization, text, images, and links. Students will work with an HTML editor and an Internet browser to test and view pages. Students will use JavaScript to create, maintain, and update Web pages. Tags, objects events, input methods, table creation, and rollover images are among the JavaScript topics that will be covered. Three hours of lecture / two hours of laboratory. Prerequisite: CSA* 105 or CSC* 101.

**CST* 180 Networking I (CSC 195)**

Serves as the first course in a series of four courses that provide classroom and laboratory experience in current and emerging networking technology. This series will empower students to enter the workforce and/or further their education and training in the computer networking field. Topics include the functions of the ISO/OSI reference model, data link and network addresses, the function of a MAC address, data encapsulation, the different classes of IP addresses and subnetting, and the functions of the TCP/IP network-layer protocols. Students learn how to plan, design, and install an Ethernet LAN using an extended or hierarchical star topology; select, install, and test cable; and determine wiring closet locations. Three hours of lecture / two hours of laboratory.

**CST* 181 Networking II (CSC 196)**

Serves as the second course in a series of four courses that provide classroom and laboratory experience in current and emerging networking technology. This series will empower students to enter the workforce and/or further their education and training in the computer networking field. Instruction includes, but is not limited to, safety, networking, network terminology and protocols, network standards, LANs, WANs, OSI models, ethernet, Token Ring, Fiber Distributed Data Interface, TCP/IP Addressing Protocol, dynamic routing, routing, and the network administrator’s role and function. Three hours of lecture / two hours of laboratory. Prerequisite: CST* 180.

**CST* 182 Networking III (CSC 205)**

Serves as the third course in a series of four courses that introduces new content and extends previously learned networking skills. This series will empower students to enter the workforce and/or further their education and training in the computer networking field. Instruction introduces and extends the student’s knowledge of and practical experience in skills related to configuring LANs, WANs, Novell Networks, Internet work Packet Exchange (IPX) routing, Interior Gateway Routing Protocol (IGRP) protocols, and network troubleshooting. Three hours of lecture / two hours of laboratory. Prerequisite: CST* 181.
CST* 183  Networking IV (CSC 206)  4 S.H.
Serves as the fourth course in a series of four courses that introduces new content and extends previously learned networking skills. This series will empower students to enter the workforce and/or further their education and training in the computer networking field. Instruction introduces and extends students’ knowledge of and practical experience with Wide Area Networks (WANs), Integrated Services Data Networks (ISDN), Point-To-Point Protocols (PPP), and Frame Relay design, configuration, and maintenance. Develops practical experience and skills related to configuring WANs, ISDN, PPP, Frame Relay protocols, and network troubleshooting. Three hours of lecture / two hours of laboratory. Prerequisite: CST* 182.

CST* 188  Networking Fundamentals II  4 S.H.
A continuation of CST* 133, this course provides the student with knowledge and skills to administer Local Area Networking concepts beyond the client/server topics of CST* 133. More advanced information on routers, switches, wireless technology, cable management and the new Internet Protocol standard (IPv6) will be discussed. The process of designing and installing a Network are also discussed. Three hours lecture/two hours lab. Prerequisites: CST* 127 and CST* 149.

CST* 234  Network+ (CSC 233)  3 S.H.
Prepares students to take the Network+ certification exam from the Computing Technology Industry Association (CompTIA). The Network+ examprovides a challenging test of networking knowledge and skills. This course provides all the information needed to perform key networking installation, configuration, and administration tasks. Prerequisite: CSC* 101.

CST* 273  Security Management Practices  3 S.H.
Covers the identification of an organization’s information assets and the development, documentation, and implementation of policies, standards, procedures, and guidelines that ensure confidentiality, integrity, and availability. This course will prepare the student to understand the planning, organization, and roles of individuals involved in security, develop security policies, and utilize management tools used to identify threats, classify assets, and rate vulnerabilities. Prerequisites: CSA* 105, CSC* 101 or CET* 116 and ENG* 101.

CRIMINAL JUSTICE

CJS* 101  Introduction to Criminal Justice (CJU 101)  3 S.H.
Surveys the evolution, principles, concepts, and practices of law enforcement. The course examines the structure and organization of courts in the administration of criminal justice in the U.S.A. Topics include the American model of criminal justice, police and the community, police and the constitution, and the American legal system.

CJS* 102  Introduction to Corrections (CJU 102)  3 S.H.
A study of the history, philosophy, and evolution of corrections. The course examines the following processes used by our courts: probation, parole, treatment programs, and rehabilitation models. Punishment and the functions of our jails and prisons are examined. Additional topics include plea-bargaining, speedy trial, sentencing, prisoner’s rights, victimization, and juvenile justice.

DANCE

DAN* 141  Dance: Mind, Body, Spirit  3 S.H.
Introduces the processes and materials involved in creating dances. It also requires students to discuss and analyze their own original choreography as well as that of other students. Spontaneity and trust in one’s intuitive movement response is encouraged through structures that explore the creative process in dance. An appreciation of dance history and the pioneering spirit of modern dance giants will be studied.

PRE-DENTAL HYGIENE

DNT* 105  Introduction to Dental Hygiene I  1 S.H.
Provides students with a survey of contemporary issues encountered by health care professionals. Emphasis is placed upon personal oral self care, dental specialties, ethical and legal aspects of dentistry, an introduction to oral pathology, disease transmission, and infection control, principles and techniques of disinfection and sterilization, and an introduction to the dental hygiene treatment appointment.
DNT* 106  **Introduction to Dental Hygiene II**  1 S.H.
Continues the study of Dental Hygiene I (DNT* 105) and provides students with a survey of contemporary issues encountered by dental health care professionals. Emphasis is placed on professional standards, health promotion, disease prevention, review of dental specialties and ethical issues that are encountered by dental hygienists. Prerequisite: DNT* 105

**DIAGNOSTIC MEDICAL SONOGRAPHY**

DMS* 102  **Sonographic Physics and Instrumentation I (DMS 122)**  3 S.H.
Presents the basic physical principles of sound waves, their applications to the human body, the operation and physical characteristics of the ultrasound transducer, the method by which the sound wave is converted into a visual image, and equipment components and their functions. Some topics include reflection, refraction, scattering, amplitude, intensity, speed, attenuation, impedance, propagation, image artifacts, quality control, and the biological effects of ultrasound. Prerequisites: DMS* 104, DMS* 105, and DMS* 113, PHY* 111. Corequisites: DMS* 103 and DMS* 112.

DMS* 103  **Sonographic Imaging (DMS 121)**  4 S.H.
Instructs DMS students in scan planes, anatomical positioning, scan protocols, scan preparations, scan scheduling, appropriate history recording, and correlations with other diagnostic procedures. Also presents the techniques required for initiating and completing diagnostic sonographic procedures for abdominal, obstetrical, and gynecological patients. Prerequisites: DMS* 104, DMS* 105, DMS* 111, and DMS* 113. Corequisites: DMS* 102 and DMS* 112.

DMS* 104  **Introduction to Abdominal / Small Parts Sonography**  3 S.H.
This course prepares students for the clinical aspects of diagnostic medical sonography. Through classroom lectures and handouts, students will learn to function as entry-level employees in the clinical practicum and be able to advance in the profession. Prerequisites: BIO* 211, BIO* 212, and RST* 200. Corequisites: DMS* 105 and DMS* 111.

DMS* 105  **Introduction to OB/GYN Sonography**  3 S.H.
This course prepares students for the clinical aspects of obstetrics and gynecology. Through classroom lectures and handouts, students will learn to function as entry-level employees in the clinical practicum and be able to advance in the profession. Prerequisites: BIO* 211, BIO* 212, and RST* 200. Corequisites: DMS* 104 and DMS* 111.

DMS* 111  **Clinical Practicum I (DMS 112)**  1 S.H.
Introduces the clinical components of Diagnostic Medical Sonography with supervised clinical experience in an approved medical facility. Students observe basic scanning techniques, methods, and procedures. Provides experience with patient contact, history interviews, professional attitudes and ethics, and other basic patient/professional situations under the direct supervision of a Registered Diagnostic Medical Sonographer (RDMS). Completion of clinical competency levels and a minimum of 224 clinical hours are required to complete this course. Prerequisites: PHY* 111, DMS* 104, and DMS* 105.

DMS* 112  **Clinical Practicum II (DMS 123)**  1 S.H.
Continues Clinical Practicum I and covers basic scanning techniques, methods, and procedures as supervised clinical experience in an approved medical facility. Students are introduced to basic sonographic positioning, planes, and terminology. Completion of clinical competency levels and a minimum of 224 clinical hours are required to complete this course. Prerequisites: DMS* 104, DMS* 105, and DMS* 111. Corequisites: DMS* 102 and DMS* 103.

DMS* 113  **Clinical Internship I**  1 S.H.
Strengthens students’ clinical skills with experience in a five-day workweek. Students practice their ultrasound and patient care skills in a hospital. Because the DMS program is competency-based, competencies will be assigned and completed at the clinical site. Prerequisites: DMS* 104, DMS* 105, and DMS* 111.

DMS* 126  **Clinical Internship II**  2 S.H.
This clinical internship strengthens students’ clinical skills with experience in a five-day work week over a longer period of time that the Clinical Internship I. Students will hone their ultrasound and patient care skills in a hospital. Because the DMS program is competency-based, competencies will be assigned and completed at the clinical site. Clinical Internship II runs from the Monday following spring final examinations through the day before the beginning of the new fall session. Prerequisites: DMS* 102, DMS* 103, and DMS* 112.
DMS* 201 Sonographic Physics and Instrumentation II (DMS 211)  3 S.H.
This course will include a discussion of basic principles of sound waves and their application in Ultrasound image production. The principles of Doppler, including instrumentation, transducers, conversion into visual image and artifacts will be discussed. Hemodynamics, as the source of our studies will be discussed. Understanding the mathematical applications of reflection, refraction, scattering, intensity and attenuation is stressed. Recording and archiving techniques as well as display devices will be taught. Review of scientific notation, decibels, artifacts and bioeffects will take place. Laboratory sessions reinforce lectures. Prerequisites: DMS* 102 and DMS* 126. Corequisites: DMS* 203 and DMS* 211.

DMS* 203 Advanced Sonographic Application (DMS 213)  3 S.H.
Explores the use of Doppler in B-mode scanning using real time equipment. Applies previously learned normal anatomy to concurrent education on Doppler Physics and Pathology. Iatrogenic, degenerative, inflammatory, traumatic, neoplastic, infectious, obstructive, congenital, metabolic, and immunological pathological processes will be presented with Doppler (Color and Spectral) applications. Presents equipment parameters, various types of specialized equipment, and hard copy documentation devices. Clinical objectives in DMS* 211 will reinforce lectures. Prerequisites: DMS* 102, DMS* 103, and DMS* 126. Corequisites: DMS* 201 and DMS* 211.

DMS* 205 Abdominal Sonography (DMS 223)  3 S.H.
Presents a detailed approach to the anatomy, physiology, and pathophysiology of abdominal structures imaged with ultrasound. Includes liver, biliary system, pancreas, and retroperitoneal region. Correlates clinical findings, including laboratory studies, with sonographic findings. Discusses protocol, instrumentation, and scanning techniques. Also discusses anatomy, physiology, and pathophysiology of abdominal and superficial structures imaged with ultrasound, including spleen, superficial structures, and the gastrointestinal and abdominal walls. Discusses proper scanning techniques, protocols, and instrument settings along with clinical, sonographic and laboratory aspirations, biopsies, and intra-operative procedures. Presents proper sterile technique, needle guide use, and post procedure protocol. Prerequisites: DMS* 201, MS* 203, DMS* 211 and RST* 217. Corequisites: DMS* 206, DMS* 208, and DMS* 212.

DMS* 206 Vascular Imaging (DMS 224)  3 S.H.
Presents normal scanning techniques, pitfalls, and pathology of the carotid, arterial, and venous systems of the upper and lower extremities. A study packet containing objectives, assignments, worksheets, and handouts, is augmented by the use of such audiovisual aids as videodisc programs, tapes, and diagrams. Covers the basic techniques for imaging the heart using ultrasound. Topics include the use of M-mode, two-dimensional imaging, and Doppler imaging techniques. Prerequisites: DMS* 201, DMS* 203, DMS* 211 and RST* 217. Corequisites: DMS* 205, DMS* 208, and DMS* 212.

DMS* 207 GYN Sonography  2 S.H.
Presents a detailed approach to the anatomy and physiology of the female reproductive system. Discussed proper scanning techniques including the sonographic appearance of the female pelvis at various stages of life. Instructs students in the recognition, identification and appropriate documentation of the sonographic appearance of gynecologic disease processes, pathology and pathophysiology and includes: history and physical exam, related imaging, laboratory and functional testing procedures, differential diagnosis, role of ultrasound in patient management, the infertile patient. Prerequisites: DMS* 201, DMS* 203, DMS* 211 and RST* 217.

DMS* 208 Obstetrical Sonography  3 S.H.
Explores the dramatic changes in fetal developmental from fertilization to birth. Discusses proper scanning techniques including the sonographic appearance of normal and abnormal fetal anatomy and protocol and proper instrument settings. The pathological conditions relating to obstetrics are discussed including clinical and sonographic findings. Analyzes the proper protocol, pathological conditions and patient care relating to obstetrical examinations, including clinical and sonographic findings. Prerequisites: DMS* 201, DMS* 203, DMS* 207, DMS* 211 and RST* 217. Corequisites: DMS* 205, DMS* 206, and DMS* 212.

DMS* 211 Clinical Practicum III (DMS 214)  1 S.H.
Introduces advanced scanning techniques to demonstrate cross-sectional anatomy and pathology of specific and nonspecific disease and traumatic changes in a supervised clinical experience in an approved medical facility. Specific attention is given to fetal development, fetal anomalies, and abnormal prenatal and maternal conditions as they relate to Sonographic scanning and interpretation of images. Students work under the supervision of an RDMS professional. Students are expected to perform sonographic procedures independently as a regular part of this course. Completion of clinical competency levels and a minimum of 336 clinical hours are required to successfully complete this course. Prerequisite: DMS* 126. Corequisites: DMS* 201 and DMS* 203.
DMS* 212  Clinical Practicum IV (DMS 225)  3 S.H.
Introduces advanced scanning procedures, methods, and experience in a supervised clinical experience in an approved medical facility. Students experience advanced scanning modalities via M-mode, Doppler, Real-time, and invasive procedures. Provides comparative interpretations of sonographic imaging with other diagnostic imaging modalities. Combines scanning experience with radiologist-supervised image interpretation sessions. Students are expected to initiate, perform, and complete all sonographic procedures without the direct supervision of an RDMS. Successful course completion requires achievement of competency levels and a minimum of 336 clinical hours. Prerequisites: DMS* 201, DMS* 203, and DMS* 211. Corequisites: DMS* 204, DMS* 205, and DMS* 206.

DRAFTING (See architecture)

DRUG AND ALCOHOL RECOVERY COUNSELOR

DAR* 101  Public Health Issues: Abuse & Addiction (DAR 101)  3 S.H.
Students will explore key topic areas in the addictions field such as: models and theories of addiction and recovery; history of legislation and regulation; self-help and evidenced-based approaches to recovery. This course provides a comprehensive overview of public health problems related to substance misuse, abuse and dependence. Study areas include trends in substance use, co-occurring disorders, process addictions, relevant national drug policies, the role of the media, HIV/AIDS and other contagions, domestic violence, fetal alcohol spectrum disorder and costs to society. Students will be introduced to the prevention, harm reduction, and treatment continuum and its application to a public health model. Pre- or corequisite ENG* 101.

DAR* 111  Addiction Counseling I (DAR 111)  3 S.H.
Students will learn, practice, and develop counseling skills such as attending, reflecting, active listening, and confrontation. This course presents the fundamental theories of addiction counseling and the relationship of theory to skills. Students reflect on their roles as counselors and define the qualities, knowledge, and skills essential to become a competent, ethical, culturally-aware counselor-in-training. Combines didactic and experiential learning. Pre- or corequisite ENG* 101.

DAR* 112  Group Counseling: Theory & Techniques (DAR 112)  3 S.H.
Introduces the concepts and theories of group counseling, group dynamics, and group developmental stages. Students learn about different types of groups and how groups can be used to treat addiction in a multicultural environment. Students learn to distinguish between and work with group processes and content. Students have the opportunity to examine their own performances as group members and facilitators. Combines didactic and experiential learning. Prerequisite: DAR* 111 and pre- or corequisite ENG* 101 or higher or permission of coordinator.

DAR* 114  Introduction to Family Systems (DAR 114)  3 S.H.
Presents an overview of the family. Focuses on families with addictions by investigating the family as a system, the family life cycle, multicultural perspectives of family, and family roles and rules. Introduces family counseling theories, goals, strategies, and techniques. Students learn how to complete a genogram and how to use this tool as a counseling strategy. Prerequisite DAR* 111 and pre- or corequisite ENG* 101.

DAR* 117  Substance Abuse Prevention (DAR 117)  3 S.H.
Provides a comprehensive overview of the prevention field. The course will explore prevention theory and research, models of prevention, performance domains for prevention certification, ethics, cultural competencies, application of theory and research to program planning. Pre or co-requisite: ENG* 101 or permission of coordinator.

DAR* 119  Addiction Counseling in a Correctional Setting  3 S.H.
Provides an examination of addiction treatment across the spectrum of correctional settings. Students will understand the link between addiction and criminal behavior as well as the avenues for entering recovery via the correctional system. Focused study will investigate the evidenced-based treatment approaches that addictions counselors in correctional settings must be capable of implementing. Combines didactic and experiential learning opportunities. Prerequisite DAR* 111 and pre or corequisite ENG* 101 or higher.

DAR* 158  Biology of Addiction (DAR 158)  3 S.H.
Studies how and why drug abuse impacts both the human body and society. Students are introduced to the process of neurotransmission and learn how each class of psychoactive substances alters neurotransmission and homeostasis. The course examines the consequences of short- and long-term substance use, abuse, and addiction on all major bodily systems and the fetus. Pre- or corequisite ENG* 101.
DAR* 212 Multicultural Addiction Counseling 3 S.H.
Students will be introduced to major concepts essential to the understanding of culture, race, and diversity within the context of addiction counseling. Students will develop awareness of their own and others' cultural communication styles as well as values and beliefs regarding the use of substances. Students will practice conducting culturally competent assessments, recovery plans, and counseling skills for the treatment of substance use disorders. Combines didactic and experiential learning opportunities. Prerequisite: DAR* 111 and pre- or corequisite ENG* 101 or higher or permission of coordinator.

DAR* 213 Addiction Counseling II (DAR 213) 3 S.H.
Provides an overview of the major counseling theories and figures, including Gestalt, Reality, Person-Centered, and Rational-Emotive. Addresses the techniques and professional practices related to each theory. Theory and practice will focus on such current evidence-based treatment models as Cognitive-Behavioral, Motivational Interviewing, and Solution-Focused. Students apply basic counseling skills developed in DAR* 111 to a variety of evidence-based models and explore the theories and techniques most appropriate to specific treatment settings, client populations, and cultures. Combines didactic and experiential learning. Prerequisite: DAR* 111 and pre- or corequisite ENG* 101 or higher or permission of coordinator.

DAR* 220 Co-Occurring Disorders Counseling 3 S.H.
Students will be introduced to major concepts essential to the understanding of co-occurring substance use disorders and mental health disorders. Students will develop awareness of the unique challenges that face clients who are struggling with multiple diagnoses. Students will practice conducting competent assessments, recovery plans, counseling skills and continuum of care issues relevant to the recovery process for this special population. Combines didactic and experiential learning. Prerequisite: DAR* 111 and pre- or corequisite ENG* 101 or higher or permission of coordinator.

DAR* 251 Counseling Internship I (DAR 251) 6 S.H.
Provides students with the experience of spending 15 hours per week in a substance abuse treatment facility under the joint supervision of the DARC program and a credentialed supervisor at the facility. Students will observe the treatment process from intake to discharge. Students will observe, practice, and develop competency in the 8 domains of addiction counseling. As students develop increased competence, they will progress from active observers to co-counselors, and then to counselors. To enhance the field experience, students will continue academic study during a weekly seminar. Students will be expected to reflect on their fieldwork, participate in clinical supervision as well as peer group interaction and continue their research in support of counseling theories. Prerequisites: DAR* 101, DAR* 111, DAR* 112 and DAR* 158; ENG* 101 with a "C" or better within five years and permission of the program coordinator. Internship classes must be completed in consecutive semesters. If a student is unable to complete DAR* 252 in the spring following DAR* 251, DAR* 251 will need to be taken again. (This is the selective admission component of the DARC program which begins in the fall semester).

DAR* 252 Counseling Internship II (DAR 252) 6 S.H.
Continues DAR* 251; students extend their field placements, working fifteen hours per week in the same substance abuse treatment facility. Students refine their counseling skills and assume increased responsibility for implementing the 8 domains. During the semester, students function as a primary addiction counselor for one or more clients. The classroom component of this internship prepares students for the certification exam and case presentation and allows ongoing personal reflection and growth. Prerequisites: DAR* 251 and permission of the DARC program coordinator. DAR* 252 must be taken in the spring semester immediately following DAR* 251.

EARLY CHILDHOOD EDUCATION

ECE* 101 Introduction to Early Childhood Education (EDU 101) 3 S.H.
A study of the historical, philosophical and social perspectives of early education and care. The importance of child development from birth to age eight years is emphasized. Students will observe children and early education and care settings. The course acquaints students with trends in educational settings, curriculum planning based on the knowledge of developmentally appropriate teaching practices and explores the role of the teacher in an early childhood learning environment. Pre-requisite: eligible for ENG* 063 or higher.

ECE* 103 Creative Experiences/Children (EDU 103) 3 S.H.
Provides a variety of art experiences suitable for young children. Includes experimentation with and the use of various media, techniques, and methods. Emphasis is placed on the role of creative experiences in early childhood development. The selection of and approach to art experiences, media, and materials is related to the conceptual framework of the course. This ensures that the adult students are directly involved in the creative experience and can effectively lead others to it.
ECE* 106 Music and Movement for Children (EDU 105) 3 S.H.
Explores young children’s musical growth through singing, rhythmic and dramatic play, use of classroom instruments, recorded music, and the study of children’s natural fundamental movements. Teaching strategies will be analyzed through videotapes and film.

ECE* 109 Science and Math for Children (EDU 106) 3 S.H.
Prepares teachers to introduce science to young children in the classroom and in the field. Teachers also answer questions on the natural world. Approximately one-third of this course consists of field trips. Topics include ecology, geology, astronomy, and meteorology.

ECE* 110 Using Computers in ECE (EDU 109) 3 S.H.
Covers the design and use of microcomputers, including the selection of software used in a variety of regular and special education settings.

ECE* 121 First Aid, CPR, and Medication Administration (EDU 121) 1 S.H.
Trains students to handle many basic medical emergencies and outlines procedures to follow in assisting an injured or suddenly ill person until professional emergency medical services can be obtained. It also familiarizes students with the legal aspects of First Aid, CPR, and Medication Administration. Examples are derived from real life situations.

ECE* 123 Introduction to Family Support and Respite Care (EDU 123) 4 S.H.
Provides students with the special needs background, communication skills, attitudes, and techniques that will enable them to provide respite for families in crisis. Students learn the laws and dynamics of working with social services agencies to determine families that can benefit from respite care. Students are required to spend fifty hours demonstrating their proficiency in a practical setting. Students are also required to obtain certification in First Aid, CPR, and Medication Administration.

