COURSE DESCRIPTIONS

2024-2025 Academic Year

[click on desired course category to advance to those listings]

ACC — ACCOUNTING

ACC 106 **Office Accounting I** **3 credits**

Basic accounting course designed for non-transfer students. Emphasizes the techniques of double-entry bookkeeping: journalizing; posting; adjusting and closing entries; and financial statement preparation.
3 lecture hours

ACC 111 **Principles of Financial Accounting** **4 credits**

Prerequisite: MAT 037 or MAT 042 or equivalent proficiency

Study of the accounting cycle and how accounting data impacts business decisions. Emphasis on understanding the "why" of accounting as well as the "how." *4 lecture hours*

ACC 112 **Principles of Managerial Accounting** **4 credits**
Prerequisite: ACC 111 with a minimum C grade
Study of the uses of accounting information for managerial decision-making. Areas covered include manufacturing, merchandising, and service cost systems; cost-volume-profit analysis; and budgeting and capital investment decision-making. *4 lecture hours*

ACC 201 **Intermediate Accounting I** **3 credits**
Prerequisite: ACC 111 with a minimum C grade
Detailed study of accounting theory and practice as they relate to cash; receivables; inventories; investments; property, plant and equipment; and intangible assets. *3 lecture / 1 laboratory hours*

ACC 202 **Intermediate Accounting II** **3 credits**
Prerequisite: ACC 201 with a minimum C grade
Continuation of ACC 201. Topics in the study of accounting theory and practice include liabilities, stockholder equity, cash flows, and leases. *3 lecture / 1 laboratory hours*

ACC 203 **Federal Income Taxation** **3 credits**
Prerequisite: ACC 111 with a minimum C grade
Study of income taxation as it applies to small businesses and individual taxpayers. Topics include gross income, exclusions, deductions, credits, exemptions, and capital gains. Computer software is used to prepare tax returns. [Fall offering] *3 lecture hours*

ACC 204 **Auditing** **3 credits**
Prerequisite: ACC 201 with a minimum C grade
Investigation into and application of the objectives and procedures governing auditing requirements, standards, and examinations. [Spring offering] *3 lecture / 1 laboratory hours*

ACC 207 **Computerized Accounting** **3 credits**
Prerequisite: ACC 106 or ACC 111 with a minimum C grade
Introduction to general ledger accounting on PCs. Students acquire a working knowledge of software packages currently used in industry. *2 lecture / 2 laboratory hours*

ACC 214 **Accounting for Non-Profit Organizations** **3 credits**
Prerequisite: ACC 111 with a minimum C grade
Study of generally accepted accounting principles as they apply to non-profit organizations, with emphasis on governmental agencies. Additional focus includes accounting for colleges and universities as well as hospitals and health organizations. *3 lecture hours*

ACC 215 **Cost Accounting** **3 credits**
Prerequisite: ACC 112 with a minimum C grade
Examination of the accounting practices to record and control material, labor, and overhead costs. Study includes job-order, process cost and standard cost systems for manufacturing and service firms.
3 lecture / 1 laboratory hours

ADV — ADVERTISING + GRAPHIC DESIGN

ADV 101 **Advertising Design I** **3 credits**
Prerequisite: DMA 115 or divisional permission
Study of the principles and concepts of layout and design as applied to a variety of advertising and graphic design assignments: ads, brochures, logos, posters, book jackets, and sales promotion material. Promotes familiarity with advertising agency and studio procedures as well as professional techniques for producing layouts, comprehensives, and finished art. [Spring and Summer offering] *1 lecture / 4 studio hours*

ADV 110 **Typography I: Basics of Graphic Design** **3 credits**
Introduction to basic layout and typography as the fundamental language to graphic communication. No previous knowledge of layout and typography is presumed. Addresses the use of different typefaces to communicate visually desired effects, type forms, type indication and basic graphic design with type for layouts. *1 lecture / 4 studio hours*