ECE* 141 Infant and Toddler Growth and Development (EDU 115) 3 S.H.
Prepares students to care for and teach infants and toddlers. Topics include typical infant and toddler development, developmental domains, and curriculum development and adaptation.

ECE* 142 Developmental Interventions for Infants and Toddlers at Risk (EDU 119) 3 S.H.
Presents typical and atypical infant and toddler development. Current issues and trends in family-centered care will be discussed. Intervention techniques and various applications and environments for intervention will be reviewed.

ECE* 176 Health, Safety & Nutrition 3 S.H.
Examines the relationship between health, safety and nutrition and child development. Emphasis will be on the strategies needed to implement a safe, healthy and nutritionally sound program. Community agencies and resources that benefit children and families will be explored.

ECE* 180 CDA Credential Preparation (EDU 110) 3 S.H.
Designed for childcare providers who wish to obtain a Child Development Associate (CDA) Credential. Students study the national standards for evaluation and accreditation by the Council of Early Childhood Professional Recognition and become familiar with the Direct Assessment System. Students analyze the CDA Competencies and Functional Areas and their integration into child development theory and practice. Coursework assists students to develop their professional resource file, complete other necessary documentation, and prepare for the final assessment process. Students will apply for the CDA Credential with one of the following endorsements: center-based preschool, center-based infant/toddler, family day care, or home visitor.

ECE* 181 CDA Credential Preparation II (EDU 181) 3 S.H.
Designed for childcare providers who are preparing for their Child Development Associate (CDA) Credential through the Council for Professional Recognition in Washington, D.C. under its present requirements. The student will attend a weekly seminar and a minimum 30 hours of fieldwork in a licensed early childhood setting. Course instructor will conduct onsite observation visits.

ECE* 205 Creative Activities and Media (EDU 206) 3 S.H.
Provides teachers of young children an in-depth involvement in the art experience and an understanding of how art is integral to the curriculum for young children. Emphasizes integrating art experiences with number concepts, reading readiness, literature, social studies, science, and music and movement. Trips to an art gallery and an artist's studio supplement classroom experiences. Prerequisite: ECE* 103.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ECE* 206</td>
<td>Administration and Supervision of Early Childhood Programs (EDU 214)</td>
<td>3 S.H.</td>
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<td></td>
<td>Explains the leadership role in the administration and supervision of private, public, and federally funded schools. Addresses the various philosophies, comprehensive programs, methods of managing staff and effective programs, regulations and efficient means of enforcement, and institutional facilities and equipment in a school.</td>
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<td>ECE* 210</td>
<td>Observations, Participation and Seminar (EDU 210)</td>
<td>3 S.H.</td>
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<td>Promotes objectivity in observing and interpreting children's behavior, allowing observation of developmental characteristics and increasing awareness of typical and atypical patterns of behavior. Observation and participation placements for the study of young children are provided at the GCC Early Learning Center and at area preschools. Students observe and participate in their respective placement locations for sixty hours to gain experience and competency working with young children. Weekly seminars devoted to issues in observing and understanding children’s development expand students' observation and participation experiences. Prerequisite: PSY* 122.</td>
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<td>ECE* 212</td>
<td>Administrative Leadership in Early Childhood Programs</td>
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<td>Examines the multi-dimensional roles of the early childhood program administrator. Emphasis will be on effective leadership and the impact of communication and interpersonal skills, decision-making and participatory management tools, how to conduct effective meetings, formation of partnerships with families, child welfare advocacy, and strategic approaches to initiating and implementing change.</td>
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<td>ECE* 213</td>
<td>Finance for Early Childhood Program</td>
<td>3 S.H.</td>
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<td>Focuses on the financial aspects of administering an early childhood program. It will explain and discuss the various aspects of budgeting including tools that are commonly used in all businesses as well as tools that are specific to ECE programs. It will address the “trilemma” inherent to programs with strategies to think about balancing cost, quality and affordability.</td>
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<tr>
<td>ECE* 231</td>
<td>Early Language and Literacy Development (EDU 231)</td>
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<td>Introduces language and literacy development in young children. Students explore early childhood language arts curricula, including speaking, listening, writing, and reading skills. The influence of a child’s cultural background and experiences on emerging literacy development is explored. The teacher’s role in creating and fostering an environment that engages children in developmentally appropriate language arts experiences will be covered. Course content includes specific strategies for teaching reading and other literacy skills, the role of school-family partnerships in developing literacy, identification of students who are at risk, and reading assessment methods.</td>
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<td>ECE* 241</td>
<td>Methods and Techniques for Infant/Toddler (EDU 117)</td>
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<td>Presents both the theoretical knowledge and practical skills necessary to create an infant/toddler curriculum in an inclusive environment. It provides information on how the playful interaction of infants/toddlers with their surroundings helps them to discover what the world is made of, how it works, and what they can do with their emerging skills. Students learn how the routines and organization of a child’s inside-outside environment facilitate a child’s learning. The successful student will demonstrate a knowledge of program planning and implementation, and an understanding of the role of the physical environment in creating quality development programs for typical and atypical infants and toddlers.</td>
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<td>ECE* 295</td>
<td>Student Teaching (EDU 295)</td>
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<td>Provides guided observation of, participation in, and supervised student teaching at NAEYC-accredited centers or kindergartens. The purpose of student teaching is to apply child development theory to a learning environment and to work with children under close supervision. Students will manage a classroom independently and plan, organize, implement, and evaluate classroom activities. Students will complete a minimum of 200 hours of student teaching. Weekly seminars devoted to communicating issues in Early Childhood Education and the teaching experience of students will extend the student teaching experience. Prerequisites: ECE* 101, 210, 231, PSY* 122, SOC* 111.</td>
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<td>ECE* 299</td>
<td>Independent Study in Early Childhood Education (EDU 290)</td>
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<td><strong>EARLY CHILDHOOD SPECIAL EDUCATION</strong></td>
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<td>ECS* 107</td>
<td>Introduction to Exceptional Children: Seminar I (EDU 107)</td>
<td>4 S.H.</td>
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<td>Covers aspects of exceptional children. The following areas are addressed: the exceptional child in modern society; individual differences in special education; talented and gifted children; visually impaired, hearing impaired, and/or behavior disordered children; children with communication disorders; multiple, severe handicaps and/or physical handicaps. This course requires twenty-five hours of field observation and participation in an atypical preschool institution. Various projects are assigned.</td>
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**ECS* 112 Introduction to Early Childhood Special Education (EDU 112)** 3 S.H.
Focuses on early intervention for infants and toddlers from birth through age two and on preschool special education for three- to five-year-old children with disabilities, developmental delays, or deficiencies in development. This course presents successful interventions for various kinds of children and families. Furthermore, it presents federal legislation pertaining to Early Childhood Special Education that provides funding for the services that young children with disabilities and their families need.

**ECS* 113 Creative Art/Play for Exceptional Children (EDU 113)** 3 S.H.
Provides adaptive experiences in two- and three-dimensional art activities using everyday materials with an emphasis on process over product. Emphasizes the integration of art projects with math, reading, literature, social studies, and music. Demonstrations, workshop sessions, and visits to art galleries supplement classroom experiences.

**ECS* 207 Introduction to Exceptional Children: Seminar II (EDU 207)** 3 S.H.
Introduces the field of early childhood special education and offers an overview of typical and atypical child development including programs and assessment of young children with special needs. Emphasizes the use of play to facilitate the development of cognitive, language, motor, social, and emotional skills.

**ECS* 225 Diagnostic Assessment of Children with Special Needs (EDU 225)** 3 S.H.
Identifies issues, programs, and procedures related to evaluating infants and preschoolers with handicaps. Describes the overall information gathering process, involving family members in the decision-making process. This process is essential for appropriate instructional or intervention program planning. Describes and introduces various tests. This course is designed specifically for early childhood education students who will eventually plan and implement individualized intervention programs for handicapped infants, toddlers, and preschoolers.

**ECS* 226 Curriculum for Exceptional Children: Seminar I (EDU 226)** 3 S.H.
Provides current and prospective teachers of young children with an in-depth appreciation and understanding of the need to observe and record children's behavior. The development of appropriate and effective curricula, educational strategies, and institutional settings for exceptional children will be explored to determine how children learn and how best to furnish the settings, materials, and methodology for healthy growth and development.

**ECS* 228 Field Observation in Special Education (EDU 228)** 3 S.H.
Provides current and prospective teachers with opportunities to work with young children with special needs in preschool or special education settings. The course consists of ninety hours of observation and participation. Students will be required to use behavior modification techniques while working with exceptional children in the classroom. Corequisite: ECS* 226. Prerequisites: ECS* 226, PSY* 122, ECS* 107, ECS* 207, and PSY* 258.

**EDUCATION**

**EDU* 201 Introduction to Teaching Professions** 3 S.H.
Provides prospective high school, middle school and art teachers with an introduction to the teaching profession. Students are required to spend a minimum of 40 hours of fieldwork in an approved classroom. Emphasis is placed on the human development during the middle and high school years and theories, history, philosophies, and processes relevant to teaching and learning as a profession. Patterns of learning and unique ways of learning will be explored. Focuses on social-economic, political and ecological factors and their impact on student’s learning. Students will have opportunities to observe in multicultural and inclusive classrooms and the opportunity to evaluate their readiness and aptitude to be a teacher.

**EDU* 202 Principles of Education** 3 S.H.
Provides prospective teachers with an introduction to the teaching profession. Students are required to spend a minimum of 40 hours of fieldwork in an approved classroom. Emphasis is placed on the varied roles that teachers play; the history and philosophy of education; current themes in education; learning theories; classroom management issues; relationship between the schools and community. Students will have opportunities to observe in multicultural and inclusive classrooms and the opportunity to evaluate their readiness to be a teacher.

**EARTH SCIENCE**

**EAS* 102 Earth Science (PSC 113)** 3 S.H.
Introduces the four main branches of Earth Science: Geology (solid earth), Oceanography (oceans), Meteorology (weather), and Astronomy (stars and universe). Investigates the dynamic nature of Earth processes to understand human beings’ place in the universe.
### EAS* 110 The Earth Sciences 4 S.H.
Introduces the four main branches of Earth Science: Geology (solid earth), Oceanography (oceans), Meteorology (weather), and Astronomy (stars and universe). Investigates the dynamic nature of Earth processes to understand human beings' place in the universe. Three hours lecture/three hours lab.

### ECONOMICS

#### ECN* 101 Macroeconomics (ECO 101) 3 S.H.
Present major topics in macroeconomics: the roles of saving, investment, consumption, the governmental sector, and the effects of the above on employment and national income. Attention is also given to the fiscal policies and economic growth of developed and developing nations. Prerequisites: ENG* 101, MAT* 075. ECN* 102 strongly recommended.

#### ECN* 102 Microeconomics (ECO 102) 3 S.H.
Evaluates the best available tools of economic analysis to explain the pricing mechanism and structure of markets. Emphasizes the contribution and usefulness of the theoretical methods. Presents supply and demand analysis, the economics of firms, the determination of product and factor prices under varying market structures, and the pricing and employment of resources. Prerequisites: ENG* 101, MAT* 075. Strongly recommended this course be taken prior to ECN* 101.

### ELECTRICAL ENGINEERING TECHNOLOGY

#### EET* 103 Fundamentals of Electricity (ETC 104) 4 S.H.
Surveys basic electricity, including generation, measurement, and analysis of networks involving DC and AC sources. The laboratory component includes electrical experiments in basic DC and AC circuits. Three hours of lecture / three hours of laboratory.

#### EET* 110 Electric Circuits I (EET 120) 4 S.H.
Introduces DC and AC circuit fundamentals, including Ohm's Law, Kirchoff's Laws, power and energy relationships. Students will learn to analyze DC and AC series, parallel, and series-parallel circuits using basic circuit analysis techniques. Students will also learn the fundamentals of capacitors, inductors and transformers and analyze DC and AC circuits with these components. In the lab, students will learn to use instrumentation including power supplies, analog multimeters, digital multimeters, function generators, counters and oscilloscopes. Students will also construct a variety of circuits and utilize basic circuit analysis techniques to analyze these circuits. Three hours of lecture / three hours of laboratory. Prerequisite: MAT* 095 or sufficient score on the mathematics placement test.

#### EET* 114 Electric Circuits II (EET 122) 4 S.H.
Presents advanced network analysis techniques for complex DC and AC circuits. Includes advanced network analysis techniques of mesh analysis, nodal analysis, superposition principle, Thevenin's, Norton's, and maximum power transfer theorems. Students will also learn the fundamentals of current sources, bridge circuits, series and parallel resonant circuits, passive filters and three phase systems. In the lab, students will construct a variety of circuits and utilize advanced network analysis techniques to analyze these circuits. Three hours of lecture / three hours of laboratory. Prerequisite: EET* 110. Corequisite: MAT* 175.

#### EET* 136 Electronics I (EET 130) 4 S.H.
Presents a variety of discrete electronic devices, including diodes, BJTs and FETs, and simple integrated circuits along with their operation and applications. Students will learn how to analyze circuits containing these devices. In the lab, students will construct various electronic circuits with the devices studied and will test and verify the circuits' performance and operation. Three hours of lecture / three hours of laboratory. Prerequisite: EET* 110.

#### EET* 232 Electronics II (EET 230) 4 S.H.
Presents advanced electronic topics and applications including operational amplifiers, voltage regulators, and timer/waveform generators. Students will learn the operation of single- and multi-stage amplifiers, active filters, differential amplifiers, power supplies, and oscillators. In the lab, students will construct various electronic circuits and verify the circuits' performance and operation. Three hours of lecture / three hours of laboratory. Prerequisites: EET* 136 and MAT* 187.

#### EET* 241 Introduction to Fiber Optics (EET 272) 4 S.H.
Presents the principles of fiber optics, including light sources, single-mode, multi-mode, graded index fiber and cabling, connectors, photo-detectors, repeaters, and optical fiber sensors. Students will study various voice, data, and image communications systems using fiber optic networks. In the lab, students will perform experiments to gain hands-on experience with fiber optic components, circuits, and systems. Students will also have the opportunity to construct, test, and evaluate fiber optic communication links for analog and digital signal transmission. Three hours of lecture / three hours of laboratory. Prerequisites: EET* 136 and EET* 252.
EET* 252 Digital Electronics (EET 256)  
Introduces binary and hexadecimal number systems, codes, Boolean algebra, truth tables, logic gates, logic circuitry and Boolean reduction techniques. Students will learn how a variety of digital IC devices operate including flip-flops, one shots, clocks, counters, registers, decoders, encoders, displays, multiplexers and demultiplexers along with their applications. In the lab, students will investigate modern digital applications through hands-on experience. Three hours of lecture / three hours of laboratory. Prerequisite: EET* 110 or Instructor’s permission.

EET* 256 Microprocessors (EET 252)  
Presents the programming fundamentals of a particular microprocessor and its instruction set, as well as how to write programs with this instruction set. Students will also learn the architecture of the microprocessor, including the arithmetic-logic unit, registers, flags, bus structure and timing operations. Interfacing techniques to memory and input/output devices will also be introduced. In the lab, students are introduced to both a microprocessor trainer and a microprocessor simulator and will learn how to use this trainer to write, test and troubleshoot a variety of programs using arithmetic, logic, and branch instructions. Three hours of lecture / three hours of laboratory. Prerequisite: EET* 252.

EET* 262 Electrical Machinery and Control (EET 240)  
Introduces students to the electrical energy industry with a concentration on the principles of DC and AC magnetic circuits, focusing on electrical machinery, including DC generators and motors, AC single and polyphase alternators and motors, and power transformers. Students will learn basic electrical machine control procedures, including programmable logic controllers and the use of other solid-state control devices. In the lab, students will perform experiments to gain hands-on experience with DC and AC magnetic circuits and basic electrical machines and controls. Students will learn to operate, test, assemble, and disassemble machines, prepare characteristic operating curves, and use programmable logic controllers for industrial control applications. Three hours of lecture / three hours of laboratory. Prerequisites: EET* 114, EET* 136, and MAT* 187.

EET* 272 Electronic Communications (EET 260)  
Presents modern electronic communications based on an informational and circuit/systems framework. Students will learn the concepts of noise considerations, bandwidth, and propagation requirements, and AM and FM modulation techniques for the transmission and reception of RF signals. In the lab, students will perform experiments to gain hands-on experience in the design, construction, testing, and evaluation of the various circuits and sub-systems that comprise a communications system. Students will also learn how to combine computer simulation with bench experimentation and will learn instrumentation, waveform analysis, and circuit system performance related to modern electronic communications. Three hours of lecture / three hours of laboratory. Prerequisite: EET* 232.

EET* 296 EET Internship (EET 295)  
Provides first-hand, real-life work experience in the electronics industry. Establishes internships in the fields of electrical energy production and distribution, telecommunications, electronic fabrication and assembly, electrical machinery and controls, and electronic information systems and equipment. Students are matched with internships based on skills, interests, and recommendations. Students report to a worksite once per week during the academic term and complete an Internship Evaluation Form and Narrative Report on their experience.

ELECTRONIC PUBLISHING/WEB DESIGN

DGA* 120 Digital Imaging I (EPC 122)  
Introduces color and color theory. Presents techniques for the digital manipulation of photographs and output for printing using Photoshop on the Macintosh computer. Discusses flat and process color. One hour of lecture / two hours of laboratory.

DGA* 124 Digital Imaging II (EPC 125)  
Through lectures, demonstrations, and assignments, the instructor will focus on new, advanced techniques using popular software packages in order to create well-designed pieces. Design elements and principles will be stressed. Prerequisites: DGA* 223 and DGA* 120 or instructor’s permission.

DGA* 130 Typography (EPC 110)  
Introduces typography and typography design. Emphasizes the relationship of type to context, space, audience, and method of printing. Stresses fundamentals of balance, proportion, and design.

DGA* 223 Digital Illustration (EPC 120)  
Requires students to solve visual problems using the graphics application program Adobe Illustrator. Discusses types of graphic images, graphics programs, and file formats. One hour of lecture / two hours of laboratory.
DGA* 231  Digital Page Design I (EPC 112) 4 S.H.
Provides a hands-on introduction to desktop publishing. It introduces the study of electronic publishing on the desktop using the Macintosh computer. Students will be introduced to desktop publishing concepts to design, build, edit and enhance publications. The student will use the computer, scanner and laser printer to produce camera ready copy for flyers and advertisements. Students will use QuarkXPress, a page layout program.

DGA* 232  Digital Page Design II (EPC 212) 3 S.H.
Students will use the computer, scanner and laser printer to produce camera-ready copy brochures and other publications. Students will use QuarkXPress, a page layout program. This course will be a continuation of Digital Page Design I. Advanced techniques and more advanced projects will be assigned. Two hours lecture / two hours laboratory. Prerequisites: DGA* 231.

DGA* 241  Internet Web Design I (EPC 128) 3 S.H.
Introduces basic design principles in order to create layouts using both traditional and electronic methods. Students will use text, image, and color to create layouts for both print and the web. Emphasizes project development and presentation.

DGA* 243  Web Design II (EPC 141) 4 S.H.
Encourages students to use their own creativity to design a website. Adobe Photoshop and Adobe Illustrator will be used to create graphics, special effects, and animation for the web. HTML, as well as such web design programs as Macromedia Dreamweaver and Adobe GoLive, will be used. Three hours of lecture / two hours of laboratory. Prerequisites: DGA* 223 and DGA* 120 or instructor’s permission.

ENGINEERING SCIENCE

EGR* 111  Introduction to Engineering 3 S.H.
Introduces students to the fields of engineering through design and graphics and comprehensive engineering projects. Topics include: sketching, charts, graphs, forces, energy, electrical circuits, mechanisms, robotics, manufacturing technologies and fundamentals of engineering economics. Prerequisites: MAT* 137 with a C- or better.

EGR* 131  Introduction to Nanotechnology 3 S.H.
Designed to give participants who have little or no knowledge of nanotechnology a broad overview of the field in a non-technical manner. Lectures will present the fundamental ideas behind nanoscience and nanotechnology. Beginning with the definition of a nanometer, discussions will continue through how nanotechnology will affect business and industry; basic processes that are currently used in nanotechnology; the economic impact of this emerging field; environmental concerns in the near and long-term; NEMS/MEMS; imaging devices; polymers; biomolecules; nanowires; nanotubes; fullerenes; and other carbon nanostructures. Participants will be expected to read the material, share data obtained from the class discussion and prepare additional nanotechnology oriented projects/papers and presentations. Prerequisites: MAT* 075, ENG* 073. Corequisite: CET* 116.

EGR* 211  Engineering Statics (EGS 211) 3 S.H.
Analyzes electrical networks incorporating passive and active elements through basic laws and techniques. Covers transient and forced responses of linear circuits, periodic excitation, and frequency response. This is a required elective for Engineering Pathway students majoring in either Electrical/Systems Engineering or Computer Science/Engineering. Prerequisites: EGR* 211 and PHY* 221. Corequisite: MAT* 265.

EGR* 212  Engineering Dynamics (EGS 212) 3 S.H.
Presents a basic engineering course in dynamics, covering rectilinear and curvilinear motion, translation, rotation, plane motion, work, energy and power, and impulse and momentum. Applies the principles of dynamics to engineering problems using vector methods and computer applications. Prerequisites: EGR* 211 and MAT* 268.

EGR* 221  Introduction to Electrical Circuit Analysis 3 S.H *
*(Course has not been offered in the past two years)
Analyzes electrical networks incorporating passive and active elements through basic laws and techniques. Covers transient and forced responses of linear circuits, periodic excitation, and frequency response. This is a required elective for Engineering Pathway students majoring in either Electrical/Systems Engineering or Computer Science/Engineering. Prerequisites: EGR* 211 and PHY* 221. Corequisite: MAT* 265.
ENG* 043 Writing: Paragraph to Essay (ENG 100) 3 S.H.*
Focuses on the paragraph, its structural characteristics and developmental modes, and leads to the essay. Reviews grammar, sentence structure, punctuation, mechanics, and usage. Emphasizes revising, editing, and proofreading. *Credit does not count toward meeting degree requirements. Placement: Determined by ACCUPLACER. Students who place into ENG* 043 are highly recommended to co-register also for ENG* 073 or 082 (depending on placement score). Exit Criteria: A grade of “C” or better or instructor recommendation.

ENG* 063 Writing: Introduction to the Essay (ENG 101) 3 S.H.*
Continues the study of paragraph development. Extends students’ abilities to write clearly, fluently, and correctly while introducing more fully the process of developing an essay. Incorporates readings on critical analysis, modeling, and topic generation. *Credit does not count toward meeting degree requirements. Placement: Determined by ACCUPLACER or a pre-requisite grade of “C” or better in ENG* 043. Highly Recommended: Students who place into ENG* 063 should co-register also for ENG* 073 or 082 (depending on placement score). Exit criteria: “C” or better and instructor’s recommendation.

ENG* 073 Academic Reading (RDG 100) 3 S.H.*
Introduces active reading strategies to achieve comprehension and retention rates demanded by college reading. Students learn to recall, question, interpret, and analyze an extensive selection of academic material. Increases vocabulary. *Credit does not count toward meeting degree requirements. Placement: Determined by ACCUPLACER. Highly Recommended: Students who place into ENG* 073 should co-register also for ENG* 043 or 063 (depending on placement score). Exit Criteria: “C” or better and instructor recommendation.

ENG* 082 Academic Reading 3 S.H.*
Enhances and refines active and in-depth reading strategies. Improves the students’ ability to comprehend texts in college level courses across the curriculum. Emphasizes reading comprehension skills, vocabulary development and summary/synthesis/analytical skills from academic reading selections. Placement: determined by ACCUPLACER. Highly Recommended: Students who place into ENG* 082 should co-register also for ENG* 043 or 063 (depending on placement score). Exit criteria: A grade of “C” or better or instructor recommendation. * Credit does not count toward meeting degree requirements.

ENG* 101 Composition (ENG 120) 3 S.H.
Develops strategies for college-level writing through the critical study of various rhetorical modes. Emphasizes the development of carefully reasoned essays that cite appropriate evidence to support conclusions. Develops library and research skills required for composition and communication. Students will write a number of short expository papers and a longer research paper incorporating MLA documentation techniques. Prerequisites: Sufficient score on the placement test or successful completion of ENG* 063, ESL* 161 and ESL* 178 with a grade of “C” or better (or instructor recommendation). (If students place into both ENG* 063 and ENG* 073 or ENG* 082, they must successfully complete both before taking ENG* 101.)

ENG* 102 Literature and Composition (ENG 122) 3 S.H.
Emphasizes critical reading and writing by surveying such literary genres as poetry, prose, drama, and fiction. Introduces literary techniques, terminology, conventions, and devices. Students will write a number of short critiques in which they respond to, analyze, and interpret selections from a literature anthology. They will also write a longer literary research paper incorporating MLA documentation techniques. Prerequisite: “C” or better in ENG* 101.

ENG* 114 Children’s Literature (ENG 107) 3 S.H.
Develops students’ knowledge of and appreciation for children’s literature. Students will explore children’s stories and the components of good children’s literature by investigating the interrelationship of literary content and form. By developing a personal bibliography, students will investigate the wealth of children’s literature available today. This course also assists teachers to promote a comprehensive, creative, and insightful utilization of literary materials in their classes. Examples of incorporating children’s literature in learning include choral reading, storytelling, creative dramatization, role-playing, and use of music and movement.

ENG* 193 Study and Critical Thinking Skills 3 S.H.
Helps students, through substantive readings, structured writing assignments, and ongoing discussions, enhance their ability to: solve problems; analyze issues; make informed academic, career, and personal decisions through a process of effective and clear critical thinking.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENG* 195</td>
<td>Critical Reading Strategies for Expository Imaginative Literature</td>
<td>3 S.H.</td>
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<tr>
<td></td>
<td>(RDG 110)</td>
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<tr>
<td>ENG* 196</td>
<td>Scientific and Technical Reading Strategies (RDG 111)</td>
<td>3 S.H.</td>
</tr>
<tr>
<td>ENG* 200</td>
<td>Advanced Composition</td>
<td>3 S.H.</td>
</tr>
<tr>
<td>ENG* 202</td>
<td>Technical Writing (ENG 230)</td>
<td>3 S.H.</td>
</tr>
<tr>
<td>ENG* 210</td>
<td>Fiction (ENG 222)</td>
<td>3 S.H.</td>
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<tr>
<td>ENG* 211</td>
<td>Short Story (ENG 218)</td>
<td>3 S.H.</td>
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<tr>
<td>ENG* 214</td>
<td>Drama (ENG 203)</td>
<td>3 S.H.</td>
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<tr>
<td>ENG* 221</td>
<td>American Literature I (ENG 201)</td>
<td>3 S.H.</td>
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<tr>
<td>ENG* 222</td>
<td>American Literature II (ENG 202)</td>
<td>3 S.H.</td>
</tr>
<tr>
<td>ENG* 231</td>
<td>British Literature I (ENG 207)</td>
<td>3 S.H.</td>
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<td>(Course has not been offered in the past two years)</td>
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<tr>
<td>ENG* 232</td>
<td>British Literature II (ENG 208)</td>
<td>3 S.H.</td>
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<tr>
<td>ENG* 245</td>
<td>Early Western Literature</td>
<td>3 S.H.</td>
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</table>

**ENG* 195 Critical Reading Strategies for Expository Imaginative Literature (RDG 110)**

Presents various types of fiction and nonfiction, covering a broad spectrum of content areas. Reviews basic vocabulary and comprehension skills and focuses on patterns and strategies needed for productive college reading. Includes reading for research.

**ENG* 196 Scientific and Technical Reading Strategies (RDG 111)**

Develops comprehension of scientific and technical texts. Focuses on the patterns and vocabulary found in this specialized literature, and promoting active reading strategies through extensive critical analysis and synthesis.

**ENG* 200 Advanced Composition**

Develops and refines the advanced skills in composition that are essential for both academic and professional writing. Emphasis will be on writing from various sources including texts and online material. The focus of student writing will include exposition, argumentation and a research paper using various documentation styles (including but not limited to MLA, APA, CBE and Chicago). Prerequisite: ENG* 101 (minimum of a C grade).

**ENG* 202 Technical Writing (ENG 230)**

Addresses the conventions of technical writing. Introduces the purposes, developmental strategies, and formats of technical documents. Covers audience analysis and adaptation, document organization and design, graphics, and research documentation methods. Stresses a readable style in all professional writing. Requires a series of short reports, a collaborative project, and a major research paper. Prerequisite: ENG* 101.

**ENG* 210 Fiction (ENG 222)**

Surveys short stories and novelettes whose themes are not limited by the possible or probable. Focuses on critical literary interpretations, including the characteristics, conventions, and devices of authors ranging from Poe and Hawthorne, through Clarke and Asimov, to LeGuin and Farmer. Stresses logical and supportable reader response in both class discussions and analytical essays. Required reading includes one major novel. Prerequisite: ENG* 101.

**ENG* 211 Short Story (ENG 218)**

Focuses on representative works by such North American short story writers as Wright, Thurber, Vonnegut, Porter, and Hemingway. Requires writing assignments in response to assigned texts. Prerequisite: ENG* 101.

**ENG* 214 Drama (ENG 203)**

Surveys dramatic literature from ancient Greece through the modern and contemporary periods. Introduces theatrical terminology, techniques of script analysis, and critical approaches to theatrical productions. Includes screenings of selected cinematic interpretations. Encourages, whenever possible, attendance at area theatrical productions. Prerequisite: ENG* 101.

**ENG* 221 American Literature I (ENG 201)**

Surveys American literature from its beginnings to the mid-nineteenth century. Examines a variety of forms, including journals, autobiographies, essays, poems, sermons, histories, and statecraft. Includes selections from such authors as Jefferson, Thoreau, Whitman, Dickinson, and Poe. Prerequisite: ENG* 101.

**ENG* 222 American Literature II (ENG 202)**

Surveys American literature from the mid-nineteenth century to the present. Examines the poetry and prose (both fiction and nonfiction) characteristic of the period of expansion and industrialization. Also presents the literature of the twentieth century. Includes selections from such authors as Twain, Cather, Baldwin, and Miller. Prerequisite: ENG* 101.

**ENG* 231 British Literature I (ENG 207)** (Course has not been offered in the past two years)

Surveys representative works of British literature from the Anglo-Saxon period through the eighteenth century. Includes poetry, prose, drama, and fiction by such authors as Chaucer, Shakespeare, Milton, Pope, and Swift. Prerequisite: ENG* 101.

**ENG* 232 British Literature II (ENG 208)**

Examines representative works of poetry, prose, drama, and fiction from Blake to the present, covering the Romantic, Victorian, Modern, and Contemporary periods of British literature. Includes works by such authors as Wordsworth, Dickens, Tennyson, Woolf, and Larkin. Prerequisite: ENG* 101.

**ENG* 245 Early Western Literature**

A survey of European literature from ancient Greece and Rome to the Renaissance, studying such works as the epics of Homer, *The Bible*, the tragedies of Aeschylus and Sophocles, Plato, St. Augustine, *The Koran*, Dante, and Chaucer. Prerequisite: ENG* 101 or instructor’s permission.
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<tbody>
<tr>
<td>ENG* 246</td>
<td>Modern Western Literature</td>
<td>3 S.H.</td>
<td>A survey of European literature from the Renaissance to the present. Includes such authors as Montaigne, Cervantes, Goethe Ibsen, Chekhov, and Woolf. Prerequisite: ENG* 101 or instructor’s permission.</td>
</tr>
<tr>
<td>ENG* 251</td>
<td>African-American Literature (ENG 216)</td>
<td>3 S.H.</td>
<td>Presents literature about the African-American experience. Focuses on accounts of the colonial slave trade, the plantation experience, the abolition movement, the Reconstruction Era, and the Harlem Renaissance. Includes works by such emerging writers as Walker, Morrison, Gaines, and Jordan. Prerequisite: ENG* 101 or instructor’s permission.</td>
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<tr>
<td>ENG* 254</td>
<td>Modern Arabic Literature</td>
<td>3 S.H.</td>
<td>An introduction to contemporary Arabic literature in translation including poetry, short stories, drama, novellas and novels. The works of both male and female voices will be explored from many Arab countries including Algeria, Egypt, Lebanon, Jordan, Iraq, Sudan, Saudi Arabia, Syria, United Arab Emirates and Yeman. Prerequisite: A grade of C or better in ENG* 101.</td>
</tr>
<tr>
<td>ENG* 262</td>
<td>Women in Literature (ENG 217)</td>
<td>3 S.H.</td>
<td>Examines women in literature by both male and female writers throughout the centuries. Approaches various genres from critical, cultural, and historical perspectives. Analyzes the stages, circumstances, and conditions of women’s lives in a broad spectrum of literary expression. Includes a critical writing component. Prerequisite: ENG* 101.</td>
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<tr>
<td>ENG* 270</td>
<td>Humanities: The Creative Voice</td>
<td>3 S.H.</td>
<td>Defines art in its broadest sense (visual, performance, and media arts, as well as literature, music and philosophy); explores the nature and theories of creative expression. Asks students to identify and evaluate art forms and in the process see relationships and make connections between various forms of creative expression. Engages students to explore their own creative process. Prerequisite: ENG* 101.</td>
</tr>
<tr>
<td>ENG* 271</td>
<td>Film and Literature (ENG 210)</td>
<td>3 S.H.</td>
<td>Studies the unique forms of film and literature by reading selected novels and plays and by viewing films adapted from them, followed by a critical discussion of both. Prerequisite: ENG* 101 or instructor’s permission.</td>
</tr>
<tr>
<td>ENG* 272</td>
<td>History of Film (ENG 206)</td>
<td>3 S.H.</td>
<td>Surveys the history of film from its beginning to the present. Emphasizes the development of forms and techniques, production methods, and film’s relationship to other arts and to social/political currents. Focuses on critical analysis and discussion of selected contemporary films illustrating aesthetic principles that govern cinematic value and meaning. Prerequisite: ENG* 101.</td>
</tr>
<tr>
<td>ENG* 281</td>
<td>Creative Writing (ENG 212)</td>
<td>3 S.H.</td>
<td>Introduces the major writers of contemporary American Letters. Serves as a cooperative writing workshop to evaluate student writing. Encourages commitment to the writing process: revision, development, discipline, and the satisfaction of accomplishment. Studies each of the writing genres, allowing students to select their own medium for a course project. Prerequisite: ENG* 101.</td>
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**ENGLISH AS A SECOND LANGUAGE**

Placement is based on the results of an ESL Placement Test, including a writing sample. Four levels of integrated skill courses are offered: Intermediate ESL 141 and 151 and Advanced ESL 161. All are designed to develop listening, reading, speaking, and writing skills. Students entering Intermediate ESL 141 must have fundamental skills in English. After successful completion of the Intermediate ESL 141 and Intermediate ESL 151 levels, students may be required to take concurrent additional specialized ESL courses in Reading, Writing, Technical English, and Pronunciation, along with the Advanced 161. **Students intending to take ENG* 101 or COM* 171 must receive a grade of “C” or better in ESL* 161 and ESL* 178.**

**ESL* 139 Pronunciation III (ESL 124)** 3 S.H.  
Addresses the problems of pronunciation using the concepts of rhythm, intonation, and thought grouping. Students perform speaking activities, practicing the concepts and integrating exercises for listening practice. Students will perform a final speech exercise involving the basic concepts presented in the class. This course satisfies the Foreign Language requirement. *(This course may be taken concurrently with any ESL* course.)*

**ESL* 141 Integrated Skills IV (ESL 111)** 3 S.H.  
Develops fluency in the English language. Focuses on reading, writing, grammar, speaking, and listening comprehension on typical topics stressed in class, small groups, and individual practice. Prerequisite: sufficient score on the ESL Placement Test. This course satisfies the Foreign Language requirement. *(This course may be taken concurrently with ESL* 139 and ESL* 143).*
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<tr>
<td>ESL* 143 Writing and Reading IV</td>
<td>3 S.H.</td>
<td>Designed to help students with academic English writing skills on the high-beginning level involving work at the level of sentences and development of a basic paragraph. Early writing assignments will focus on sentence development, development of topic sentences and supporting sentences. Additional assignments will focus on paragraph development and organization. Focus will be the entire writing process; planning, editing, and revising. Students will be able to ask questions about their writing which will lead to improvements. Pre-requisite: ESL Placement score of 45-65. Co-requisite: ESL* 139 or ESL 141.</td>
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<tr>
<td>ESL* 144 Pronunciation IV</td>
<td>3 S.H.</td>
<td>Focuses on studying and applying advanced techniques of American pronunciation using the basic concepts of rhythm, intonation and thought grouping. Students perform speaking activities to achieve an accent which is understandable to others in a professional and academic environment. This course satisfies the Foreign Language requirement. Prerequisite: ESL* 139</td>
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<tr>
<td>ESL* 151 Integrated Skills V (ESL 120)</td>
<td>3 S.H.</td>
<td>Refines use of idiomatic expressions while continuing to build fluency in all English language skill areas. Focuses class discussions, presentations, and assignments on multiple themes. Prerequisite: ESL* 141 or sufficient score on the ESL placement Test. This course satisfies the Foreign Language requirement and may also be used as Humanities elective credit toward graduation. <em>(This course may be taken concurrently with ESL</em> 139, ESL* 159 and ESL 180).*</td>
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<tr>
<td>ESL* 159 Writing V (ESL 100)</td>
<td>3 S.H.</td>
<td>Improves writing skills for use in both college and the workplace. Focuses on the writing process through group work and individual conferences with the instructor. Focuses on computer online writing development. Prerequisite: ESL* 141 or sufficient score on the ESL Placement Test. This course satisfies the Foreign Language requirement. <em>(This course may be taken concurrently with ESL</em> 131, ESL* 139, ESL * 141 and ESL* 151).*</td>
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<tr>
<td>ESL* 161 Integrated Skills VI (ESL 121)</td>
<td>3 S.H.</td>
<td>Advances English language skills through small group and individual instruction. Stresses multicultural themes through readings, class discussions, and oral presentations. Prerequisites: ESL* 159, ESL* 180, and ESL* 151, or sufficient score on the ESL Placement Test. <em>Students intending to take ENG</em> 101 or COM* 171 must receive a grade of &quot;C&quot; or better.* This course satisfies the Foreign Language requirement and may also be used as Humanities elective credit toward graduation. <em>(This course may be taken concurrently with ESL</em> 139, ESL* 144, ESL 169 and ESL* 180).*</td>
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<tr>
<td>ESL* 169 Writing VI (ESL 102)</td>
<td>3 S.H.</td>
<td>Improves general writing skills in academic English, involving short essay assignments. Early writing assignments will focus on essay development and organization. Focuses on computer online writing development. Prerequisites: ESL* 159, ESL* 180, and ESL* 151, or sufficient score on the ESL Placement Test. This course satisfies the Foreign Language requirement. <em>(This course may be taken concurrently with ESL</em> 139, ESL* 144, ESL* 161 and ESL* 180).*</td>
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<tr>
<td>ESL* 178 Advanced Reading and Writing</td>
<td>3 S.H.</td>
<td>Designed to focus on the academic reading and writing process. Students will interact with various types of texts through reading and writing. Emphasis will be given to critical reading strategies and analysis of texts to help students refine their ability to interpret and summarize what they have read through the synthesis of ideas in essay development and organization. Focuses on computer online writing development. Prerequisite: Appropriate score on ESL placement or completion of ESL* 161 and 169 or recommendation of ESL Instructor or Coordinator. <em>Students intending to take ENG</em> 101 or COM* 171 must receive a grade of &quot;C&quot; or better.*</td>
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<tr>
<td>ESL* 180 Reading V (ESL 101)</td>
<td>3 S.H.</td>
<td>Focuses on reading comprehension skills, including phonics, use of dictionaries, words in context, main ideas, and supporting details in academic texts. Incorporates readings that reflect multiculturalism and the college experience. Prepares students for degree programs and/or taking the TOEFL exam. Prerequisite: ESL* 141 or sufficient score on the ESL Placement Test. This course satisfies the Foreign Language requirement. <em>(This course may be taken concurrently with ESL</em> 139, ESL* 144, ESL* 159, ESL * 169, ESL* 151 and ESL* 161).*</td>
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<tr>
<td>ESL* 191 Technical English VI (ESL 125)</td>
<td>3 S.H.</td>
<td>Integrates technical vocabulary into reading, writing, speaking, and listening comprehension. Concentrates on specific technical subjects. Prerequisite: ESL* 141 or sufficient score on the ESL Placement Test. This course satisfies the Foreign Language requirement. <em>(This course may be taken concurrently with ESL</em> 139, ESL* 169, ESL* 161 and ESL* 180).*</td>
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<tr>
<td>ESL* 250 TESOL Methodology (ESL 250)</td>
<td>3 S.H.</td>
<td>Introduces the theories of second language learning and demonstrates practical applications of these theories. Provides the opportunity to learn new techniques for teaching English and to do field work at all levels of ESL. This course satisfies the Connecticut state requirements for ESL Certification K-Adults.</td>
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### ENVIRONMENTAL SCIENCE

**EVS* 100 Introduction to Environmental Science (TOX* 210)**  
3 S.H.  
Examines the conceptual basis for today’s environmental programs. Emphasizes water, solid waste, hazardous waste, air pollution, and local land use decisions by focusing on the biological, chemical, and physical aspects of environmental pollution, energy, and relationships between the environment and society. Considers environmental ethics, law, and relationships between environment, economics, and government. Field trip(s) required.

**EVS* 101 Environmental Issues (TOX* 230)**  
3 S.H.  
Presents current statewide, national, and global environmental issues. Issues include world population growth, sustainable lifestyles, energy, global warming, the 1992 Clean Air Act Amendments, preserving biological diversity, pesticides, hazardous waste, and water management. Recommended for both technical and non-technical major students who would like to develop an appreciation for environmental science from a global perspective. Includes extensive use of case studies and group work.

**EVS* 103 Ecology (TOX* 114)**  
3 S.H.  
Highlights the interrelationships between plants and animals and the physical factors of their environment. Covers the physical and biological environments, energy flow and biogeochemical cycles, evolution, speciation, dispersal, communities, and population. Includes some in-class laboratory work.

**EVS* 118 Biochemistry / Organic Chemistry (TOX* 118)**  
(3 S.H.  
Course has not been offered in the past two years)  
Builds on the skills acquired in CHE* 111 by covering such additional inorganic concepts as solutions, chemical reactions, and biochemistry/organic chemistry, including hydrocarbons, carbohydrates, organic acids, enzymes, and metabolism. Three hours of lecture / three hours of laboratory. Prerequisite: CHE* 111.

**EVS* 200 Toxicology (TOX* 200)**  
3 S.H.  
Focuses on toxicological principles, including FDA requirements relating to new drugs. Addresses environmental and other factors affecting the toxicity of therapeutic agents, mechanisms of toxicity, and clinical applications. Prerequisite: EVS* 102.

**EVS* 221 Qualitative and Quantitative Field and Laboratory Analysis I (TOX* 214)**  
4 S.H.  
Introduces instrumental analysis commonly used in environmental monitoring and toxicological studies and investigations. Also introduces field techniques used for sample collections necessary to meet today’s state and federal standards. Emphasizes the specific methods of analyzing significant toxic substances and environmental pollutants. Three hours of lecture / three hours of laboratory. Prerequisite: One college-level biology laboratory course and one college-level chemistry or physics laboratory course or instructor’s permission.

**EVS* 222 Qualitative and Quantitative Field and Laboratory Analysis II (TOX* 222)**  
4 S.H.  
Builds on the knowledge of field and analytical methods learned in TOX 214 by focusing on such complex techniques as atomic absorption and spectrophotometric and chromatographic instruments. Three hours of lecture / three hours of laboratory. Field work required. Prerequisite: EVS* 221.

**EVS* 252 Community Health / Environmental Problems (TOX 212)**  
3 S.H.  
Examines the many factors that can affect the health of human communities. Emphasizes the interconnection between the workplace, natural environments, and human health by examination of both acute and chronic effects of pollutants.

**EVS* 296 Environmental Science & Toxicology Internship (TOX* 160)**  
4 S.H.  
Places students in a suitable internship in an industry of interest.

### ENVIRONMENTAL ENGINEERING TECHNOLOGY

**ENV* 100 Introduction to Alternative Energy Systems**  
3 S.H.  
Prepares students to compare and contrast alternate energy systems and traditional energy systems. Will introduce energy systems terminology, safety, energy sources, alternate energy systems and computer applications (LabVIEW & AutoCAD). Two hours lecture / two hours lab.
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<tr>
<td>ENV* 110</td>
<td>Environmental Regulations (CHE* 114)</td>
<td>3 S.H.</td>
<td>Presents a broad view of federal, state, and municipal environmental regulations as they apply to industry, commercial establishments, local governmental facilities, and the individual citizen. Reviews elementary chemistry. Provides a practical approach to regulatory understanding to plan an effective and economically sound compliance program. Course topics also include the Clean Air Act (CAA); the Clean Water Act (CWA); the Water Toxins Program; the Resource Conservation and Recovery Act (RCRA); the Toxic Substance Control Act (TSCA); SARA Title III (Community Right-to-Know); and federal, state, and local regulations covering such topics as hazardous material transportation, in-ground tank storage, and such specific hazardous materials as asbestos and PCBs.</td>
</tr>
<tr>
<td>ENV* 181</td>
<td>Solar Thermal Systems</td>
<td>3 S.H.</td>
<td>Introduces the history and principles of solar thermal energy as used for heating air and water in residential applications. Topics include historical uses of the sun, solar fundamentals, site analysis, basic thermal dynamics, simple uses of solar-heated fluids and “hands-on” testing and overview of various system components with an emphasis on workplace safety and best practices used in the installation of solar domestic hot water systems. Format includes classroom lecture, laboratory exercises and field trips to actual installations. Two hours lecture / two hours lab. Pre-requisites: MAT* 075 or sufficient score on the placement test.</td>
</tr>
<tr>
<td>ENV* 182</td>
<td>Solar Photovoltaic Systems I</td>
<td>3 S.H.</td>
<td>Introduces the history and principles of Photovoltaics (solar electricity) as used in direct-coupled, remote, and grid-tied residential applications. Topics include historical use of the sun, solar fundamentals, site analysis, DC electricity basics and “hands-on” testing and overview of various system components of a basic PV installation with a continual emphasis on workplace safety and electrical code compliance. Format includes classroom lecture, assigned exercises, topical workshops and a field trip to an actual installation. Two hours lecture / two hours lab. Pre-requisites: MAT* 095 or sufficient score on the placement test.</td>
</tr>
<tr>
<td>ENV* 230</td>
<td>Environmental Engineering (WMT 214)</td>
<td>3 S.H.</td>
<td>Develops quantitative solutions to environmental problems concerning public health, air and water pollution, water and wastewater treatment, and solid waste management. Applies engineering methods to environmental preservation and protection. Prerequisites: WWT* 110, WWT* 112, WWT* 114, and WWT* 116, or State of Connecticut Wastewater Certification Levels I and II.</td>
</tr>
<tr>
<td>ENV* 237</td>
<td>Pollution Prevention (TOX* 226)</td>
<td>3 S.H.</td>
<td>Presents the many steps being taken by governmental, commercial, industrial, and educational facilities to eliminate pollutant discharges. Pollution prevention (i.e., preventing the discharge of pollutants to eliminate the need for treatment and discharge into the air, ground, or water of a “waste stream”) has become a very important part of modern environmental protection. Field trip required. Prerequisite: EVS* 100 or instructor’s permission.</td>
</tr>
<tr>
<td>EXS* 101</td>
<td>Introduction to Exercise Science and Wellness</td>
<td>3 S.H.</td>
<td>An introduction to the fitness industry, the various career options available and the analysis of current and future industry trends. Analyzes the history of the field and the role of fitness specialists in society today.</td>
</tr>
<tr>
<td>EXS* 102</td>
<td>Seminar in Exercise Science and Wellness</td>
<td>3 S.H.</td>
<td>Discusses an ever-changing range of exercise and wellness topics, their effects on the individual, the industry and society.</td>
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<tr>
<td>EXS* 115</td>
<td>Fitness Management</td>
<td>3 S.H.</td>
<td>Presents the development and operations of a successful health and fitness business including management, marketing, sales, human resources, legal issues and more.</td>
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<tr>
<td>EXS* 210</td>
<td>Exercise Science &amp; Wellness Internship I</td>
<td>1 S.H.</td>
<td>Develops basic skills and competence in a variety of topics and settings including but not limited to exercise and wellness programming, workplace wellness, and fitness centers programming operation. Students participate in 150 hours of clinical work further developing their knowledge, skills and abilities as fitness professionals. Students must possess a current Adult First Aid and CPR certification that has a practical skills examination component (such as the American Heart Association or the American Red Cross). Prerequisites: EXS* 101 and 102. Corequisite: EXS* 115.</td>
</tr>
<tr>
<td>EXS* 212</td>
<td>Exercise Science &amp; Wellness Internship II</td>
<td>1 S.H.</td>
<td>Refines students’ skills in the development, marketing and management of exercise programming. Students participate in 150 hours of supervised field experience. Students must possess a current Adult First Aid and CPR certification that has a practical skills examination component (such as the American Heart Association or the American Red Cross). Prerequisites: EXS* 210, 225 and 227.</td>
</tr>
</tbody>
</table>
EXS* 225 Essentials of Strength and Conditioning 3 S.H.
Practical application of the scientific principles behind the aerobic and anaerobic adaptations of training and various exercise forms and how they relate to different populations and their fitness goals. Exercise prescription and adaptation with regard to cardiovascular, resistance and specialty training. Prerequisite: BIO* 211. Corequisite: BIO* 212.