ADV 201 **Advertising Design II** **3 credits**
Prerequisite: DMA 115 or divisional permission
Study of the advanced concepts and design principles used in planning visualizations and layouts for advertising and editorial presentations using art, photography, type, and illustrations. Survey of methods for developing ideas into graphic presentations and the intangibles that provide originality and variety in a creative field using the Macintosh computer. [Fall offering] *1 lecture / 4 studio hours*

ADV 210 **Typography II: Publication Design** **3 credits**
Advanced study of the use of type as it relates to page layout, graphic communication and publication design using Macintosh electronic publishing technology. Students use page makeup software that integrates text and graphics for a variety of projects. *1 lecture / 4 studio hours*

ADV 220 **Illustration I** **3 credits**
Prerequisites: ART 102, ART 104, ART 105 or divisional permission
Introduction to the concepts, techniques, and skills of the contemporary illustrator, emphasizing that good illustration – product or journalistic – is a means of communication. Assignments involve book and magazine illustration, visualization, and exercises in rendering light and shadow, plus production of comprehensive art in various media. *1 lecture / 4 studio hours*

GenEd *Humanities*
ADV 230 **History of Graphic Design** **3 credits**
Prerequisites: ENG 101 or permission of instructor; Internet access for web-based instruction
A survey of the history of graphic design from its origins to present day. This overview of graphic design develops visual vocabulary, provides a cultural and historical context, and instructs students in researching areas of interest to broaden their knowledge of contemporary graphic design. *3 lecture hours*

AMT — ADVANCED MANUFACTURING TECHNOLOGY

AMT 101 **Machine Shop Techniques I** **3 credits**
Introduces students to manufacturing careers, shop safety, manufacturing operations. Topics include shop safety, mechanical hardware and shop tools, sawing, grinding, layout, hole making, and thread cutting. Corresponding labs reinforce lectures with practical examples. *2 lecture / 3 laboratory hours*

AMT 102 **Machine Shop Analysis Methods** **3 credits**
Prerequisite: MAT 115
Introduces students to the algebraic, geometric, and trigonometric concepts essential to solving problems commonly encountered in machine shop environments. Review of arithmetic followed by elements of measurement, algebra, graphing, geometry, and introductory trigonometry. *3 lecture hours*

AMT 103 **Blueprint Reading Basics** **2 credits**
Prerequisite: DRA 190
Introduces students to the basics of reading manufacturing prints. Topics include views, dimensions, tolerances, geometric dimensioning and tolerancing, surface finish, threads, casting, forging, and molded part prints, welding and sheet metal prints. Lab reinforces the topics through inspection of parts using coordinate measuring machine (CMM), optical comparator, and metrology devices. *1 lecture / 2 laboratory hours*

AMT 110 **Machine Shop Techniques II** **3 credits**
Prerequisite: AMT 101
Introduces students to the theory and practical concepts of manual machining. Topics include turning machines, vertical milling machines, grinding and abrasive machining processes. Corresponding labs reinforce lectures with practical examples which follow NIMS certification requirements. *2 lecture / 3 laboratory hours*

AMT 122 **Metrology and Quality Control** **3 credits**
Prerequisites: AMT 103, MAT 125
Introduces statistical process control (SPC), focusing on basic concepts that include process flowcharting, check sheets and tally charts, histograms, graphs, Pareto analysis, cause and effect analysis, scatter diagrams, control charts, and process capability. *3 lecture hours*

AMT 220 **Material and Manufacturing Process** **3 credits**
Prerequisite: AMT 110
Introduces the study of engineering material and manufacturing process. Topics include physical and mechanical properties of metals, ceramics, and plastics; classification of steels; manufacturing costs and processes: casting, welding, stamping, bending, and soldering. *3 lecture hours*