EXS* 227 Exercise Programming & Design 3 S.H.
Implementation of cardiovascular, resistance, stability, and flexibility programs based on fitness assessments, client goals, and contraindications. Methods of training special populations, including obesity, pregnancy, youth and seniors. Students will analyze the specific needs and concerns of each and how to best work with each sector. Prerequisite: BIO* 211, pre- or corequisite: EXS* 225.

EXS* 235 Exercise Physiology 3 S.H.
Focuses on the physiological factors affecting human performance in exercise and activity with special focus on the muscular, cardiovascular and circulatory systems under the effects of exercise through lecture and lab experiences. Prerequisites: BIO* 211, BIO* 212.

FIRE TECHNOLOGY and ADMINISTRATION

FTA* 112 Introduction to Fire Technology (FTA 112) 3 S.H.
Reviews the nature and extent of the fire problem in the U.S.A. Covers the characteristics and behavior of fire. Reviews the state, regional, national, and international organizations responsible for fire control and suppression. Introduces extinguishing agents, fire protection equipment, and other basic aspects of fire protection technology.

FTA* 116 Building Construction (FTA 116) 3 S.H.
Presents the major types of building construction and their respective fire problems, including fire resistance and flame spread test methods. Prerequisite: FTA* 112.

FTA* 118 Fire Prevention and Inspection (FTA 118) 3 S.H.
Surveys the history and philosophy of fire prevention. Introduces the organization of fire prevention and inspection, including inspector training, inspection methods, reports and record keeping, fire prevention education, public relations in inspection work, coordination with government agencies, and code administration.

FTA* 210 Water Supply and Hydraulics (FTA 210) 3 S.H.
Introduces the basic properties of incompressible fluids, static and velocity pressures, and flow-through orifices. Covers Bernoulli’s Theorem, the Venturi principle, flow of water through pipes, Reynolds number, and the Hazen-Williams formula. Discusses head calculations, water distribution systems, and pumping problems. Prerequisite: MAT* 175.

FTA* 213 Codes and Standards (FTA 213) 3 S.H.
Presents fire and building codes as a means to provide reasonable public safety. Introduces code development and adoption processes and code administration. Reviews major regulatory organizations and national standards, emphasizing the Life Safety Code of the NFPA and its referenced standards.

FTA* 216 Municipal Fire Administration (FTA 216) 3 S.H.
Presents the organization of municipal fire prevention and control services. Analyzes the needs, master planning strategies, organization, distribution of companies’ personnel requirements, and hiring practices of these services. Discusses training, records, work schedules, staff development, labor problems, physical equipment and facilities, and budget preparation. Prerequisite: FTA* 112.

FTA* 218 Extinguishing Systems (FTA 218) 3 S.H.
Covers wet- and dry-pipe automatic sprinklers, both commercial and residential, as well as preaction and deluge systems, water spray and foam systems. Also discusses standpipes, carbon dioxide, dry chemical, and halon extinguishing and explosion suppression systems. Review appropriate NFPA Standards. Prerequisite: FTA* 210.

FTA* 219 Fire Investigation (FTA 219) 3 S.H.
Determines points of origin and causes of fires, discriminating between fires of accidental and intentional origin. Presents managing operations at the fire scene, collecting and preserving evidence, recording information, and scientific aids to investigation. Prerequisites: CHE* 111 and FTA* 116.

FRENCH
Advanced language instruction beyond the courses listed below is available through Independent Study by arrangement with the instructor.
FRE* 101 Elementary French I (FRE 101)  3 S.H.
Presents the essentials of grammar and reading with practice in speaking and writing basic French. Open to students with little or no experience in French.

FRE* 102 Elementary French II (FRE 102)  3 S.H.
Improves language skills with further study of grammar, pronunciation, and basic speech patterns. Provides additional practice in reading and writing. Prerequisite: FRE* 101.

FRE* 201 Intermediate French I (FRE 201)  3 S.H.
Develops audio-lingual skills. Reviews basic principles of the language, including grammar with an emphasis on reading, writing, and speaking. Prerequisite: FRE* 102.

FRE* 202 Intermediate French II (FRE 202)  3 S.H.
Offers a thorough drill of grammar, typical speech patterns, and diction. Stresses conversation and composition, based on class readings, to develop mastery of the language. Prerequisite: FRE* 201.

GEOGRAPHY

GEO* 101 Introduction to Geography (GEO 101)  3 S.H.
Presents natural, cultural, and political environments, enabling students to better understand the world. Examines various professional opportunities in the field of geography and various habitats of the physical world, e.g., mountains, deserts, and plains, with particular emphasis on the relationship of place and self.

GRAPHICS

GRA* 151 Graphic Design I (ART 216)  3 S.H.
Presents various problems in graphic design and typography. Explains the process of creation from rough layout to tight composition. Stresses creative and aesthetically successful solutions to graphic design problems. (6 studio hours)

GRA* 231 Digital Imaging (ART 275) (Photoshop)  3 S.H.
Concentrates on the still photograph as it appears in digital media. Uses the computer to digitize, retouch, and manipulate photographic imagery using Adobe Photoshop. Students will create their own photographs using both traditional film and a digital camera. Instruction will be given for both black and white and color electronic image making. Students must supply their own camera for outside of class picture taking assignments. That camera may be either a 35mm SLR, a film-based point-and-shoot or an electronic digital camera. (6 studio hours)

GRA* 237 Computer Graphics (GRA 232) (Adobe Illustrator)  3 S.H.
Expands upon student's graphic design skills and knowledge of procedures. Through lectures, demonstrations, exercises, and real-world projects, the focus will be on Adobe Illustrator. Students will learn how to create drawings and illustrations, develop skills for easy execution of special imaging and typographic effects and apply these skills to solving design problem in print advertising, consumer packaging and desktop publishing environments.

GRA* 241 Digital Page Design I (GRA 223) (InDesign/QuarkXPress)  3 S.H.
Students will be introduced to digital page layout and design through the use of QuarkXPress and Adobe InDesign. Through lectures, demonstrations, exercises and real-world projects, students will learn document construction, page layout and typography and will apply these techniques to solving design problems in electronic publishing environments.

GRA* 252 Graphic Design II (ART 217)  3 S.H.
Builds on the hand-built skills developed in Graphic Design I, this course introduces the student to the art and design capabilities of the computer. Instruction focuses on paint, image manipulation, and page layout software. Gradually introduces students to software packages through a series of graphic design problems. Prerequisite: GRA* 151.

GRA* 261 Web Design I  3 S.H.
Introduces students to web design. Students will use their own creativity to design a website. Adobe Photoshop and Illustrator will be used to create graphics, special effects and animation to the web. HTML as well as Macromedia Dreamweaver will be used.
**HEALTH INFORMATION MANAGEMENT TECHNOLOGY**

(Program has not been offered in the past two years)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>HIM* 101</td>
<td>Medical Terminology (HIM 111)</td>
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<td><strong>3 S.H.</strong></td>
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<tr>
<td></td>
<td>Introduces the language of medicine. Topics include basic word structure, prefixes, roots, suffixes, and terms pertaining to the body, including singular/plural forms. Also presents terminology related to body systems (cardiovascular/circulatory, digestive, female reproductive, integumentary, musculoskeletal, respiratory, and urogenital). Covers body system units, including anatomic, diagnostic, symptomatic, surgical, and eponymic terms, plus standard abbreviations and acronyms. Emphasizes defining and spelling elements and terms. Pre-requisite: ENG* 043 and/or ENG* 063 or ESL* 161 or 169 with a grade of C or better. If students place into both ENG* 043 and ENG* 073 they must successfully complete both before taking HIM* 101.</td>
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<tr>
<td>HIM* 102</td>
<td>Introduction to Health Information Systems (HIM 122)</td>
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<td><strong>3 S.H.</strong></td>
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<td>(Course has not been offered in the past two years)</td>
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<td>Introduces the theory, principles, and practices of health care records administration. Topics include the history of hospitals, medicine, and medical records; filing and numbering systems; content, uses, and analyses of health records; compiling health care statistics and reports; and the duties and responsibilities of health information management technicians. Prerequisite: Acceptance into the Health Information Management Technology program.</td>
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<tr>
<td>HIM* 201</td>
<td>Health Information Management Principles (HIM 211)</td>
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<td>Introduces the principles of health information management. Topics include admitting procedures, analysis of medical records, organizing health information systems, statistics, and legal aspects of medical records services. Covers basic health information management areas related to the acquisition and maintenance of health care data. The purpose of this course is to introduce students to these concepts and develop their knowledge in the areas of numbering, filing, indices, registers, record retention, storage and retrieval systems, microfilming, and optical disk storage. Covers admitting and billing procedures and basic computerization in the health information management field, including keyless data entry techniques for bar coding, smart cards, voice recognition, magnetic strip, touch screens, electronic data interchange, and optical character recognition. Prerequisite: HIM* 102.</td>
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<tr>
<td>HIM* 202</td>
<td>Quality Assessment and Improvement (HIM 212)</td>
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<td><strong>3 S.H.</strong></td>
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<td>Describes the quality assurance process for health care staff. Topics include external regulatory agencies, utilization reviews, medical care evaluations, and professional standards review organizations. Emphasizes the medical record, its content, importance, uses, forms, and the procedure of assembly and analysis. Also discusses, in depth, the guidelines from the joint commission on Accreditation of Health Care Organizations, the federal government’s Conditions of Participation, and the American Osteopathic Association. Examines the different medical record formats and explains the types used commonly in various health care organizations. Prerequisite: HIM* 102. Corequisites: HIM* 201 and HIM* 214.</td>
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<tr>
<td>HIM* 203</td>
<td>Pathophysiology (HIM 213)</td>
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<td>Introduces human disease using a systems approach, emphasizing the abnormal physiological processes that result in the signs and symptoms of various disorders. Also discusses the rationales behind treatments and the complex interrelationships between bodily systems. Prerequisites: BIO* 211, BIO* 212, and HIM* 101. Corequisite: HIM* 214.</td>
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<tr>
<td>HIM* 204</td>
<td>Disease Classifications and Indexing (HIM 225)</td>
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<td>(Course has not been offered in the past two years)</td>
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<td>Covers the history, format, and conventions of the International Classification of Diseases and its use in health care documentation, statistics, research, education, and financial reimbursement through the prospective payment system. Also presents such secondary records as indices, registers, and follow-up registries. Incorporates terminology related to diagnoses, procedures and surgeries in the inpatient, acute-care setting. Introduces sequencing guidelines and rules for diagnoses, procedures, and surgeries. Considerable time will be spent learning the general coding rules and conventions for ICD-9-CM. The course further focuses on coding V codes, E codes, late effects, signs, symptoms, and other body system diseases and treatments. Uses various teaching methods, such as lectures, demonstrations, scenario presentations, workbook exercises, laboratory exercises, and homework assignments. Prerequisite: HIM* 214. Corequisite: HIM* 226.</td>
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<tr>
<td>HIM* 214</td>
<td>Directed Practice I (HIM 214)</td>
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<tr>
<td>HIM* 226</td>
<td>Directed Practice II (HIM 226)</td>
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<tr>
<td>HIS* 101</td>
<td>Western Civilization I (HIS 103)</td>
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<tr>
<td>HIS* 102</td>
<td>Western Civilization II (HIS 104)</td>
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<tr>
<td>HIS* 201</td>
<td>U. S. History I (HIS 201)</td>
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<tr>
<td>HIS* 202</td>
<td>U. S. History II (HIS 202)</td>
</tr>
<tr>
<td>HIS* 216</td>
<td>African-American History I (HIS 101)</td>
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<tr>
<td>HIS* 217</td>
<td>African-American History II (HIS 102)</td>
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<tr>
<td>HIS* 233</td>
<td>20th Century Russia (HIS 205)</td>
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<tr>
<td>HIS* 253</td>
<td>History of Human Rights</td>
</tr>
</tbody>
</table>
HOSPITALITY MANAGEMENT

HSP* 100  Introduction to the Hospitality Industry (HSP 101)  3 S.H.
Examines the scope, components, and development of the hospitality and tourism industries. Overview of specialized fields and careers relating to the management of food service, lodging, and tourism operations. Covers the relationship between components of hospitality and meeting planning. Offered in the fall semester only.

HSP* 101  Principles of Food Preparation (HSM 109)  3 S.H.
Introduces basic concepts and methods of cooking in all facets of food service operation. Lectures, demonstrations, and hands-on experience in food production will be used. In the food lab, students will learn proper methods of broiling, grilling, sautéing, roasting, and baking, using examples of meat, fish, poultry, and vegetables. Students will learn meat and fish fabrication, proper knife skills, tool and equipment use, weights, measures, and recipe conversion. Menu planning, purchasing, and the serving of food will be covered. Prerequisite: MAT* 075 or sufficient score on the mathematics placement test.

HSP* 103  Principles of Baking I (HSM 115)  3 S.H.
Introduces baking and pastry arts with intensive, hands-on laboratory training in a quantity food environment. Concentrates on the production and quality control of baked goods that are used in hotels, restaurants, resorts, and institutions. Laboratory classes emphasize basic ingredients and production techniques for breads, rolls, folded doughs, batters, basic cakes, pies, and creams. One hour of lecture / three hours of lab.

HSP* 108  Sanitation and Safety (HSM 102)  3 S.H.
Presents sanitation, safety, and maintenance challenges encountered in the food service industry. Investigates causes and prevention of food-borne illnesses and the importance of sanitation and safety in food service establishments. A nationally recognized certificate in food service sanitation will be awarded by the National Restaurant Association to students who pass the certification exam.

HSP* 110  Quantity Food Production (HSM 112)  4 S.H.
Emphasizes research of recipes, preparation of food, purchase orders, requisitions, and income and expense summaries for each menu. Students prepare full-course menus in quantity. Students will serve in various positions in the dining room and kitchen areas. One hour of lecture / five hours of lab. Prerequisite: HSP* 101.

HSP* 117  Beverage Management (HSM 201)  3 S.H.
Introduces the identification, use, and service of wines and other alcoholic beverages with an in-depth analysis of the various elements of beverage operations, including purchasing, control, legalities, merchandising, and bar management. Offered in the spring semester only.

HSP* 131  Principles of Dining Service  1 S.H.
Provides basic knowledge of dining service, table service, and the fundamental skills necessary to achieve service goals in the hospitality industry. Offered in the fall semester only.

HSP* 201  International Foods (HSM 217)  4 S.H.
Student teams plan, prepare, and serve full-course international menus. Emphasizes organization, showmanship, and supervision. Requires oral and written reports on food from different countries. One hour of lecture / five hours of lab. Prerequisites: HSP* 101 and HSP* 110. Offered in the spring semester only.

HSP* 202  Catering and Event Management (HSM 210)  3 S.H.
Focuses on the production of buffets, banquets, and receptions. Promotes artistic production and participation in community service projects. Students prepare summaries and evaluations at the conclusion of each session. Covers the logistics of banquet and meeting room set-up and convention servicing. Offered in the spring semester only.

HSP* 211  Food and Beverage Cost Control  3 S.H.
Presents cost control methods, cost/volume/profit relationship, and purchasing as they relate to the food and beverage industries. Food and beverage cost determination, inventory, turnover, menu, and portion costing and forecasting will be discussed. Offered in the fall semester only. Prerequisite: MAT* 075.

HSP* 212  Equipment Design and Layout (HSM 212)  3 S.H.
(Course has not been offered in the past two years)

Presents the concepts of equipment and layout and their interrelationship in a well-organized food service facility. Considers equipment selection based on menu, volume, and budget requirements. Focuses on equipment design and layout methodology. Prerequisites: HSP* 101 and HSP* 108.
HSP* 215 Principles of Baking II (HSM 215)  
4 S.H.  
Focuses on the preparation of advanced pastries and classical desserts, including the preparation of petit fours, cake decoration and calligraphy, sugar and chocolate work, ice cream, and showpieces. One hour of lecture / three hours of lab. Prerequisite: HSP* 103.

HSP* 231 Hospitality Law (HSM 220)  
3 S.H.  
Introduces the basics of hotel, motel, restaurant, and travel law. Covers the fundamental laws, rules, regulations, and contracts applicable to the hospitality and meetings industries. The hotel-guest relationship laws regarding food and beverage service, negotiation, mediation, and contract relationships between management and vendors will be discussed. Offered in the fall semester only.

HSP* 237 Hospitality Marketing (HSM 231)  
3 S.H.  
Focuses on marketing and sales as they apply to the hospitality industries, especially methods of marketing a hotel, restaurant, and destination. Topics include marketing basics, the marketing plan, sales promotion, and special challenges in this industry. The relationship of sales and marketing to the meetings and conventions industry will be discussed. Offered in the fall semester only.

HSP* 241 Principles of Tourism and Travel (HSM 233)  
3 S.H.  
(Course has not been offered in the past two years)  
Introduces the tourism field, highlighting goals of the tourism profession and providing a guideline for achieving individual and collective success. Covers market analysis and conceptual planning of site development, transportation, accommodations, and support industries. Presents a comprehensive view of the field, dramatically bringing to the forefront the immense propositions of world tourism, examining its past and present, and providing a direction for the future.

HSP* 244 Meetings, Conventions, and Special Events Management (HSM 225)  
3 S.H.  
Introduces methods of creating successful meetings, conventions, and special events. Topics include setting objectives, program design, site selection, budgeting, negotiations, room setups, audio visual, travel arrangements, and contracting for services. Offered in the spring semester only.

HSP* 246 Hotel Accounting and Front Office Management (HSM 242)  
3 S.H.  
Emphasizes accounting procedures and functions of the front office, including internal control procedures, guest services, housekeeping, and reservations. Places attention on the needs of management and the application of accounting concepts and techniques to managerial decision making. Explores the interaction of the front office and other areas of the hotel in relationship to customer service. Offered in the spring semester only.

HSP* 295 Hospitality Management, Work Experience/Internship (HSM 251)  
3 S.H.  
Provides an opportunity to gain experience in a hotel, restaurant, food service, or travel related business. Phase one takes place during the spring semester and requires the student to complete 120 internship hours at a site designated by the instructor. This experience must be new to the student. Once the first phase is completed, phase two requires an additional 280 documented paid work experience hours at a site approved by the instructor. Phase two is completed between May 15 and August 10. The student is responsible for seeking the second phase paid employment in the hospitality industry. Prerequisite: Program director’s permission, a minimum GPA of 2.50, completion of 18 earned HSP* credit hours. Offered in the spring semester only.

HUMAN DEVELOPMENT

HDV 100 Orientation to College  
1 S.H.  
Orients a new student to Gateway Community College. Addresses personal development topics (such as stress management and career planning) and study skills (including note taking and preparing for tests). Provides students with the skills and strategies to solve problems they are likely to encounter when they enter college.

HDV 101 Survival at College  
1 S.H.  
Introduces students to strategies and techniques for setting and accomplishing academic, personal or professional goals. Focuses on how to navigate expectations and projections that interfere with achieving objectives even when faced with obstacles. Students learn how their thoughts, feelings and behavior when directed toward creating positive experiences, can support their success and alter their lives’ course.

HDV 103 Career Planning  
1 S.H.  
Explores career opportunities within a small group. Students will learn about the process of career decision making, including an examination of values and interests and the use of information about various occupations.
HDV 104  Strategies for Academic Success 2 S.H.*
Offers academic support to students having difficulty successfully completing college level work. Enhances students’
capabilities through group work and individualized attention to identified academic deficiencies. Students will be strongly
supported by Student Services personnel. *Credit does not count toward meeting degree requirements.

HDV 105  Learning Strategies 2 S.H.*
Improves the study skills of beginning students to help them successfully complete college level work. Stresses learning
strategies, including goal setting, time management, productive study habits, note-taking and test-taking techniques.
Emphasizes memory and concentration enhancements as well as promoting active listening behaviors. Placement:
Results of ACCUPLACER. *Credit does not count toward meeting degree requirements.

HUMAN SERVICES

HSE* 101  Introduction to Human Services (HSR 115) 3 S.H.
Introduces the history, philosophy, ethics, and values of the human services field. Compares the variety of structures,
goals, and methods of service delivery, focusing on the human service network of New Haven.

HSE* 143  Mediation 3 S.H.
Introduces the concepts and skills of mediation, a type of third-party conflict intervention. This course will provide
students with theory, research and practice to effectively use mediation skills in a wide variety of contexts. Prerequisites:
COM* 171, ENG* 101 (or higher), HUM* 125.

HSE* 151  Introduction to Therapeutic Recreation (HSR 120) 3 S.H.
Presents the history, philosophy, and concepts of Therapeutic Recreation services in community and institutional settings.
Students will learn how special population groups use and benefit from the skills of therapeutic recreation specialists.

HSE* 152  Programming in Therapeutic Recreation (HSR 225) 3 S.H.
Teaches the purpose of recreational services, how to use the methods and materials. Describes the rehabilitation
process and how to apply the correct programs to specific groups.

HSE* 153  Methods and Materials for Therapeutic Recreation (HSR 226) 3 S.H.
Explains in a concentrated form the methods and materials used in various recreational settings. Assesses the physical,
mental, emotional, and social abilities of clients who need therapeutic recreation services. Presents group activities
that incorporate, among other methods, crafts, drama, dance, and music to create well-rounded therapeutic recreation
programs. Prerequisite: HSE* 152.

HSE* 228  Youth Work Seminar (HSR 240) 3 S.H.
Students enrolled in the youth worker certificate program and who are also concurrently enrolled in either HSE* 281
or HSE* 282 will meet for this small group seminar. At these seminars, agencies will present ways in which they
serve youth by implementing the youth worker philosophy in their provision of services. Students will learn to apply
theoretical concepts to their practice specially through direct experience and supportive seminar learning experiences.
Corequisite: HSE* 281 or HSE* 282.

HSE* 247  Supervisors’ Seminar (HSR 235) 3 S.H.
Focuses on concepts, principles, and methods of supervising new professionals and/or paraprofessionals. Focuses on
issues confronting the supervisor in traditional settings. Intended for administrators, managers, teachers, and
professionals who work in human service agencies and organizations.

HSE* 271  Field Work Seminar I (HSR 241) 3 S.H.
Presents how to integrate and process knowledge and theory learned in foundation courses with experiences gained
at the field site. The seminar acts as a forum for sharing field experiences and as a peer support group. Focuses on
developing the skills necessary for human services practice, i.e., observation, human relations, interviewing, self-
awareness, and leadership. Corequisite: HSE* 281.

HSE* 281  Human Services Field Work I (HSR 243) 3 S.H.
Provides prospective human services workers with an opportunity to learn experientially at a human services agency
in the community. Focuses on how an agency functions through direct experience in a part of that agency. Requires a
minimum of eight hours a week at the placement agency. Corequisite: HSE* 271.
HUMANITIES

HUM* 125 Introduction to Peace and Conflict Studies 3 S.H.
Provides an interdisciplinary study of the concepts of peace and conflict as they relate to economic, sociological, psychological, historical, political, technological, cultural, ideological, geographical, and environmental factors since the end of the Cold War.

HUM* 130 Philosophy and Practice of Yoga 3 S.H.
Investigates the philosophy of yoga, its origins, and its place in our contemporary lives. Teaches the different aspects of yoga and areas of study that encompass the fundamental principles of the discipline. Teaches basic poses as well as meditation and breathing techniques.

ITALIAN
Advanced language instruction beyond the courses listed below is available through Independent Study by arrangement with the instructor.

ITA* 101 Elementary Italian I (ITA 101) 3 S.H.
Presents the essentials of grammar and reading with practice in speaking and writing simple Italian. Stresses pronunciation. Open to students with little or no experience in Italian.

ITA* 102 Elementary Italian II (ITA 102) 3 S.H.
Emphasizes aural comprehension, pronunciation, and basic conversation. Continues practice in speaking and writing. Stresses the basic structure of Italian grammar. Prerequisite: ITA* 101.

ITA* 201 Intermediate Italian I (ITA 201) 3 S.H.
Reviews and deepens knowledge of Italian grammar with more emphasis on reading and vocabulary building. Intensifies practice in speaking and some reading of contemporary prose. Prerequisite: ITA* 102.

ITA* 202 Intermediate Italian II (ITA 202) 3 S.H.
Stresses conversational patterns and practices. Presents Italian literature and culture. Provides the skill training required to read and translate Italian. Prerequisite: ITA* 201.

MANUFACTURING ENGINEERING TECHNOLOGY

MFG* 102 Manufacturing Processes (MFG 110) 3 S.H.
Provides theoretical concepts of manufacturing and develops the knowledge and skills required in the manufacturing process. The laboratory portion introduces common metal cutting tools, lathe operations, and associated precision measuring tools and instruments. Labs will involve set-up and preparation of milling machines, lathes, grinders, and drill presses. Two hours of lecture / three hours of laboratory. Co-requisite: ARC* 133.

MFG* 108 Computer Aided Manufacturing (MFG 112) 4 S.H.
Focuses on the process of manual and automated preparation of computerized manufacturing system programs. The laboratory portion provides experience in the manual and automated preparation of computerized manufacturing system programs. Three hours of lecture / two hours of laboratory. All classes conducted in computer laboratories. Prerequisite: MFG* 102.

MFG* 116 Quality Assurance Organization and Management 4 S.H.
Develops the concepts of a Total Quality System (TQS), including policies, objectives, and organization. Reviews such topics as cost of quality, planning, improvement techniques, reliability, supplier relations, and evaluations. Addresses inspection, measurement, and process control techniques. Covers customer and consumer relations.

MFG* 204 Advanced Computer Aided Manufacturing (MFG 212) 4 S.H.
Builds on the skills learned in CAM I with sharper focus on the integration of CAD and CAM for fast prototyping and design for manufacturing. The laboratory portion introduces practical applications for automated CAM systems. Three hours of lecture / two hours of laboratory. All classes are conducted in computer laboratories. Prerequisite: MFG* 108.
MFG* 208  Process Engineering (MFG 220) 4 S.H.
Introduces the principles and techniques used to design the most efficient method of product manufacturing, establish
the best sequence of operations, select the proper machines to perform the operations, evaluate the need for special
tooling, and provide conceptual sketches of special tools. The laboratory portion consists of workshop problems that
prepare the student for an entry-level position in manufacturing process design. Exercises cover such conventional
machine tools as turn, drill, mill, broach, CNC, grind, and miscellaneous processes. Three hours of lecture / two hours
of laboratory. Prerequisite: MFG* 102.

MFG* 210  Materials of Engineering (MFG 210) 4 S.H.
Studies the structure and properties of engineering materials. Discussed materials selection, processing and heat
treatment. Addresses the changes in structure and properties during forming, machining and heat treating operations.
The laboratory portion uses selected experiments to demonstrate the effects of processing including heat treatment on
the properties of engineering materials. Standard materials tests are also performed. Three hours of lecture/two hours
of laboratory. Prerequisite: MFG* 102.

MFG* 216  Tool Designing (MFG 224) 4 S.H.
Covers the theory of metal cutting tools design. Presents the principles, practices, tools, and commercial standards
of single point, jig, fixture, and die design through lectures, visual aids, and individual projects and design work. The
laboratory portion provides practice in the design of metal cutting tools. Two hours of lecture / four hours of laboratory.
Prerequisites: CAD* 108 and MFG* 102.

MFG* 228  Computer Integrated Manufacturing I (MFG 226) 4 S.H.
Covers computer generated CNC programming, robot programming, analog programmable logic control programming,
and interfacing of robots, controllers and machine tools. Discussed part families, CAD/CAM and Flexible Manufacturing
Systems. The laboratory portion provides practice in writing computer generated CNC programs, robotic programming
and interfacing and analog programmable logic controller programming. A flexible manufacturing system is programmed.
Three hours of lecture/two hours of lab. Prerequisites: CAD* 108, MFG* 108.

MFG* 230  Statistical Process Control (MFG 228) 3 S.H.
Presents a practical management aid adapted from the science of statistics. Presents topics ranging from basic statistical
concepts to techniques for cost and quality control, emphasizing control by charting and acceptance sampling. Uses
the computer as an aid in calculation and control chart preparation. Prerequisite: MFG* 102.

MFG* 239  Geometric Dimensioning and Tolerancing (MFG 111) 3 S.H.
specification creates a unified language that specifies engineering requirements related to the actual function of and
relationship between parts. Includes the application of form, profile, orientation, runout, and location types of geometric
characteristics, including the application of the feature control frame and tolerance and datum modifiers.

MFG* 296  Manufacturing Internship (MFG 246) 3 S.H.
Provides practical experience in the manufacturing field. The assignment can involve one or more of the subjects
relevant to manufacturing engineering technology, including drafting, manufacturing processing, CAD, CAM, quality
control, and tool design. Prerequisites: Good academic standing and the consent of the academic advisor or the
Manufacturing Program Coordinator.

MATHEMATICS
Placement: Determined by ACCUPLACER or course prerequisites as indicated.

MAT* 075  Prealgebra: Number Sense, Geometry (MAT 100) 3 S.H.*
Prepares the basic concepts and skills of arithmetic and prealgebra. Topics include whole numbers, signed numbers,
decimals, fractions, ratios, proportions, percent, estimation, geometry, variables, expressions, and equations. *Credit
does not count toward degree requirements or graduation. An online computer homework supplement is available
in all sections. Exit criteria: A grade of C or better allows enrollment in MAT* 095; a grade of C-, D+, D, or D- requires
enrollment in MAT* 097 or to repeat MAT* 075.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MAT* 092</td>
<td>Statway I</td>
<td>4 S.H.*</td>
</tr>
<tr>
<td>MAT* 095</td>
<td>Elementary Algebra Foundations (MAT 101)</td>
<td>3 S.H.*</td>
</tr>
<tr>
<td>MAT* 097</td>
<td>Elementary Algebra Foundations with Prealgebra</td>
<td>5 S.H.*</td>
</tr>
<tr>
<td>MAT* 109</td>
<td>Quantitative Literacy (MAT 109)</td>
<td>3 S.H.</td>
</tr>
<tr>
<td>MAT* 115</td>
<td>Mathematics for Science and Technology (MAT 112)</td>
<td>3 S.H.</td>
</tr>
<tr>
<td>MAT* 117</td>
<td>Introduction to Finite Mathematics (MAT 117)</td>
<td>3 S.H.</td>
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<tr>
<td>MAT* 122</td>
<td>Statway II</td>
<td>3 S.H.</td>
</tr>
<tr>
<td>MAT* 123</td>
<td>Elementary Statistics (MAT 110)</td>
<td>3 S.H.</td>
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</table>

MAT* 092 Statway I
This is the first course in the two semester Statway course sequence. This course sequence is recommended for students enrolled in degree programs that require no mathematics beyond freshman-level statistics. Both courses in the sequence must be taken to receive credit for college-level statistics. Students will use mathematical and statistical tools to explore real-life data in a participatory learning environment. Statway I topics include an introduction to data analysis, statistical studies, sampling, experimental design, descriptive statistics techniques, scatterplots, correlation and regression, modeling data with functions, linear and exponential functions, and probability. This course requires the use of statistical technology. *Credit does not count toward degree requirements or graduation. Pre-requisite: MAT* 075 with a B or better, appropriate score on placement test or permission of CAS department chairperson. Co-requisite: ENG* 073 or appropriate score on placement test or permission of CAS department chairperson.

MAT* 095 Elementary Algebra Foundations (MAT 101)
This is an introductory course in Algebra. Topics include properties of the real number system, linear equations and inequalities in one variable, graphing linear equations and inequalities in two variables, formulating equations of lines in two variables, an introduction to functions, solving systems of linear equations by graphing, rules of integral exponents and operations on polynomials. * Credit does not count toward degree requirements or graduation. A graphing calculator is required. A calculator in the TI-83 or TI-84 family is strongly recommended. Prerequisites: A grade of C or better in MAT* 075; or a sufficient score on the mathematics placement test.

MAT* 097 Elementary Algebra Foundations with Peralgebra
Combines MAT* 075 and MAT* 095 topics to present an introductory course in Algebra including a concentrated arithmetic review. Topics include whole numbers, signed numbers, decimals, fractions, ratios, proportions, percent, estimation, geometry, linear equations and inequalities in one variable, graphing linear equations and inequalities in two variables, formulating equations of lines in two variables, an introduction to functions, solving systems of linear equations by graphing, rules of integral exponents and operations on polynomials. * Credit does not count toward degree requirements or graduation. A graphing calculator is required. A calculator in the TI-83 or TI-84 family is strongly recommended. Prerequisites: A sufficient score on the mathematics placement test; or a grade of C-, D+, D, or D- in MAT* 075.

MAT* 109 Quantitative Literacy (MAT 109)
Introduces the language of mathematics. Topics include consumer mathematics, percent, personal loans and simple interest, compound interest, installment buying, buying a house with a mortgage, annuities, and sinking funds. A brief study of the history of mathematics, including early numeration systems. A basic introduction to game theory and voting and apportionment. This course may be used to satisfy the mathematics requirement for graduation. Prerequisite: MAT* 095, MAT 097 or sufficient score on the mathematics placement test.

MAT* 115 Mathematics for Science and Technology (MAT 112)
Presents basic mathematical concepts needed in the science and technology fields. Includes scientific notation, English and metric systems, solutions to first- and second-degree equations, systems of equations, logarithms, elementary geometry, statistics, graphing, and trigonometry. Introduces the scientific calculator. Prerequisites: A grade of C or better in MAT* 095, MAT 097 or sufficient score on the mathematics placement test.

MAT* 117 Introduction to Finite Mathematics (MAT 117)
Presents various mathematical topics, including a review of basic algebraic concepts, mathematics of finance, systems of linear equations and matrices, linear inequalities and linear programming, probability, and game theory. Prerequisites: A grade of C or better in MAT* 095, MAT 097 or sufficient score on the mathematics placement test.

MAT* 122 Statway II
Second course in the two semester Statway sequence. This sequence is recommended for students enrolled in degree programs that require no mathematics beyond freshman-level statistics. Both courses in the sequence (Statway I and Statway II) must be taken to receive credit for college-level statistics. Students will use mathematical and statistical tools to explore real-life data in a participatory learning environment. Statway II topics include modeling data with functions, quadratic functions, discrete and continuous probability distribution, Central Limit Theorem, sampling distributions, confidence intervals, hypothesis testing. Prerequisites: MAT* 092.

MAT* 123 Elementary Statistics (MAT 110)
Considers fundamental concepts of probability and statistics including mean, median, mode for grouped and non-grouped data, permutations, combinations, applications of distributions, hypothesis testing, and confidence intervals. Prerequisites: A grade of C or better in MAT* 095, MAT 097 or sufficient score on the mathematics placement test.
<table>
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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MAT* 137</td>
<td>Intermediate Algebra (MAT 119)</td>
<td>3 S.H.</td>
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<td></td>
<td>This course is a rigorous study of the real number system, polynomials, rational exponents, radicals, sets, relations, first- and second-degree functions, inverse and composite functions, first- and second-degree equations and inequalities, systems of equations, and complex numbers. A graphing calculator is required. TI-83 or TI 84 family is strongly recommended. Prerequisites: A grade of C or better in MAT* 095, MAT 097 or sufficient score on the mathematics placement test.</td>
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<tr>
<td>MAT* 142</td>
<td>Mathematics for the Natural Sciences (MAT 142)</td>
<td>3 S.H.</td>
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<td>Presents the numerical and algebraic manipulation of data, curve sketching, and curve fitting. Solutions to problems with a calculator, using examples from the natural sciences. This course may be used to satisfy the mathematics requirement for graduation. Prerequisite: A grade of C or better in MAT* 137 or sufficient score on the mathematics placement test.</td>
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<tr>
<td>MAT* 143</td>
<td>Mathematics for Elementary Education: Algebra/Number Systems I (MAT 138)</td>
<td>3 S.H.</td>
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<td></td>
<td>Presents mathematical reasoning for problem solving sets, whole numbers, numeration systems, number theory, and integers. Required of all students in and working toward certification in elementary education. This course may be used to satisfy the mathematics requirement for graduation. Prerequisite: A grade of C or better in MAT* 137 or sufficient score on the mathematics placement test.</td>
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<tr>
<td>MAT* 144</td>
<td>Mathematics for Elementary Education: Geometry and Data (MAT 139)</td>
<td>3 S.H.</td>
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<td></td>
<td>Presents geometry, measurement, rational numbers, irrational numbers, ratio, proportion, percent, problem solving, mathematical reasoning and connections, probability, and statistics. This course may be used to satisfy the mathematics requirement for graduation. Prerequisite: A grade of C or better in MAT* 137 or sufficient score on the mathematics placement test.</td>
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<tr>
<td>MAT* 146</td>
<td>Mathematics for the Liberal Arts</td>
<td>3 S.H.</td>
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<td></td>
<td>Intended for the student whose major field of study requires no specific mathematical preparation. This course examines logical structures, patterns and method of abstractions as they occur in a variety of basic mathematical topics such as set theory and number theory. Some historical aspects of mathematics are considered. Prerequisite: A grade of C or better in MAT* 137 or sufficient score on the mathematics placement test.</td>
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<tr>
<td>MAT* 151</td>
<td>Mathematics of Finance (MAT 121)</td>
<td>3 S.H.</td>
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<td></td>
<td>Presents the basic mathematical operations of finance. Includes allocation of depreciation and overhead costs, financial statements and ratios, inventory evaluation, trade and case discounts, simple interest and bank discount, multiple payment plans and various compound interest calculations. Introduces and expands upon certain topics in the accounting sequence. Prerequisite: MAT* 115 or MAT* 137.</td>
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<tr>
<td>MAT* 167</td>
<td>Principles of Statistics (MAT 123)</td>
<td>3 S.H.</td>
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<td></td>
<td>Introduces the concepts of collecting and compiling data. Reviews data presentation in tabular and graphic forms, bivariate data and its presentation, probability and probability structures, inferential statistics, analysis of variance, and hypothesis testing. Uses statistical computing software. Prerequisite: MAT* 137.</td>
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<tr>
<td>MAT* 172</td>
<td>College Algebra (MAT 125)</td>
<td>3 S.H.</td>
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<td></td>
<td>Briefly reviews the algebraic operations of real numbers. Offers an intense study of logarithms, exponential and logarithmic functions, systems of equations, determinants and matrices, and complex numbers. Prerequisite: A grade of C or better in MAT* 137.</td>
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<tr>
<td>MAT* 175</td>
<td>College Algebra and Trigonometry (MAT 127)</td>
<td>3 S.H.</td>
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<td></td>
<td>Covers the basic manipulation of algebraic expressions, equations, and inequalities. Introduces factoring, trigonometry, exponents, radicals, and graphing. Uses the graphing calculator. Prerequisite: A grade of C or better in MAT* 137 or sufficient score on the mathematics placement test and high school trigonometry.</td>
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<tr>
<td>MAT* 185</td>
<td>Trigonometric Functions (MAT 130)</td>
<td>3 S.H.</td>
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<td>Studies trigonometric functions, identities, and conditional trigonometric equations. Includes multiple angle functions, radian measure, and selected applications of trigonometry. Prerequisite: MAT* 172.</td>
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<tr>
<td>MAT* 186</td>
<td>Precalculus</td>
<td>4 S.H.</td>
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<tr>
<td></td>
<td>Covers symmetry and transformation, polynomial and rational functions, exponential and logarithmic functions and equations, trigonometric functions, trigonometric identities, inverse functions and equations. Addresses advanced trigonometry and applications. Includes such topics as partial fractions, conic section, and non-linear systems of equations and inequalities in preparation for Calculus I. Uses the graphing calculator. Prerequisite: A grade of C or better in MAT* 172 or MAT* 175 or permission of instructor.</td>
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<tr>
<td>Course Code</td>
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<td>Credits</td>
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<tr>
<td>MAT* 232</td>
<td>Applied Calculus</td>
<td>3 S.H.</td>
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<tr>
<td>MAT* 254</td>
<td>Calculus I (MAT 245)</td>
<td>4 S.H.</td>
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<tr>
<td>MAT* 256</td>
<td>Calculus II (MAT 246)</td>
<td>4 S.H.</td>
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<tr>
<td>MAT* 268</td>
<td>Calculus III: Multivariable (MAT 255)</td>
<td>4 S.H.</td>
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<tr>
<td>MAT* 272</td>
<td>Linear Algebra (MAT 260)</td>
<td>3 S.H.</td>
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<tr>
<td>MAT* 285</td>
<td>Differential Equations (MAT 256)</td>
<td>3 S.H.</td>
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**MECHANICAL ENGINEERING TECHNOLOGY**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEC* 104</td>
<td>Mechanics - Statics (MEC 114)</td>
<td>3 S.H.</td>
<td>Analyzes the forces acting on various types of two- and three-dimensional structures in static equilibrium. Studies the composition and resolution of forces acting on beams, trusses, frames, and machines. Also covers centroids, distributed forces, moments of inertia, and friction. The laboratory portion provides problem-solving applications of the theory learned in the classroom, emphasizing engineering analysis and the preparation of written reports. Three hours of lecture. Prerequisite: MAT* 175, PHY* 122 or sufficient score on the mathematics placement test.</td>
</tr>
<tr>
<td>MEC* 234</td>
<td>Electromechanical Controls (MEC 234)</td>
<td>4 S.H.</td>
<td>Introduces the student to the fundamentals of electric circuits and electrical machinery emphasizing DC/AC single and polyphasors motors and generators. Presents electrical methods of manual and automatic control of mechanical systems. The laboratory portion covers motors, control systems, digital logic, and applications. Emphasizes the organization, report, and interpretation of test data in a written report for each experiment. Three hours of lecture / two hours of laboratory. Prerequisite: MAT* 095 or sufficient score on the mathematics placement test.</td>
</tr>
<tr>
<td>MEC* 240</td>
<td>Fundamentals of Thermodynamics (MEC 238)</td>
<td>4 S.H.</td>
<td>Presents the thermodynamic principles of heat, work, non-flow and steady flow processes, and thermodynamic cycles. Stresses the fundamental principle of energy conversion and the use of thermodynamic data tables and charts. Three hours of lecture / two hours of laboratory. Prerequisite: MEC* 104. Corequisite: MAT* 187.</td>
</tr>
<tr>
<td>MEC* 250</td>
<td>Strength of Materials (MEC 220)</td>
<td>3 S.H.</td>
<td>Covers the principles involved in the analysis of stresses in machine and structural elements under various types of loads. Analyzes these stresses in thin-walled cylinders and spheres, riveted and welded joints, beams, columns, cast sections, couplings, and shafts. The laboratory portion investigates material strength and the intelligent use of existing references. In the lab, students work in small groups to conduct their own measurements of the mechanical properties of common materials. Uses microcomputers to analyze experimental data and prepare final reports. Two hours of lecture / three hours of laboratory. Prerequisite: MEC* 104. Corequisite: MAT* 175.</td>
</tr>
<tr>
<td>MEC* 265</td>
<td>Materials Science (MEC 222)</td>
<td>4 S.H.</td>
<td>Introduces the internal structure of metallic, polymeric, and ceramic solids and their physical, mechanical, electrical, and chemical properties in engineering applications. The laboratory portion investigates the reactions that take place in materials subjected to a variety of tests. Introduces students to ASTM standards and procedures. Three hours of lecture / two hours of laboratory. Corequisite: PHY* 121.</td>
</tr>
</tbody>
</table>
MEC* 271 Fluid Mechanics (MEC 236) 4 S.H.
Introduces fluid mechanics, basic fluid characteristics, hydrostatics, pressure, center of pressure, and pressure measuring devices. Demonstrates the application of the general energy equation to fluid in motion. Also demonstrates the modifications necessary to analyze the effect of viscosity and friction of fluid flow, pressure heads, and pumping calculation. Three hours of lecture / two hours of laboratory. Prerequisite: MEC* 104. Corequisite: MAT* 187.

MEC* 283 Design of Machines (MEC 230) 4 S.H.
Presents the concept of Mechanical Design, from concept to specifications. Covers the procedures, data, and techniques necessary to design such mechanical components as gears, springs, bearings, belt and chain drives, clutches, brakes, fasteners, shafts, and screws. Emphasizes the use of computers in the design process. The laboratory portion combines all previous study dealing with machine elements. Uses computer-aided design solutions and requires a design project. This project includes an analysis of individual components, assembly, and detail drawings. Three hours of lecture / three hours of laboratory. Prerequisites: MEC* 250, MEC* 265, and CAD* 108.