AMT 231 **Introduction to Computer Numerical Controlled (CNC) Machines** **3 credits**
Prerequisites: AMT 102, AMT 110
Introduces the theory and practical concepts of computer numerical controlled (CNC) machining equipment used in industry to manufacture extremely precise machine tool products. Topics include CNC equipment and terminology, G and M code familiarization, and machine tool safety practices. Corresponding labs reinforce lectures with practical hands-on examples which follow NIMS certification requirements.
2 lecture / 3 laboratory hours

AMT 232 **Advanced Computer Numerical Controlled (CNC) Machines** **3 credits**
Prerequisite: AMT 231
Investigates advanced theory and practical CAD/CAM (computer-aided drafting / computer-aided manufacturing) software concepts on computer numerical controlled (CNC) machining equipment used in industry to manufacture extremely precise and complicated machine tool products. Topics include CAD/CAM software (Mastercam) to produce complex machined parts, G and M code post- processing operations, and machine tool safety practices. Corresponding labs reinforce lectures with practical hands-on examples which follow NIMS certification requirements. *2 lecture / 3 laboratory hours*

AMT 290 **Advanced Manufacturing Technology Internship** **2 credits**
Prerequisite: coordinator approval
Introduces students to work experience in a manufacturing environment. *100 work experience hours*

AMT 291 **Advanced Manufacturing Internship** **3 credits**
Prerequisite: AMT 231
Exposes students to advanced practices of machining. Topics include machine shop safety, turning machines, vertical and horizontal milling machines, grinding and abrasive machining processes. Corresponding internship hours reinforce lectures with practical examples which follow NIMS certification requirements.
1 lecture / 6 internship hours

ANT — ANTHROPOLOGY

GenEd *Social Science / Diversity and Global Perspective*
ANT 101 **Anthropology** **3 credits**
Corequisite: ENG 101 or college-level eligibility
Explores anthropology – the study of humankind in all places at all times – in its "four fields": physical anthropology (the systematic study of humans as biological organisms); archaeology (the study of human cultures through the recovery and analysis of material remains and environmental data); linguistic anthropology (the study of human language); and cultural anthropology. *3 lecture hours*

ARB — ARABIC

Note: Students who have taken two or more years of a foreign language, and have done so in the last two years, should begin that language at the 200 level or switch to a new language. If there is doubt, placement will be determined by testing or consultation with the academic division.

GenEd *Humanities*
ARB 101 **Beginning Arabic I** **3 credits**
Spoken communication in Arabic is the goal and means of instruction. Initial weeks are dedicated to studying the alphabet and writing system. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar and culture are introduced. *3 lecture hours*

GenEd *Humanities*

ARB 102 **Beginning Arabic II** **3 credits**

For students who either completed ARB 101 or have otherwise gained elementary prior knowledge of Arabic. Spoken communication in Arabic is the goal and means of instruction. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar and culture are introduced. *3 lecture hours*

ARC — ARCHITECTURE

ARC 102 **Graphic Communication for Architecture** **3 credits**

Corequisite: ARC 121

A lecture / studio course aimed at developing architecture students' graphic communication skills. Analytic and descriptive drawings of buildings, everyday objects, trees, plantings, and people are rendered using pencil, pen and ink, as well as through an introduction to digital imaging and computer-aided design software. *1 lecture / 4 laboratory hours*

ARC 104 **Computers in Architecture** **3 credits**

Prerequisites: ARC 102, ARC 121

Corequisite: ARC 123

Introduction to the use of the computer in architecture as a three-dimensional design/drawing tool. Students build 3-D models using parametric modeling software and manipulate three-dimensional forms, scenes, colors, textures, lighting and cameras to design effective compositions. Applicable to Windows-based computers. *1 lecture / 4 laboratory hours*

ARC 106 **Architecture Basic Design I** **4 credits**

Corequisite: ARC 102

Explores fundamental principles and elements of design: form, space, composition, systems, context, imagery, as well as functional and structural organizations. Solutions to architectonic design projects explored through presentation drawings and study models. Simple presentation graphics and model-building are introduced. [Fall offering] *1 lecture / 6 studio hours*

ARC 108 **Architecture Basic Design II** **4 credits**

Prerequisites: ARC 102, ARC 121

Corequisite: ARC 104

Further study of the fundamental principles and elements of architectural design through a series of projects having increased complexity and depth of expression using more advanced presentation graphic techniques. Emphasis continues on the development of process drawing and model-building skills to explore design ideas. [Spring offering] *1 lecture / 6 studio hours*

ARC 121 **Architecture Basic Design I** **5 credits**

Corequisite: ARC 102

Explores fundamental principles and elements of design: form, space, composition, systems, context, imagery, as well as functional and structural organizations. Solutions to architectonic design projects explored through presentation drawings and study models. Simple presentation graphics and model-building are introduced. [Fall offering] *1 lecture / 8 studio hours*

ARC 122 **History of Architecture** **3 credits**

Survey of the development of architecture from ancient civilizations to 1860. Social, religious, economic, technological, and aesthetic factors are explored to understand fully their influence on the development of buildings and cities. *3 lecture hours*

ARC 123 **Architecture Basic Design II** **5 credits**

Prerequisites: ARC 102, ARC 121

Corequisite: ARC 104

Further study of the fundamental principles and elements of architectural design through a series of projects having increased complexity and depth of expression using more advanced presentation graphic techniques. Emphasis continues on the development of process drawing and model-building skills to explore design ideas. [Spring offering] *1 lecture / 8 studio hours*

ARC 124 **History and Theory of Modern Architecture** **3 credits**
Explores the social conditions and major personalities that influenced architectural developments from the Industrial Revolution to the present. *3 lecture hours*

ARC 229 **Architecture Design I** **4 credits**
Prerequisite: ARC 123
Sophomore-level design course emphasizing the exploration and development of architectural design concepts and their translation into physical form. Three to four major design problems challenge the student's preconceptions about architecture and stimulate the growth of an architectural vocabulary.
1 lecture / 6 studio hours

ARC 230 **Architecture Design II** **4 credits**
Prerequisite: ARC 229
Builds on the foundation of ARC 229. More advanced design challenges help the student to sharpen design skills and to continue expanding an architectural vocabulary. *1 lecture / 6 studio hours*

ARC 234 **Building Construction Systems** **3 credits**
Corequisite: ARC 229 or permission
Introductory survey of general concepts of sustainable design as they relate to building construction. Includes site, structural, environmental, envelope systems, materials and building systems. Focus is primarily on low-rise wood, concrete steel, and masonry buildings. *3 lecture hours*

ARC 285 **Special Studies in Architecture Design** **3 credits**
Prerequisites: ARC 228 with a minimum C grade, divisional permission
Opportunity for students who have completed regular course offerings to continue their studies at advanced levels. Individual students and faculty develop a project contract that sets forth objectives, standards of quality, evaluation guidelines, and deadlines. [occasional offering] *3 lecture hours*

ART — FINE ARTS, ART HISTORY

GenEd *Humanities*
ART 101 **Art and Culture** **3 credits**
Introduction to major movements of Western art as they relate to cultural influences, expanding knowledge, technological change, and effects on modern society. Through studio work, students investigate the intellectual aspects of traditional drawing, painting and mixed media techniques. *2 lecture / 2 studio hours*

ART 102 **Basic Drawing** **3 credits**
Examines the fundamentals of seeing line and value through studies of nature, still-life arrangements, the human figure, and concepts of perspective. Various media are used including ink, charcoal, and graphite.
1 lecture / 4 studio hours

ART 103 **Freehand Drawing for Architects** **3 credits**
A lecture / studio course for developing the architecture student's freehand drawing skills, with emphasis on analytic and descriptive drawings of buildings, everyday objects, trees, plantings and people. Media used are pencil, pen and ink, and felt tip pen. *1 lecture / 4 studio hours*