MEC* 296 Mechanical Engineering Internship 2 S.H.
Provides Mechanical Engineering Technology students with a semester of external related career experiences designed to enhance the student's preparedness for an intended career with business, industry or government agency. A comprehensive written report on the Internship practice is required. To be eligible for the internship, a student must be of good academic standing and have program advisor approval.

MUSIC

MUS* 101 Music History and Appreciation I (MUS 101) 3 S.H.
Surveys composer biographies and musical styles from the Medieval, Renaissance, Baroque, Classical, and Romantic eras. Emphasizes historical fact, listening skills, and music vocabulary for enjoyment. Requires attendance at one concert.

MUS* 115 Music Theory I (MUS 105) 3 S.H.
Develops skills in music reading, ear training, and melodic and harmonic analysis. Analyzes composition through counting, reading, and pitch notation in the classroom and laboratory.

MUS* 116 Music Theory II (MUS 106) 3 S.H.
Builds on skills learned in Music 115. Includes analysis of form, structure, and compositional techniques. Prerequisite: MUS* 115 or instructor's permission.

MUS* 126 20th Century/Modern Music (MUS 202) 3 S.H.

MUS* 141 Guitar I (MUS 131) 3 S.H.
A guitar course for students with no previous guitar experience. Students must provide their own instruments and supplies.

MUS* 142 Guitar II (MUS 132) 3 S.H.
A second-level guitar course for students with minimal experience playing guitar and reading G clef. Students must provide their own instruments and supplies.

MUS* 143 Guitar III (MUS 133) 3 S.H.
A third-level guitar course for students with experience playing guitar and reading G clef. Students must provide their own instruments and supplies.

MUS* 144 Guitar IV (MUS 134) 3 S.H.
A fourth-level guitar course for students with knowledge of advanced guitar technique and bass technique. Students must provide their own instruments and supplies.

MUS* 150 Class Piano I (MUS 141) 3 S.H.
An introductory piano course, presenting simple note values in duple and triple meter, in both F and G clefs. Focuses on the organization of the keyboard. Develops skills in performing major scales and arpeggios, simple five-finger position compositions, and exercises for technique.
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<tbody>
<tr>
<td>MUS* 151</td>
<td>Class Piano II (MUS 142)</td>
<td>3 S.H.</td>
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<tr>
<td></td>
<td>Continues the study of simple compositions in duplle, triple, and quadruple meters and in reading the F and G clefs. Includes minor scales and arpeggios, two octave major scales and arpeggios, simple compositions, and studies in technique.</td>
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<tr>
<td>MUS* 171</td>
<td>Chorus I (MUS 111)</td>
<td>3 S.H.</td>
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<tr>
<td>MUS* 172</td>
<td>Chorus II (MUS 112) (Course has not been offered in the past two years)</td>
<td>3 S.H.</td>
</tr>
<tr>
<td>MUS* 272</td>
<td>Chorus III (MUS 113)</td>
<td>3 S.H.</td>
</tr>
<tr>
<td>MUS* 273</td>
<td>Chorus IV (MUS 114) (Course has not been offered in the past two years)</td>
<td>3 S.H.</td>
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<td>Presents choral material, both sacred and secular, accompanied, and a cappella. Surveys choral works from Renaissance madrigals to contemporary American music. May be taken four semesters for credit and is open to all students.</td>
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<tr>
<td>MUS* 218</td>
<td>Electronic Music Composition/Audio Technology I (MUS 210)</td>
<td>3 S.H.</td>
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<td>Develops a working understanding of computer music software. Includes such compositional techniques and strategies as meter applications in duplle, triple, and quadruple meters; melodic structure and organization; harmonic movement in tonality; and an introduction to the social and artistic purposes of musical composition.</td>
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</tr>
<tr>
<td>MUS* 219</td>
<td>Electronic Music Composition/Audio Technology II (MUS 211)</td>
<td>3 S.H.</td>
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<td></td>
<td>Applies music notation software using electronic piano input. Explores standard tonal composing techniques for both popular and artistic music alongside prominent atonal twentieth century techniques. Introduces the use of text (lyrics) and notation for orchestra. Examines current procedures for copyrighting and publishing musical compositions.</td>
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<tr>
<td>MUS* 243</td>
<td>Orchestra: Baroque Era</td>
<td>3 S.H.</td>
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<td></td>
<td>Focuses on music of the Baroque Period (approx. c. 1600-1750). This period closely followed the Renaissance, flourished under the leadership of J.S. Bach whose works will be studied in depth. Most music was written for the church, opera, or the Court with the emergence of a homophonic style. Through use of recordings, videos, and live concerts, students will become familiar with Baroque Period music such as Handel’s Messiah, Bach’s Brandenberg Concerto and Vivaldi’s Four Seasons. Instrumentalists will engage in actual performance of music of the Baroque period. Non-instrumentalists will participate through observation, laboratory, and field experiences. Non-instrumentalists may choose the course with the permission of the instructor. You do not need to play an instrument to take this course.</td>
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<tr>
<td>MUS* 244</td>
<td>Orchestra: Classical Era</td>
<td>3 S.H.</td>
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<td>Focuses on music of the Classical Period which is often called the Viennese period. In this period the symphony and string quartet flourished through major contributions by Haydn, Mozart, and Beethoven. Through the use of recordings and videos, students will become familiar with such works as Mozart’s Don Giovanni, Haydn’s London Symphonies, Beethoven’s Symphony No. 3 “Eroica” and many others. Instrumentalists will engage in actual performance of music of the Classical Period. Non-instrumentalists will participate through observation, laboratory, and field experiences. Non-instrumentalists may choose the course with the permission of the instructor. You do not need to play an instrument to take this course.</td>
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<tr>
<td>MUS* 245</td>
<td>Orchestra: Romantic Era</td>
<td>3 S.H.</td>
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<td>Under the pens of Brahms, Berlioz, Mahler and others, the symphony no longer followed four strict movements. Through the use of recordings, videos, and live concerts, students will become familiar with such works as Piano Concerto No. 1 by Chopin, Symphonic Fantastique by Berlioz, and Faust Symphony by Liszt. Instrumentalists will engage in actual performance of music of the Romantic period. Non-instrumentalists will participate through observation, laboratory, and field experiences. Non-instrumentalists may choose the course with the permission of the instructor. You do not need to play an instrument to take this course.</td>
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<tr>
<td>MUS* 246</td>
<td>Orchestra: Modern Era</td>
<td>3 S.H.</td>
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<td>This course focuses on the music of the Modern Period in the 20th Century. Impressionist music by Ravel and Debussy, 12 tone compositions by Schoenberg, electronic music by Stockhausen, show tunes by Gershwin, Rodgers, and other American composers, nationalistic music by Shostakovich, film music by Prokofiev and Williams, American jazz and “Tin Pan Alley” tunes are some of the areas to be considered. Through the use of recordings, video, and live concerts, students will become familiar with Barber’s Adagio for Strings. Gershwin’s Rhapsody in Blue, and Stravinsky’s Firebird Suite as well as many others. Instrumentalists will engage in actual performance of music of the Modern Period. Non-instrumentalists will participate through observation, laboratory, and field experiences. Non-instrumentalists may choose the course with the permission of the instructor. You do not need to play an instrument to take this course.</td>
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<tr>
<td>MUS* 250</td>
<td>Class Piano III (MUS 143)</td>
<td>3 S.H.</td>
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<td>Introduces piano repertoire of such composers as Bach, Clementi, Mozart, and Beethoven at the early intermediate level, focusing on technique, interpretation, and structural aspects of the sonata form in Classical piano music. Emphasizes such technical studies as easy Pischna and Hanon, all major and minor scales and arpeggios in four octaves, and the standard cadence chord progression with inversions in all keys.</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
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<tr>
<td>MUS* 251</td>
<td>Class Piano IV (MUS 144)</td>
<td>3 S.H.</td>
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<tr>
<td></td>
<td>Continues the study of piano repertoire by Baroque and Classical masters. Introduces Romantic piano works by Beethoven, Chopin, Liszt, Schubert, and Schumann and contemporary and impressionistic works by such composers as Debussy and Bartok. Explores compositional aspects of such longer Romantic works as the Ballade or Scherzo, examining the technical difficulties of their performance. Piano IV continues the study of piano technique with Pischna and Hanon as well as practicing all major and minor scales and arpeggios in four octaves, in parallel thirds and sixths, and the standard cadence chord progression.</td>
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<tr>
<td>MUS* 299</td>
<td>Special Topics in Music</td>
<td>1-6 S.H.</td>
</tr>
</tbody>
</table>

**NUCLEAR MEDICINE TECHNOLOGY**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMT* 101</td>
<td>Introduction to Nuclear Medicine (NMT 111)</td>
<td>3 S.H.</td>
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<tr>
<td></td>
<td>Introduces the student to the healthcare environment and the field of nuclear medicine technology. Topics covered include: patient care, medical ethics, medicolegal issues, radiation safety and protection and an introduction to radiopharmacy. Prerequisites: Acceptance into the Nuclear Medicine Technology Program and full attendance during freshman orientation. Corequisite: NMT* 111.</td>
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<tr>
<td>NMT* 102</td>
<td>Nuclear Medicine Procedures I</td>
<td>3 S.H.</td>
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<tr>
<td></td>
<td>Introduces basic nuclear medicine technology procedures. Prerequisites: Acceptance into the Nuclear Medicine Technology Program and full attendance during freshman orientation. Corequisite: NMT* 111.</td>
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<tr>
<td>NMT* 111</td>
<td>Clinical Practicum I (NMT 112)</td>
<td>1 S.H.</td>
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<tr>
<td></td>
<td>Introduces the clinical setting and general nuclear medicine areas through simulated labs and hands-on training. Prerequisite: Acceptance into the Nuclear Medicine Technology Program and full attendance during freshman orientation. Corequisite: NMT* 101 and NMT* 102.</td>
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<tr>
<td>NMT* 112</td>
<td>Clinical Practicum II (NMT 125)</td>
<td>1 S.H.</td>
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<tr>
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<td>Emphasizes, through simulated labs and hands-on training, the handling and positioning of patients and the application of clinical nuclear medicine procedures. Prerequisites: NMT* 113 for NMT* AS degree students only. Corequisite: NMT* 121.</td>
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<tr>
<td>NMT* 113</td>
<td>Clinical Internship I</td>
<td>0.5 S.H.</td>
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<tr>
<td></td>
<td>Students attend clinical training Monday through Friday, eight hours per day. Prerequisite: NMT* 111.</td>
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<tr>
<td>NMT* 121</td>
<td>Physics in Nuclear Medicine (NMT 122)</td>
<td>3 S.H.</td>
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<tr>
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<td>Introduces the physics of nuclear medicine as a framework for the principles behind nuclear composition, energy concepts, and units of radioactive decay. Stresses radiation level calculation and understanding the process by which radiation interacts with matter. Prerequisites: PHY* 111. Corequisite: NMT* 112.</td>
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<tr>
<td>NMT* 126</td>
<td>Clinical Internship II</td>
<td>1.5 S.H.</td>
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<tr>
<td></td>
<td>Students attend clinical training Monday through Friday, eight hours per day. Prerequisite: NMT* 112.</td>
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<tr>
<td>NMT* 201</td>
<td>Nuclear Medicine Procedures II (NMT 213)</td>
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<tr>
<td></td>
<td>Covers nuclear medicine procedures, emphasizing anatomy, physiology, and pathology as they pertain to oncology, infection/inflammation, skeletal, cardiovascular and respiratory systems. Students perform Internet searches and present oral reports on findings pertinent to current nuclear medicine procedures. Prerequisites: NMT* 102. Corequisites: NMT* 112 (and RST* 217 for NMT* AS degree students only).</td>
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<tr>
<td>NMT* 202</td>
<td>Nuclear Medicine Instrumentation (NMT 224)</td>
<td>3 S.H.</td>
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<td>Examines the processes of converting radiation interactions into electrical signals for counting and measuring by nuclear probes and cameras. Assesses and investigates Nuclear Medicine camera systems and their physical imaging characteristics in hands-on experiments. Corequisite: NMT* 211.</td>
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<tr>
<td>NMT* 203</td>
<td>Radiopharmacy (NMT 226)</td>
<td>3 S.H.</td>
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<td>Covers the pharmacological basis, preparation, and quality control of radiopharmaceuticals used in nuclear medicine. Prerequisite: CHE* 111. Corequisite: NMT* 211.</td>
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<tr>
<td>NMT* 211</td>
<td>Clinical Practicum III (NMT 215)</td>
<td>1.5 S.H.</td>
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<td>Continues to develop competencies gained in Clinical Practicum II. Through simulated labs and hands-on training, students will achieve competency in advanced imaging procedures and equipment use. Prerequisites: NMT* 121 and NMT* 126. Corequisite: NMT* 203.</td>
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</tbody>
</table>
### NMT 212 Clinical Practicum IV (NMT 221)
1.5 S.H.
Introduces a sophisticated use of nuclear medicine technology and instrumentation. Students build on competencies achieved in Clinical Practica I, II, and III. Prerequisite: NMT* 216. Corequisite: NMT* 221.

### NMT* 216 Clinical Internship III
0.5 S.H.
Students attend clinical training Monday through Friday, eight hours per day. Prerequisite: NMT* 211.

### NMT* 221 Nuclear Medicine Procedures III (NMT 228)
3 S.H.
Builds on the procedures and organ systems presented in Nuclear Medicine Procedures I, including pharmacological intervention, the central nervous, endocrine, gastrointestinal, genitourinary systems and radionuclide therapies. Students will examine case images and present findings pertinent to nuclear medicine procedures. Prerequisite: NMT* 201. Corequisite: NMT* 212.

### NMT* 222 Introduction to Computers and Nuclear Medicine Applications (NMT 212)
3 S.H.
Introduces the use of computers in Nuclear Medicine Technology. Concentrates on computer hardware and acquisition, data analysis, and interpretation of computer studies in Nuclear Medicine. Prerequisite: NMT* 202. Corequisite: NMT* 212.

### NMT 223* Nuclear Medicine Seminar (NMT 214)
3 S.H.
Reviews quality control procedures, state and federal regulations, radiation safety, radiobiology, marketing and management of nuclear medicine technology departments, and career and professional development skills. Corequisite: NMT* 212.

### NURSING

#### NUR* 101 Introduction to Nursing Practice
8 S.H.
Focuses on concepts basic to nursing practice. Emphasis is placed on application of the nursing process, communication, and skill acquisition. Clinical and laboratory experiences offer opportunities to integrate theoretical principles and demonstrate caring and competence in beginning professional role development. (8 credits: 60 theory, 180 hours clinical)

#### NUR* 102 Family Health Nursing
8 S.H.
Focuses on providing holistic nursing care to families across the lifespan. Students focus on issues that effect the family, including childbearing, childrearing, geriatric care and intermediate health care needs. In addition, the course includes, selective adult, child and adolescent psychiatric disorders. Students will have clinical rotations that provide experience caring for the childbearing family as well as caring for medical surgical clients across the lifespan. (8 credits: 60 hours theory, 180 hours clinical)

#### NUR* 103 Pharmacology for Families Across the Life Span
1 S.H.
Focuses on the principles of pharmacology and its nursing application to family health care needs and selective psychiatric disorders. (1 credit: 15 hours theory)

#### NUR* 130 LPN to RN Transition Practicum (45 hours)
1 S.H.
This course is the final component of the Connecticut League for Nursing LPN to RN Articulation plan for the Connecticut Community Colleges Nursing Program (CT-CCNP) which prepares LPNs to enter the CT-CCNP in the second year of study. Students enrolling in this course have been accepted for admission into the (CT-CCNP) and have chosen the option to enter the third semester. This course builds upon the content of Charter Oak State College NUR 190: LPN to RN Articulation Bridge Course by providing and integrating content that is specific to the CT-CCNP curriculum. Upon successful completion of Charter Oak State College Nursing 190, this course and the CT-CCNP pre-requisite and concurrent general education courses up to the second year of study, articulation credits are awarded per the escrow model and the LPN advances to NUR* 201 and NUR*202. This course provides clinical and laboratory learning activities through the CT-CCNP campus to which the student is admitted. NUR*130 cannot be applied as a free elective toward the CT-CCNP program of Study for the Associate of Science degree in Nursing. (Clinical and laboratory hour distribution is at the discretion of the campus attended). Pre-requisite Courses: Connecticut Community Colleges BIO*211: Anatomy & Physiology I, BIO*212: Anatomy & Physiology II, ENG*101: English Composition, BIO*235: Microbiology, PSY 111: General Psychology, PSY*201: Life Span, SOC* 101: Principles of Sociology; Charter Oak State College NUR 190: LPN to RN Articulation Bridge Course. Pass/Fail

#### NUR* 201 Nursing Care of Individuals and Families I
9 S.H.
Focuses on holistic care of individuals and families with a variety of health care needs across the lifespan. The health care needs of clients experiencing intermediate health care needs and selective mental health disorders. Bioterrorism as a health care issue will be addressed. Clinical experience is provided for diverse populations of clients across the life span in acute care and community settings. Emphasis is placed on provision of safe and competent and development of the professional role as a member of a multidisciplinary health care team. Over the semester, students are increasingly challenged with more complex patient assignments in the clinical area. (9 credits: 60 hours theory, 225 hours clinical)
NUR* 202 Pharmacology for Individuals and Families with Intermediate Health Care Needs 1 S.H.
Focuses on the principles of pharmacology and its nursing application to individuals and families with intermediate health care needs and selective psychiatric disorders. (1 credit: 15 hours theory)

NUR* 203 Nursing Care of Individuals and Families II 8 S.H.
Focuses on providing holistic care to individuals, families, and groups with complex health care needs. It examines the effect of multi-system alterations and selected mental health disorders. The student will incorporate critical thinking, caring behaviors, professionalism and communications skills when providing care. Clinical experiences are provided in acute care, mental health care and community settings with an emphasis on managing multiple clients. (8 credits: 45 hours theory, 225 hours clinical)

NUR* 204 Pharmacology for Individuals, Families, and Groups with Complex Health Care Needs 1 S.H.
Focuses on the principles of pharmacology and its nursing application to individuals and families with intermediate health care needs and selective psychiatric disorders. (1 credit: 15 hours theory)

NUR* 205 Nursing Management and Trends 2 S.H.
Focuses on the transition into the profession and the nurse's role in contemporary nursing practice. Professionalism is emphasized. Students will explore management principles and delegation of client care. Students will participate in critical thinking to evaluate current trends and contemporary issues in nursing. (2 credits: 30 hours theory)

NUTRITION - DIETETIC TECHNOLOGY

NTR* 101 Introduction to Dietetics (DTN 101) 3 S.H.
Discusses career and educational pathways for dietetic technicians and registered dietitians. Introduces students to the health care team concept and describes the roles of health professionals. Covers ethical issues in health care and nutrition.

NTR* 102 Nutrition I: Principles of Nutrition (DTN 111) 3 S.H.
Investigates the basic nutrients and current guidelines for healthy food preparation and selection.

NTR* 103 Seminar in Dietetics I (DTN 105) 3 S.H.
Applies the principles of nutrition assessment and menu planning to meet the needs of individuals and groups with a variety of nutritional requirements. Pre- or Corequisite: NTR* 104.

NTR* 104 Nutrition II (DTN 112) 3 S.H.
Focuses on nutrition throughout the life cycle, including nutrition for athletes. Presents the physiological conditions of common nutritional disorders and the fundamentals of nutrition assessment. Introduces medical terminology. Prerequisites: BIO* 115 and NTR* 102.

NTR* 105 Food Management Systems (DTN 115) 3 S.H.
Introduces principles of institutional food service management. Includes fundamentals of menu planning, recipe standardization, purchasing, production, equipment, quality control, marketing, and use of computers in food service. Prerequisite: MAT* 095 or higher.

NTR 106 Culinary Nutrition 2 S.H.
Provides a basic understanding of nutrition and its relationship to health. Provides an overview of nutrients, digestion, absorption, and metabolism. This course will also provide information on good food sources of the nutrients, purchasing, cooking methods and menu planning. Offered in the fall semester only.

NTR* 120 Foods (DTN 109) 3 S.H.
Presents and applies basic food preparation, basic food science, cooking equipment, menu planning, developing and testing quality food products. Prerequisite: MAT* 075 or higher. (HSP* 101 may be substituted for NTR* 120 with permission from the Program Coordinator.)

NTR* 201 Community Nutrition Education (DTN 211) 3 S.H.
Provides a community approach to nutrition education. Students will develop skills in presenting nutrition education programs to small groups or classes. Prerequisites: NTR* 104 and COM* 171.

NTR* 202 Nutrition III (DTN 205) 3 S.H.
Focuses on physiological principles and nutritional needs of complex conditions. Increases medical terminology vocabulary. Prerequisite: NTR* 104.
NTR* 203 Seminar in Dietetics II (DTN 209) 3 S.H.
Continues the study of individual and group nutritional care focusing on the assessment, planning, implementation, and evaluation of nutritional care plans for individuals in hospitals or long term care facilities. Develops the knowledge needed for entry-level dietetic practice and the professional skills necessary to compete in the job market. Prerequisite: NTR* 102.

NTR* 204 Nutrition IV (DTN 206) 3 S.H.
Completes the study of therapeutic diets begun in Nutrition I, II, and III. Prerequisite: NTR* 202.

NTR* 210 Nutrition Field Experience I (DTN 106) 1 S.H.
Develops basic skills and competence in the delivery of food and nutrition care. Students spend two days a week in supervised practice, rotating through a variety of food service, clinical, and community nutrition programs. The practicum begins in the summer and continues through the fall semester. Prerequisites: NTR* 103, NTR* 120, and HSP* 108.

NTR* 212 Nutrition Field Experience II (DTN 210) 1 S.H.
Refines student skills in the delivery of food and nutrition services in a variety of settings, including acute and long-term care, institutional food service, and community nutrition programs. Students spend two days per week at arranged field sites. Prerequisite: NTR* 210.

NTR* 214 Nutrition Field Experience III 1 S.H.
Refines student skills in the delivery of food and nutrition services in a variety of settings, including acute and long-term care, institutional food service, and community nutrition programs. Students spend two days per week in arranged field sites. Prerequisites: NTR* 210 and NTR* 212.

PHILOSOPHY

PHL* 101 Introduction to Philosophy (PHI 101) 3 S.H.
Introduces philosophical thinking and life perspectives. Applies philosophical analysis and criticism to moral, social, and religious issues.

PHL* 111 Ethics (PHI 104) 3 S.H.
Provides an overview of the formation and expression of Western philosophical thinking. Explores some of the views and concepts supporting ethical values in the contemporary social, political, and economic environment. Considers ethical problems as they relate to current ideologies.

PHL* 131 Logic (PHI 202) 3 S.H.
Introduces inductive and deductive reasoning and various modes of argumentation. Focuses on both traditional and modern logic.

PHYSICS

PHY* 101 Physics for Today (PHY 115) 3 S.H.
Emphasizes conceptual understanding of the underlying principles of physics as applied to topics of current interest. Uses arithmetic and simple algebra. Includes classroom demonstrations.

PHY* 109 Fundamentals of Applied Physics (PHY109) 4 S.H.
Introduces the principles of physics, including measurement, motion, forces in one dimension, concurrent forces, work and energy, simple machines (including mechanical advantage), rotational motion, and nonconcurrent forces. Three hours of lecture / two hours of laboratory. Prerequisite: MAT* 115 or equivalent.

PHY* 111 Physics for the Life Sciences (PHY 116) 4 S.H.
Applies the principles of physics to health science. Basic algebra and trigonometry are used. Three hours of lecture / three hours of laboratory. Prerequisite: MAT* 115 or 137 or placement in MAT* 142 or higher.

PHY* 121 General Physics I (PHY 121) 4 S.H.
Presents the basic principles of physics using algebra and trigonometry. Studies translational and rotational motion, static equilibrium, work and energy, mechanical vibrations and waves, and the thermal properties of matter. Three hours of lecture/three hours of laboratory. Prerequisite: MAT 137.
PHY* 122  General Physics II (PHY 122)  
4 S.H.
A continuation of PHY* 121. Studies electricity, magnetism, light, relativity, and atomic and nuclear physics. Three hours of lecture / three hours of laboratory. Prerequisite: PHY* 121.

PHY* 221  Calculus-Based Physics I (PHY 210)  
4 S.H.
Presents principles of physics. Uses elementary concepts of calculus. Addresses classical dynamics, rigid-body motion, harmonic motion, wave motion, acoustics, thermal properties of matter. Three hours of lecture / three hours of laboratory. Prerequisite: Secondary school physics, MAT* 254.

PHY 222*  Calculus-Based Physics II (PHY 212)  
4 S.H.
Studies thermodynamics, electric and magnetic fields, electromagnetic waves, basic geometrical optics, wave properties of light, and quantum effects; introduces atomic physics, wave mechanics and special relativity. Three hours of lecture / three hours of laboratory. Prerequisite: PHY* 221. Prerequisite: MAT* 256.

**POLITICAL SCIENCE**

**POL* 102**  Introduction to Comparative Politics (POL 102)  
3 S.H.
Examines comparative politics as a traditional and significant component of the political science curriculum. Illustrates the diversity and similarity that exist among the world’s major foreign powers and the emerging “Third World” nations.

**POL* 111**  American Government (POL 101)  
3 S.H.
Studies the structure and framework of American government and the interrelationship of politics on the national, state, and local levels. Emphasizes the political, legislative, judicial, and administrative processes of government. Analyzes the basic philosophy of American government and political beliefs.

**POL* 208**  American Public Policy (POL 201)  
3 S.H.
Investigates the policy-making process in the United States. Using a functional approach, analyzes public policy in a sequential manner, from the initial identification of a problem to its solution, including the assessment and appropriate revision or termination of policy. Examines case studies and analyzes current policy issues.

**POL* 250**  Theory of Human Rights  
3 S.H.
Provides the theoretical grounding, both historical and conceptual, for further studies about the role of human rights in contemporary politics and social life. Explores the historical development and present discussions of the concept of human rights as well as its role in a variety of contemporary issues within domestic and international politics and culture.

**POL* 280**  New Haven and The Problem of Change in the American City (POL 280)  
3 S.H.
Offered in cooperation with Yale University. Examines the rapid transformation of New Haven and other American cities over the past century as case studies of urban change and urban policy. Themes include the planning and policy implications of the emigration of higher income populations from the inner city.

**POL* 295**  Political Science Internship  
3–12 S.H.
Assigns interns to individual legislators to assist in analyzing legislative proposals, monitoring committee and floor action, tracking, drafting news releases and speeches, research, constituent casework, etc. The internship includes orientation sessions, seminars, and written papers.

**POL* 299**  Independent Study in Political Science  
1–12 S.H.

**PSYCHOLOGY**

**PSY* 104**  Psychology of Adjustment (PSY 116)  
3 S.H.
(Course has not been offered in the past two years)
Includes both theoretical and practical learning through the laboratory method of “experience, analysis, and projection.” Provides a clear and basic framework for analyzing individual and group behavior. Groups of students define their own terms for existence and then use these terms to gain further insight and knowledge about themselves, their future roles, and their learning goals. Establishes the need for skill development in human relations and presents foundations for developing those skills.

**PSY* 105**  Group Dynamics (PSY 125)  
3 S.H.
Examines current theories about and research into group process and leadership. Examines students’ own performance as group members and leaders. Combines didactic and experiential learning situations. Pre/co-requisite: PSY* 111 or instructor’s permission.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>PSY* 111</td>
<td>General Psychology I (PSY 101)</td>
<td>3 S.H.</td>
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<td>Provides the student with a general introduction to fundamental topics and areas in the field of psychology. Students will learn about the history of psychology, various scientific methods for research, neurological underpinnings of behavior and diverse subjects relevant to the field, including sensation, perception learning, memory, and personality. Pre-requisite: ENG* 063 and/or ENG* 082 or eligibility for ENG* 101.</td>
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<tr>
<td>PSY* 112</td>
<td>General Psychology II</td>
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<td>A survey course that is a continuation of PSY* 111. Topics include health psychology, human development, psychological disorders, states of consciousness and motivation and emotion. This is the second part of a two-semester sequence and it is recommended that students take both semesters (PSY* 111 and 112). Pre-requisite: PSY* 111. Co-requisite: ENG* 101.</td>
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<tr>
<td>PSY* 122</td>
<td>Child Growth and Development (PSY 105)</td>
<td>3 S.H.</td>
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<td>Covers child development, from birth through adolescence, emphasizing the preschool child. Considers the physical, emotional, mental, and social characteristics of the child at various stages of development. Views life stages in terms of a variety of theoretical frameworks: Freud, Erickson, Piaget, and representative behaviorists. Requires each student to do twenty hours of fieldwork and observation in a preschool or approved alternative setting. Prerequisite: eligible for ENG* 063 or higher.</td>
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<tr>
<td>PSY* 201</td>
<td>Life Span Development</td>
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<td>Provides an overview of the physical, cognitive, and psychosocial development of humans from birth to death. There is an emphasis on distinct periods such as the development of fetus; infancy; early, middle and late childhood; adolescence; and the phases of adulthood. It views life stages from a variety of theoretical frameworks; Freud, Erikson, Piaget, Vygotsky, and other representative behaviorists. It also looks at cultural and historical influences on development.</td>
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<tr>
<td>PSY* 209</td>
<td>Psychology of Aging (PSY 109)</td>
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<td>Presents aging within a psychological framework. Students will develop an understanding of normal, healthy aging and the emotional problems of the aged. Emphasizes the emotional and behavioral aspects of aging and effective techniques for communicating with the elderly.</td>
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<tr>
<td>PSY* 210</td>
<td>Death and Dying (PSY 205)</td>
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<td>Examines death and dying with regard to the individual, the family, the caretakers, and society at large.</td>
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<tr>
<td>PSY* 214</td>
<td>Advanced Child Growth and Development (PSY 202)</td>
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<td>Develops a theoretical basis for child program analysis. The first half of the course concentrates on personal aspects of child development by studying the works of primary theorists: Piaget, Erickson, Freud, Watson, and Skinner. The second half of the course covers such social aspects of child development as family interrelationships and social values. Prerequisite: PSY* 122.</td>
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<tr>
<td>PSY* 233</td>
<td>Theories, Methods and Practice of Counseling and Therapy</td>
<td>3 S.H.</td>
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<td>Addresses the basic tenets of existing behavioral, cognitive and humanistic counseling theories. Case studies will be used to address how primary goals, strategies and anticipated outcomes are developed during the therapeutic process of counseling individuals with diagnosed mental health problems. Prerequisites: A grade of C or better in both PSY* 111, PSY* 245.</td>
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<tr>
<td>PSY* 240</td>
<td>Social Psychology (PSY 203)</td>
<td>3 S.H.</td>
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<td>Considers basic principles of human behavior encompassing the social milieu. Focuses on socialization, communication, and intergroup relations as they are influenced by individual personality factors and social structures. Analyzes values and group organization and function in determining methods used in social psychology.</td>
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<tr>
<td>PSY* 245</td>
<td>Abnormal Psychology (PSY 130)</td>
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<td>Surveys a broad range of psychological disorders, their symptoms, etiology, and treatments. An introduction to the historical treatment of persons with mental illnesses provides context to understand current trends. Students will investigate major diagnostic categories including mood disorders, anxiety disorders, psychotic disorders including schizophrenia, personality disorders, and other diagnostic categories. Prerequisites: ENG* 101 and PSY* 111 (both with a C or better).</td>
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<tr>
<td>PSY* 247</td>
<td>Industrial and Organizational Psychology (PSY 151)</td>
<td>3 S.H.</td>
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<td>(Course has not been offered in the past two years)</td>
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<td>Applies psychological principles to business and industry. Includes discussion of job evaluation and analysis, management relations, and individual and group relations.</td>
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<tr>
<td>PSY* 257</td>
<td>Statistics for the Behavioral Sciences</td>
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<td>Provides the foundational understanding in</td>
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<td>descriptive and inferential statistics necessary</td>
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<td>to reading research articles and to conducting</td>
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<td>research in the behavioral sciences. Students</td>
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<td>will learn about the management and analysis of</td>
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<td>behavioral sciences data using SPSS. Will cover</td>
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<td>measures of central tendency and variability,</td>
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<td>frequency distribution, probability, and</td>
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<td>hypothesis testing. Particular emphasis will</td>
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<td>be applied to the computation of t-tests,</td>
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<td>correlation, ANOVA, and non-parametric measures</td>
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<td>including chi-square. A statistical or scientific</td>
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<td>calculator will be required. Course will be</td>
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<td>held in a computer lab. Pre-requisites: ENG* 101,</td>
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<td>MAT* 122 or MAT* 137 (or higher), PSY* 111 (all</td>
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<td>with a C or better).</td>
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<tr>
<td>PSY* 258</td>
<td>Behavior Modification (PSY 110)</td>
<td>3</td>
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<tr>
<td></td>
<td>Examines and implements basic psychological</td>
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<td></td>
<td>learning principles. Includes the academic and</td>
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<td></td>
<td>psychological aspects of learning, including the</td>
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<td></td>
<td>basic stimulus-response application of behavior</td>
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<td></td>
<td>modification.</td>
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<tr>
<td>PSY* 299</td>
<td>Independent Study</td>
<td>3</td>
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<tr>
<td>QUALITY CONTROL</td>
<td></td>
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<tr>
<td>QUA* 114</td>
<td>Principles of Quality Control (MFG 114)</td>
<td>3</td>
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<tr>
<td></td>
<td>Introduces the terminology, principles, and</td>
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<td></td>
<td>procedures of quality control and quality</td>
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<td>assurance. Investigates specific techniques and</td>
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<td></td>
<td>procedures used in quality control and quality</td>
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<td></td>
<td>assurance. Topics include new design control,</td>
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<td>incoming material control, product control, and</td>
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<td></td>
<td>special process studies.</td>
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<tr>
<td>RADIATION THERAPY</td>
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<tr>
<td>RDT* 101</td>
<td>Introduction to Radiation Therapy I (RDT 111)</td>
<td>3</td>
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<tr>
<td></td>
<td>Introduces the field of Radiation Therapy.</td>
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<tr>
<td></td>
<td>Focuses on quality assurance, basic dosimetry</td>
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<tr>
<td></td>
<td>concepts, radiographic anatomy, clinical</td>
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<tr>
<td></td>
<td>objectives, and medical and technical</td>
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<td></td>
<td>terminology. Also includes the fundamentals of</td>
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<td></td>
<td>radiography, film construction, processing, and</td>
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<td></td>
<td>x-ray generation. Other topics include</td>
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<td></td>
<td>professional ethics, patient care procedures,</td>
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<tr>
<td></td>
<td>pharmacology, nutrition, and oncology. Prerequisite: Admission to the program and full attendance</td>
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<tr>
<td></td>
<td>during freshman orientation. Corequisite: RDT* 111.</td>
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<tr>
<td>RDT* 102</td>
<td>Radiation Therapy II (RDT 124)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Builds on basic dosimetry skills. Includes dose</td>
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<td>calculations for external beam, radiation</td>
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<td></td>
<td>therapy equipment, practical treatment planning,</td>
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<tr>
<td></td>
<td>and brachytherapy applications. Prerequisite: RDT*</td>
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<tr>
<td></td>
<td>101 and RST* 200. Corequisite: RDT* 112 and RST*</td>
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<tr>
<td></td>
<td>213.</td>
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<tr>
<td>RDT* 111</td>
<td>Clinical Practicum I (RDT 112)</td>
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<tr>
<td></td>
<td>Introduces the clinical setting and the basics</td>
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<td>of radiation therapy. Through supervised direct</td>
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<tr>
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<td>patient care and phantom work, provides</td>
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<td>experience in technical and patient care skills.</td>
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<tr>
<td></td>
<td>Students must spend two days a week in the</td>
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<td></td>
<td>affiliate hospital, mastering clinical competency</td>
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<tr>
<td></td>
<td>levels one and two. Prerequisite: Admission to</td>
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<td></td>
<td>the program and full attendance during freshman</td>
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<tr>
<td>RDT* 112</td>
<td>Clinical Practicum II (RDT 125)</td>
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<tr>
<td></td>
<td>Through supervised direct patient care and</td>
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<td></td>
<td>phantom work, students master patient care</td>
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<tr>
<td></td>
<td>skill levels one and two. Students are evaluated</td>
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<td></td>
<td>on basic set-up competencies. Students must</td>
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<tr>
<td></td>
<td>spend two days a week in the affiliate hospital,</td>
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<td></td>
<td>mastering technical competency levels one, two,</td>
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<td></td>
<td>and three. Prerequisite: RDT* 111. Corequisite:</td>
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<tr>
<td></td>
<td>RDT* 102 and RST* 213.</td>
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<tr>
<td>RDT* 113</td>
<td>Clinical Internship I</td>
<td>1</td>
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<tr>
<td></td>
<td>Students attend clinical training Monday</td>
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<tr>
<td></td>
<td>through Friday, eight hours per day. Prerequisite:</td>
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<tr>
<td></td>
<td>RDT* 111 and RDT* 101.</td>
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<tr>
<td>RDT* 126</td>
<td>Clinical Internship II</td>
<td>3</td>
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<tr>
<td></td>
<td>Students attend clinical training Monday</td>
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<td></td>
<td>through Friday, eight hours per day. Prerequisite:</td>
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<td></td>
<td>RDT* 112.</td>
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<td>RDT* 201</td>
<td>Radiation Oncology I (RDT 211)</td>
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<tr>
<td></td>
<td>Reviews anatomy and physiology, methods of</td>
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<tr>
<td></td>
<td>diagnosis, etiology, epidemiology, staging,</td>
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<td></td>
<td>aim of radiation therapy, dose, and</td>
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<td>fractionation principles of specific tumor sites.</td>
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<td></td>
<td>Prerequisites: BIO* 211 and BIO* 212. Corequisites:</td>
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<td></td>
<td>RDT* 202, RDT* 205 and RDT* 211.</td>
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<tr>
<td>RDT* 202</td>
<td>Radiation Therapy III (RDT 214)</td>
<td>3</td>
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<tr>
<td></td>
<td>Addresses radiographic and cross-sectional</td>
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<td>anatomy, simulator techniques, and treatment</td>
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<tr>
<td></td>
<td>planning through lectures and laboratory</td>
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<td>experiments. All setup techniques work in</td>
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<td>conjunction with diseases covered in Oncology I.</td>
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<tr>
<td></td>
<td>Prerequisite: RDT* 102. Corequisites: RDT* 211,</td>
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<td>RDT* 201 and RDT* 205.</td>
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</table>
**RDT* 203 Radiation Oncology II (RDT 226)**  
3 S.H.  
Builds on skills learned in RDT* 201. Reviews anatomy and physiology, methods of diagnosis, etiology, epidemiology, staging, aim of radiation therapy, dose, and fractionation principles of specific tumor sites. Prerequisite: RDT* 201. Corequisites: RDT* 204 and RDT* 212, RDT* 222, RDT* 223, RDT* 224.

**RDT* 204 Radiation Therapy IV (RDT 220)**  
3 S.H.  
Builds on skills learned in RDT* 202, focusing on radiographic anatomy, cross-sectional anatomy, simulator techniques, and treatment planning through lectures and laboratory experiments. Addresses all diseases introduced in Oncology II. Prerequisites: RDT* 202 and RDT* 205. Corequisites: RDT* 203, RDT* 212, RDT* 222, RDT* 223, RDT* 224.

**RDT* 205 Dosimetry and Computer Assisted Treatment Planning (RDT 216)**  
3 S.H.  
Introduces computers, principles of operation, and application theory. Emphasizes basic and advanced concepts of clinical dosimetry and treatment planning by computers through laboratory experience. Includes such advanced dosimetry concepts as dose calculations, construction of tissue compensators and custom molds, dose measurement, brachytherapy, sources applicators, implant methods, and dose verification. Prerequisites: RDT* 102, RDT* 112, and PHY* 111. Corequisites: RDT* 201, RDT* 202 and RDT* 211.

**RDT* 211 Clinical Practicum III (RDT 215)**  
2 S.H.  
Through supervised direct patient care and phantom work, the student refines patient care skill levels one and two. Evaluation of mandatory set-up competencies continues. Students must spend three days a week in the affiliate hospital, refining technical competency levels one, two, and three. Prerequisite: RDT* 112. Corequisites: RDT* 201, RDT* 202 and RDT* 205.

**RDT* 212 Clinical Practicum IV (RDT 221)**  
2 S.H.  
Through supervised direct patient care and phantom work, students must demonstrate proficiency in mandatory clinical objectives and competencies and dosimetry. Students are expected to complete all required set-up competencies. Prerequisites: RDT* 205 and RDT* 211. Corequisite: RDT* 203, RDT* 204, RDT* 222, RDT* 223 and RDT* 224.

**RDT* 218 Clinical Internship III**  
1 S.H.  
Students attend clinical training Monday through Friday, eight hours per day. Prerequisite: RDT* 211.

**RDT* 222 Radiobiology and Protection**  
3 S.H.  
Introduces biological responses to radiation and factors influencing radiation effects, tissue sensitivity, tissue tolerance, and clinical applications. Also includes a study of radiation protection principles, units of measurement, surveys, methods of protection, brachytherapy, personnel monitoring, and regulatory agencies and regulations. Prerequisite: RDT* 211. Corequisite: RDT* 203, RDT* 204, RDT* 212, RDT* 223 and RDT* 224.

**RDT* 223 Radiation Physics II (RDT 228)**  
3 S.H.  
Builds on skills learned in RST* 213. Emphasizes x-ray production, x-ray properties, gamma rays, electrons, and their respective interactions with matter. Other topics include the measurement of radiation, radioactivity, and particulate radiation. Presents brachytherapy, including radioactive sources, exposure rate, implant dosimetry, and remote afterloading units. Prerequisite: RST* 213. Corequisite: RDT* 203, RDT* 204, RDT* 212, RDT* 222 and RDT* 224.

**RDT* 224 Radiation Therapy Senior Seminar**  
2 S.H.  
A one semester course characterized by the active role expected of students in the field of research. This will include investigation, preparation, presentation, and discussion of clinical areas. The course requires a working knowledge of radiation therapy. It prepares senior students for successful entry into the field of radiation therapy and improves their critical thinking skills. Theoretical and practical studies are integrated through research and application. Students are also required to define, compare, analyze and assess medical practice in health care delivery. Prerequisites: RDT* 201, RDT* 202, RDT* 211. Corequisites: RDT* 203, RDT* 204, RDT* 212, RDT* 222, RDT* 223.

**RADIOGRAPHY**

**RAD* 104 Introduction to Radiography (RAD 111)**  
3 S.H.  
Introduces factors influencing radiographic quality and patient protection, basic equipment components and elementary principles of exposure. Through classroom lectures and laboratory study, the student will gain the basic knowledge to function as an entry level student radiographer in the clinical practicum and be able to advance in a progressive manner. Prerequisite: Acceptance into the Radiography Program. Co-requisites: RAD*105, RAD*193.

**RAD* 105 Radiographic Anatomy and Procedures I (RAD 124)**  
3 S.H.  
RAD* 116  Physics in Radiography  3 S.H.
Provides students with an understanding of basic radiation physics and its effects on image quality, parameters of
radiographic technique and equipment operation and maintenance. The purpose, components and practical application
of radiographic imaging systems are presented and discussed. The concepts of x-ray production, emission, and
interaction with matter will be covered. Pre-requisites: MAT* 115, PHY* 111, RAD* 104. Corequisite: RAD* 204.

RAD* 187  Clinical Internship I  1 S.H.
Students attend clinical training Monday through Friday, eight hours per day. Prerequisites: RAD* 104, RAD* 105, and
RAD* 193.

RAD* 188  Clinical Internship II  2 S.H.
Students attend clinical training Monday through Friday, eight hours per day. Prerequisites: RAD* 194, RAD* 204, and
RST* 213.

RAD* 193  Clinical Practicum I (RAD 112)  1 S.H.
Introduces the clinical setting and general radiographic areas of Diagnostic Imaging through simulated labs and
supervised clinical practice. Students must spend two days a week in the clinic at level I training areas mastering

RAD* 194  Clinical Practicum II (RAD 125)  1 S.H.
Provides the student with the opportunity to master Level I task objectives and competencies. Introduces level II task
objectives and procedures through simulated labs and supervised clinical practice. The student must spend two days a

RAD* 196  Radiographic Anatomy and Procedures III  3 S.H.
Through classroom lecture and clinical practice, students will learn advanced imaging procedures including contrast
studies, age specific considerations and cranial imaging. In addition, students will be responsible for presenting a
professional presentation based on research of a specific disease and related case study. Prerequisites: RAD* 187,
RAD* 188, and RAD* 204. Corequisite: RAD* 291.

RAD* 203  Principles of Radiographic Exposure I (RAD 212)  3 S.H.
Focuses on radiographic definition, contrast, and quality. Addresses film exposure, exposure table composition, special
exposure techniques, and general radiographic techniques. Prerequisites: RST* 213. Corequisites: RAD* 196 and
RAD* 291.

RAD* 204  Radiographic Anatomy and Procedures II (RAD 214)  3 S.H.
Introduces more complex radiographic procedures, anatomy, equipment, and medical terminology, while refining

RAD* 205  Computers in Medical Imaging: Advanced Practice (RAD 220)  3 S.H.
Covers the functionality of computers in medical imaging. Topics include the history of computers and their use in
medical imaging, digital imaging, conventional and digital fluoroscopy, the digital image including artifacts and QC, and
PACS. The clinical practicum will continue to reinforce this didactic content. Prerequisites: RAD* 196, RAD* 203, and
RAD* 291. Corequisites: RAD* 206, RAD* 218, and RAD* 292.

RAD* 206  Quality Assurance (RAD 225)  3 S.H.
Introduces evaluation of radiographic systems and radiographs to assure consistency in the production of quality
imaging. Discusses radiographic quality assurance concepts necessary for identifying diagnostic quality. Presents
tests and procedures to evaluate these standards through practical application. Reviews state and federal regulations.
Prerequisites: RAD* 203 and RST* 213. Corequisites: RAD* 222 and RAD* 292.

RAD* 215  Radiographic Pathology  3 S.H.
Provides an overview of different pathologic conditions that are demonstrated through diagnostic imaging. Lecture
material will include the cause and treatment of disease as well as imaging factors and variations relating to the disease.
Prerequisites: RAD* 188, RAD* 204. Corequisites: RAD* 196, RAD* 203.

RAD* 218  Senior Seminar (RAD 222)  3 S.H.
This course is the culmination of all radiographic anatomy and procedures courses in the Radiography Program. The
course requires a good working knowledge of Radiography. Through critical thinking exercises, research projects and
in class presentations, the course prepares students for successful entry into the field of radiography. More advanced
imaging modalities including but not limited to CT, MRI, 3D Imaging, Interventional and Cardiovascular imaging are
introduced at this time. Prerequisites: RAD* 196, RAD* 203, and RAD* 291. Corequisite: RAD* 292.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>RAD* 222</td>
<td>Radiobiology and Protection (RAD 223)</td>
<td>3 S.H.</td>
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<td></td>
<td>Covers the fundamental principles of radiobiology; molecular and cellular response, both direct and indirect; interaction with matter; protection in radiology; and health physics. Presents sensitivity and cell recovery with the OER, LET, and RBE. Focuses on exposure and dose in radiology, the workplace, and in the general population. Federal, state and local regulations and guidelines will be identified and their roles defined. Prerequisites: RST* 213, RAD* 203, and RAD* 291. Corequisites: RAD* 206 and RAD* 292.</td>
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<tr>
<td>RAD* 286</td>
<td>Clinical Internship III</td>
<td>1 S.H.</td>
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<td>Students attend clinical training Monday through Friday, eight hours per day. Prerequisites: RAD* 196, RAD* 203, and RAD* 291.</td>
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<tr>
<td>RAD* 291</td>
<td>Clinical Practicum III (RAD 215)</td>
<td>1 S.H.</td>
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<td>Enables the completion of Level II task objectives and the refinement of competencies achieved in Clinical Practicum II. Stresses sophisticated imaging procedures and equipment use through simulated labs and supervised hands-on training. Students must spend three days a week in the clinical setting, demonstrating required competency through labs and actual practice. Prerequisites: RAD* 188 and RAD* 204. Corequisite: RAD* 196.</td>
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<tr>
<td>RAD* 292</td>
<td>Clinical Practicum IV (RAD 221)</td>
<td>1 S.H.</td>
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<td>Focuses on level III competency areas, and continues to introduce more sophisticated imaging procedures and equipment use through simulated labs and supervised hands-on training. Through demonstration and practice, students refine all prerequisite tasks and objectives and complete all exit competency requirements. Students must spend three days per week in the clinical setting. Pre-requisites: RAD<em>196 and RAD</em>291. Co-requisites: RAD<em>205, RAD</em>206, RAD<em>218, RAD</em>222.</td>
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**RADIOLOGIC TECHNOLOGY**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>RST* 110</td>
<td>Introduction to Radiology</td>
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<td>Introduces the field of radiology and develops the necessary skills of a health care professional. Emphasizes radiography, nuclear medicine, and radiation therapy by incorporating lectures with field site visits. Addresses the role of an allied health professional in the hospital and community setting. Explores career potentials and alternatives. Includes clinical site visits.</td>
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<tr>
<td>RST 200</td>
<td>Cross Sectional Anatomy</td>
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<td>This course emphasizes the physical relationships of anatomic structures to one another. It develops a three-dimensional understanding of anatomy. Computer-generated sectional images will be used to display the relational anatomy in multiple planes, such as axial (transverse), sagittal, and coronal. It emphasizes the body’s natural boundaries and spaces. Bony structures and soft tissue will be investigated. To demonstrate the application of this knowledge, supplemental information on pathology will be included. Prerequisites: BIO<em>211 and BIO</em> 212.</td>
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<tr>
<td>RST* 213</td>
<td>Radiation Physics</td>
<td>3 S.H.</td>
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<td>Introduces the concept of radiation, its sources, and its interaction with matter. Introduces electricity and magnetism, the x-ray machine, circuits, components, and practical application. Prerequisites: RAD<em>104 or RDT</em>101, RDT<em>111, and PHY</em> 111, MAT* 115. Corequisites: RAD* 204 or RDT*102.</td>
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<tr>
<td>RST* 217</td>
<td>Clinical Pathology</td>
<td>3 S.H.</td>
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<td>Investigates the various aspects of human disease. Covers diseases pertinent to radiology. Topics include general concepts of disease; inflammation and repair; neoplasms; and diseases of the immune, cardiovascular, respiratory, digestive, urinary, endocrine, musculoskeletal, reproductive, and nervous systems. A brief review of anatomy and physiology precedes lectures on specific pathological processes. Also presents the medical terminology of pathology. Prerequisites: BIO* 211 and BIO* 212.</td>
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<tr>
<td>RST* 250</td>
<td>Methods of Teaching in a Clinical Setting</td>
<td>3 S.H.</td>
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<td>Intended for clinical instructors/supervisors in secondary and post secondary allied health occupational programs. Presents the skills needed to teach, supervise, and evaluate students/trainees in the clinical setting. Focuses on the role of clinical instructors/supervisors, developing measurable objectives, assessing learning styles, and using appropriate evaluation instruments. Upon completion of this course, participants will be granted a certificate of attendance and can apply for CEUs to their respective accrediting agencies. Prerequisite: Program director’s permission.</td>
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245
RAILROAD ENGINEERING TECHNOLOGY

RET* 101  History of Railroading  3 S.H.
Covers the history and traditions of railroading and the industry’s role in the North American economic development. Corequisite: ENG* 043/073 or placement into ENG* 063 or higher.

RET* 110  Careers in the Railroad  2 S.H.
Provides information about technical careers in railroading to assist students to choose suitable career paths. Requires field trips that will demonstrate the relationships among technical work groups in day to day railroad operations. Pre- or corequisite: RET* 101.

RET* 120  Railroad Rules, Regulations, Standards & Practices  3 S.H.
Provides participants with an overall understanding of governmental rules, regulations, standards, and practices as they apply to a railroad operation. Study includes a review of Code of Federal Regulations, Part 49, Railroad Standards and Practices Manual (AREMA) and various railroads’ book of rules. Pre- or corequisite: RET* 101.

RET* 220  Safety in the Railroad Workplace  3 S.H.
Covers the principles and policies governing railroad safe work practices. Upon successful completion of this course, the student should be able to describe safety policies, including the application of team processes, use and care of personal protective equipment, lockout/tag out procedures, and hearing conservations. Pre-requisite: RET* 120.

RET* 230  Reading and Interpreting Railroad Diagrams  2 S.H.
Provides participants with an overall understanding of how to read and interpret railroad electrical diagrams. Course topics will include a review and discussion of the following: ladder diagrams, contractors, motor starters, motors, programmable logic controller, railroad electrical symbols. Pre or co-requisite: EET* 110.

RET* 240  Railroad Pneumatics and Hydraulic Controls  4 S.H.
Introduces participants to the basic components, controls and functions of railroad pneumatics and hydraulics. Course topics include standard symbols, pumps, control valves, control assemblies, actuators, maintenance procedures and switching and control devices. Three hours lecture/two hours lab. Pre or corequisite: MEC* 234.

RET* 242  Railroad HVAC Systems  4 S.H.
Provides participants with an overview of HVAC systems used on railcars. Basic hand and specialty tools and equipment will be covered as well as basic laws of heat transfer, thermo-dynamics and heat load. The study of the basic refrigeration cycle and its components will be introduced. In addition, students can qualify to obtain certification on the proper handling of refrigerants to include their effects on the environment. Three hours lecture/two hours lab. Pre-requisite: PHY* 121.

RET* 244  Railroad Electro-mechanical Troubleshooting  4 S.H.
Introduces participants to the tools, methods and techniques for troubleshooting electro-mechanical problems in machines and rolling stock equipment (trains). Three hours lecture/two hours lab. Pre-requisite: MEC* 234.

RET* 250  Railroad Signaling & Switching  4 S.H.
Provides participants a basic understanding of a railroad signal system, including track circuits and applicable federal laws/guidelines. Three hours lecture/two hours lab. Pre-requisite: EET* 110 and RET* 120.

RET* 252  Railroad Communications  4 S.H.
Introduces participants to a basic understanding of railroad communications. Course topics include frequency and pulse modulation, AM and FM transmitters and receivers, electromagnetic radiation, digital data communication, and applicable laws and regulations. Three hours lecture/two hours lab. Pre-requisite: RET* 250.

RET* 254  Railroad Maintenance, Troubleshooting and Repair  4 S.H.
Introduces students to the tools, methods and techniques for troubleshooting signal and communication problems in switch machines and communication equipment. Three hours lecture/two hours lab. Pre-requisite: MEC* 234.

RET* 270  Railroad Practicum  3 S.H.
Provides students with experience within the railroad workplace of the degree option that the student is pursuing. Students work closely with railroad employees and under the supervision of a railroad team supervisor. Pre-requisite: RET* 220.

READING (See English)
### REAL ESTATE

**BRE* 202 Real Estate Principles**  
4 S.H.  
Required for real estate salesperson pre-licensing in the State of Connecticut. Provides comprehensive introduction to the real estate business and those interest in learning about this exciting industry. Will introduce brokerage, listing agreements, buyer/seller representation, ownership of real estate, legal descriptions, taxes, contracts, liens, transfer or title and more. Students intending to sit for the State of Connecticut Real Estate Exam must attend and pass this course with a grade of 70 or better. Course material is extensive and students are expected to complete considerable reading assignments.

### SCIENCE

**SCI* 102 Perspectives in Natural Science (PSC 100)**  
3 S.H.*  
Surveys physics, chemistry, astronomy, and biology. Intended for students with a limited science background. *Credit does not count toward meeting degree requirements.

### SIGN LANGUAGE

**SGN* 101 Sign Language I (SLN 101)**  
3 S.H.  
An introduction to American Sign Language, the language used by the Deaf Community in the United States. Covers the fundamental structure of ASL grammar, introduces basic information about the deaf community and deaf culture. This is the first course in a four-course sequence that satisfies the foreign language requirement of the associate in arts degree.

**SGN* 102 Sign Language II (SLN 102)**  
3 S.H.  
Builds on skills learned in American Sign Language I. Reinforces the fundamentals of ASL grammar and presents more information about the deaf community and deaf culture. Prerequisite: SGN* 101.

### SOCIOLOGY

**SOC* 101 Principles of Sociology (SOC 101)**  
3 S.H.  
Introduces the philosophy, methods, and problems of sociology. Emphasizes culture, society, and how social arrangements infringe upon personality and group behavior.

**SOC* 103 Social Problems (SOC 200)**  
3 S.H.  
Develops an understanding of contemporary society through a thorough view of the nature of man and society. A study of how social problems arise and are perpetuated and of the underlying social conditions from which they arise.

**SOC* 104 Sociology of the Family (SOC 104)**  
3 S.H.  
Presents a sociological evaluation of modern marriages and family life. Topics include preparation for marriage, dating, courtship, marriage-career analysis, married life, parent-child relations, and sexual adjustments.

**SOC* 106 Technology and Society (SOC 114)**  
3 S.H.  
Focuses on the role of various art forms (e.g., painting, sculpture, and architecture) in pre-industrial and post-industrial societies. Develops students' visual, verbal, and cultural literacy.

**SOC* 109 Society of Women (SOC 215)**  
3 S.H.  
Analyzes the socialization of women into the female sex role. Examines the traditionally female roles in marriage and the family. Explores economic and political roles women have played in American society during the colonial and frontier periods, slavery, the abolitionist movements, the trade union movement, and the women's rights and suffrage movements. Concludes with a study of current women's groups and their different ideologies, concerns, and platforms for change.

**SOC* 111 Child, Family, School and Community (SOC 110)**  
3 S.H.  
An in-depth look at the child, family, and the relationship between the function of school, community, and the family. Will review the socialization process and the development of the child as a social being. An understanding of the young child and age-appropriate guidance for the young child will be examined. This course will address the role culture, diversity, and theory partner with families and community. An understanding of how to effectively communicate with families will also be explored. An understanding of how society and education partner in the socialization process for children from birth to age eight.
SOC* 114 Sociology of Aging (SOC 106) 3 S.H.
Studies aging people and the world around them. Examines elderly peoples’ social lives, societal roles, personal adjustments, dependence, independence, and how society responds to their needs. A field project may be assigned in which students participate in a community activity involving the elderly.

SOC* 115 Nutrition and Aging (SOC 221) 3 S.H.
Explores the nutritional needs and special problems during various stages of the life cycle from infancy to old age. Includes presentations by professionals and others involved in the preparation and planning of nutritional programs; major emphasis is placed on the nutritional needs of the elderly and counseling techniques appropriate to elderly people.

SOC* 117 Minorities in the United States (SOC 217) 3 S.H.
Analyzes majority-minority group relations. Uses examples of experiences in the United States of such groups as African-Americans, Latinos, Native Americans, Jewish Americans, Asian Americans, Americans of European origins, and political, religious, and sexual minorities.

SOC* 131 Social and Environmental Issues (SOC 131) 3 S.H.
Introduces the philosophy, methods, and problems of environmental sociology. Emphasizes sustainability, the effects of social arrangements on humanity’s interaction with the environment, population control, endangered species, and ethics.

SOC* 176 Methods of Social Research and Change (SOC 216) 3 S.H.
Introduces change-agent skills and the skills needed for conducting elementary research projects. Students must design and execute a change project and carry out a number of field projects. Develops data gathering skills, skills in designing data gathering tools, and methods of strategy evaluation.

SOC* 224 Caribbean Culture and Society (SOC 218) 3 S.H.
Presents an overview of the economic systems, history, and social-cultural dimensions of the countries of the Caribbean Basin, focusing on the island-nations of the Greater Antilles (Cuba, Dominican Republic, Haiti, Jamaica, and Puerto Rico). Also examines the ever-evolving relationship between the United States and the Caribbean, including issues of migration.

SOC* 230 The City (SOC 204) 3 S.H.
Analyzes social stratification in large urban centers, emphasizing sociological, economic, and racial differences. Considers the role of conflict as it affects group relations. Examines social disorder and the law, the problems of life in the ghetto, the role of power, racial ideology, and social changes. Considers the future of large cities and population movements.

SPANISH
At the beginning of the semester, a placement examination is given to students enrolled in SPA* 101 and SPA* 102. Advanced language instruction beyond the courses listed below is available through Independent Study by arrangement with the instructor.

SPA* 097 Basic Spanish I 3 S.H. *
Familiarizes students with key aspects of the Spanish language. Facilitates a solid foundation and builds confidence for higher level courses. Developed for those who have not had experience with the language and responds to the changing academic, occupational, technological, and cultural needs of a diverse population. Daily conversations and use of the language will be the key for success in this course. (Credit does not count toward degree requirements).

SPA* 101 Elementary Spanish I (SPA 101) 3 S.H.
Presents the essentials of grammar and reading with practice in speaking and writing basic Spanish. Develops conversational skills. Open to students with little or no experience in Spanish. (Native speakers of Spanish are strongly discouraged from registering for this course.) Placement in this course is determined by score from the placement exam.

SPA* 102 Elementary Spanish II (SPA 102) 3 S.H.
Emphasizes aural comprehension, basic conversation, and pronunciation. Emphasizes principles of grammar to improve reading, writing, and speaking. Prerequisite: SPA* 101 or appropriate score on placement test.

SPA* 201 Intermediate Spanish I (SPA 201) 3 S.H.
Introduces conversational Spanish through a presentation of Spanish civilization. Emphasizes written reports, readings of Spanish prose, and lectures on important literary figures. Prerequisite: SPA* 102 or appropriate score on placement test.
SPA* 202  Intermediate Spanish II (SPA 202)  3 S.H.
Emphasizes advanced composition and conversation. Discusses readings and reports on literary, artistic, and political figures of Spanish and Spanish-American civilization. Prerequisites: SPA* 201 or sufficient score on the placement test.

SPA* 221  Introduction to Puerto Rican Studies I (SPA 221)  3 S.H.
Surveys Puerto Rican literature: prose, drama, poetry, and essays from colonial times to the present. Prerequisite: ENG* 101, SPA* 202 or instructor recommendation.

SPA* 222  Introduction to Puerto Rican Studies II (SPA 222)  3 S.H.
Examines the process and consequences of cross-cultural contact and cultural changes in Puerto Rican society. Discusses historical, political, and sociological issues central to an understanding of the Puerto Rican culture. Prerequisite: ENG* 101, SPA* 202 or instructor recommendation.

SPA* 232  Spanish Composition for Professionals (SPA 210)  3 S.H.
This computer/classroom online course provides students with the basic knowledge to communicate appropriately in written Spanish by learning to write clearly, simply, and effectively and by using technology to develop writing ability. Prerequisites: SPA* 202 or equivalent or sufficient score on the placement test.

TELECOMMUNICATIONS

TEC* 105  Introduction to Telecommunications  3 S.H.
This course starts with an introduction to the techniques, principles, and terminology of the existing legacy voice telecommunications network. Public and private telecommunications are examined. Telecommunication equipment, switching and transmission technology will be demonstrated. Lectures, interactive learning and demonstrations will be employed.

TEC* 114  Telecommunications Electronic Circuits  3.5 S.H.
Electronic Circuits involves the study of analog electronic devices. All complex electronic systems consist of active devices arranged and organized in such a fashion as to perform a useful function. This course first deals with discrete active devices such as diodes and transistors and their applications. The last portion of the course deals with the theory and application of modern integrated circuits. The operational amplifier is presented as a “building block” for more complicated systems. Various op-amp applications are studied and the focus shifts to the more advanced integrated circuits, which are used as a sub-system in today’s telecommunications systems. Prerequisite: CET* 110. Two hours of lecture and three hours of laboratory.

TEC* 207  Telecommunications Digital Electronics  3.5 S.H.
This course provides the student with a design-cycle approach (theory and experiment) to digital systems in telecommunications. Topics will include: a basic overview of digital concepts; Boolean concepts; basic and complex gates, functions, converters, and registers; basic and complex state machines; SSI, MSI, LSI, and VLSI IC families; D/A and A/D conversion; and an introduction to microprocessors and computers. Lecture will be supplemented by extensive course-synchronized hands-on laboratory. Prerequisite: TEC* 114. Two hours of lecture and three hours of laboratory.

TEC* 215  Telecommunications Fiber Optics  3.5 S.H.
Fiber optics is one of the major building blocks in the telecommunications infrastructure. Its high bandwidth capabilities and low attenuation characteristics make it ideal for high-speed data transmission. Systems in operation today operate with data rates in the gigabit per second range. Tomorrow’s systems promise data rates as high as a terabit per second and beyond! This course provides the student with a solid theoretical and hands-on background in fiber optic communications. Topics will include a basic overview of light and optics, total internal reflection, basic waveguide propagation, singlemode, multimode, graded index and dispersion-shifted fiber, fiber optic loss mechanisms, splicing and termination, loss testing OTDR usage, lasers and LED’s, photodetectors, wavelength division multiplexing, power and rise-time budgets, system design and evaluation, DWDM, EDFA’s internal and external modulation, and optical network design. Classroom lecture will be supplemented by hands-on laboratory. Two hours of lecture and three hours of laboratory. Prerequisite: TEC* 114.
TEC* 224  Telecommunications Wireless Communications  
This course on wireless systems and networks will present material germane to the rapidly emerging wireless technologies by developing a model of what a typical wireless system network consists of. After the basis system elements are discussed, fundamental concepts of modulation, signals, spectra, bandwidth, filters, and multiplexing are reviewed. Then, noise effects and standard measurements are introduced. With fundamental concepts covered, course emphasis shifts to present day wireless system hardware. Topics covered include: wireless subsystems, analog and digital modulation techniques, First through Third Generation cellular radio electromagnetic propagation theory, modern antenna and transmission line theory, microwave and millimeter wave devices and systems, broadband wireless systems and networks, and RF/wireless test and measurement theory and practice. Two hours of lecture and three hours of laboratory. Prerequisite: TEC* 207.

TEC* 290  Telecommunications Internship  
The internship gives students the opportunity to apply technical knowledge learned in the classroom to the telecommunications workplace. A telecommunications faculty member monitors the student internship experience and, with the workplace supervisor, jointly evaluates the student’s performance.

THEATER

THR* 110  Acting I  
Introduces the art, practice, theories, and history of acting. Both experienced and non-actors will benefit from this course through the study of the history of acting, practical workshops, in-class performances as well as reading, research, and writing about the discipline of acting.

WATER MANAGEMENT / WASTEWATER

WMT* 101  Water Treatment and Distribution (WMT 101)  
Covers water sources and uses, storage, pipes, pumps, motors, water quality parameters and standards, and treatment techniques, including iron and manganese removal, pretreatment, coagulation/flocculation, sedimentation, filtration, fluoridation, corrosion control, disinfection, sludge handling, and plant maintenance. Presents the mathematics necessary for operators of water treatment and distribution plants.

WMT* 102  Special Topics in Water Treatment (WMT 102)  
Covers required and recommended drinking water standards; proper sample collection; preservation and storage techniques; proper physical, chemical, and microbiological analytical techniques; and the relationship between analyses, unit process control, and the quality of treated water in the distribution system.

WMT* 103  Special Topics in Water Distribution (WMT 103)  
Covers applied hydraulics; water tanks; mains; valves; services; hydrants and meters; cross connections; pumps; instrumentation; maps and drawings; and local, state, and national laws. Devotes special attention to operational and maintenance procedures designed to protect the quality of water in the system.

WMT* 105  Water Utility Management (WMT 105)  
Introduces areas of Water Utility Management, including organization, planning, regulations, finances, operations, infrastructure maintenance, safety, and public relations. Considers contemporary technological developments, management problems, and challenges that public water utilities must cope with.

WWT* 110  Wastewater I (WMT 110)  
Introduces the safe and effective operation and maintenance of wastewater treatment plants. Presents basic operational aspects, including grit removal, sedimentation and flotation trickling filters, biological contractors, activated sludge, waste treatment ponds, and disinfection and chlorination. Upon completion, students will be prepared to take the State of Connecticut Wastewater Class I Operator Examination. Corequisites: MAT* 175 and WMT* 112.

WWT* 112  Wastewater II (WMT 112)  
Applies the theoretical principles of wastewater treatment to specific examples of wastewater treatment practice. Students will visit municipal wastewater treatment facilities and prepare a comprehensive study of a wastewater treatment plant. Corequisites: MAT* 175 and WWT* 110.
Further investigates the safe and effective operation and maintenance of wastewater treatment facilities, emphasizing large, conventional treatment plants. Topics include activated sludge, sludge digestion and handling, effluent disposal, plant maintenance, safety and housekeeping, and laboratory procedures. Uses computers in the laboratory for data acquisition and analysis. Upon completion, students will be prepared to take the State of Connecticut Wastewater Class II Operator Examination. Corequisite: WWT* 116.

Students participate in an internship at an operating wastewater treatment facility. A comprehensive report of the project is required for successful completion of the course. Prerequisites: MAT* 175, WWT* 110, and WWT* 112. Corequisites: MAT* 175 and WWT* 110.

Provides students with an overview of the terminology, methods, modes of operation and equipment used to protect our waters by providing treatment for municipal and industrial waste waters. Prerequisite: permission of instructor.

Addresses advanced wastewater topics, including odor control using chemical and biological treatments, scrubbers, and activated carbon absorption. Investigates both the treatment of activated sludge in municipal and industrial waste and the processes used for the management of residual solids. Addresses the use of chemicals and filtration systems in the removal of solids from effluents. Prerequisites: WWT* 110, WWT* 112, WWT* 114, and WWT* 116, or state of Connecticut Wastewater Certification Levels I and II.

Builds on the knowledge gained in Advanced Wastewater I. Covers phosphorus removal using biological systems, lime precipitation, and alum flocculation. Investigates the use of biological systems, ammonia stripping, chlorination, and water hyacinth cultures for nitrogen removal. Additional topics include enhanced biological-nutrient control, wastewater reclamation, and wastewater instrumentation. Prerequisite: WWT* 210.

Investigates federal, state, and municipal environmental regulations of wastewater management. Presents actual case studies for analysis. Prerequisites: WWT* 110, WWT* 112, WWT* 114, and WWT* 116, or state of Connecticut Wastewater Certification Levels I and II.