ART 104 **Life Drawing** **3 credits**
Prerequisite: ART 102
Experience in drawing the human figure and developing an understanding of form, volume, structure, and anatomy. Exercises include gesture drawing and sustained poses. Various media are used.
1 lecture / 4 studio hours

ART 105 **Two-Dimensional Design** **3 credits**
Intensive investigation of such essential principles as form, line, space, color, balance, and unity in two-dimensional design. Projects are assigned in sequence leading to specific visual solutions. Various media are used. *1 lecture / 4 studio hours*

ART 106 **Three-Dimensional Design** **3 credits**
An intensive investigation of the use of the formal elements of art and design according to the principles of organization in three-dimensional composition. Various media, techniques, and equipment are introduced. *1 lecture / 4 studio hours*

GenEd *Humanities*
ART 121 **History of Art I** **3 credits**
A survey of Western art from the prehistoric through the late Medieval period, with an emphasis on stylistic analysis within the historical, cultural, and global context. *3 lecture hours*

GenEd *Humanities*
ART 122 **History of Art II** **3 credits**
A survey of Western art from the Renaissance through the World War II period, with an emphasis on stylistic analysis within the historical, cultural, and global context. *3 lecture hours*

GenEd *Humanities / Diversity and Global Perspective*
ART 124 **Survey of World Art** **3 credits**
Focus on the aesthetic and historical evaluation of artists, styles, and cultures from India, China, Japan, Indonesia, Thailand, Cambodia, and pre-Columbian America. Color slides are analyzed and discussed. *3 lecture hours*

GenEd *Humanities*
ART 125 **Topics in Contemporary Art** **3 credits**
Prerequisite: ENG 101 or divisional permission
Exploration of trends and topics in contemporary art from 1945 to the present, involving a diverse range of artists who challenge preconceived notions of the role of art in today's society. Students learn to identify, analyze, and write about art through multi-media presentations, discussions, artists' talks, and a field trip. *3 lecture hours*

GenEd *Humanities / Diversity and Global Perspective*
ART 126 **African American Art** **3 credits**
Comprehensive survey of the aesthetic and historical evaluation of African American art, artists and culture from colonial times to the present. Includes slide analysis, discussion, and museum visits. *3 lecture hours*

ART 130 **Painting I** **3 credits**
Prerequisite: ART 102 or ART 105 or divisional permission
Examination of the relationships of materials, media, and techniques in both figurative and abstract art. The elements of color and composition are introduced and explored. At the discretion of the instructor, students are advised to work in either acrylic or oil color. *1 lecture / 4 studio hours*

ART 141 **Sculpture I** **3 credits**
Prerequisite: ART 106
Introduction to sculptural practices and forms. Develops basic understanding of vocabulary of form while mastering technical skills. Acquaintance with several media, content, and organizing form and space. *1 lecture / 4 studio hours*

ART 145 **Beginning Ceramics: Handbuilding** **3 credits**
Introduction to basic clay experience, devoted to the handbuilding techniques of pinch, drape, press, slab, and coil to produce functional and sculptural ceramic objects. Introduces the technical aspects of colored slips and glazing. Stresses development of a personal appreciation of form. *1 lecture / 4 studio hours*

ART 146 **Beginning Ceramics: Wheel-Throwing** **3 credits**
Introduction to basic clay experience, devoted to clay-forming techniques on the potter's wheel to produce functional and sculptural ceramic objects. Introduces the technical aspects of colored slips and glazing. Stresses development of a personal appreciation of form and function. *1 lecture / 4 studio hours*

ART 150 **Printmaking I** **3 credits**
Study of the basic concepts, techniques, tools, and materials required to work in the production of surface, relief, and intaglio prints. Paper selection, preparation of ink, and operation of the presses are discussed and demonstrated. *1 lecture / 4 studio hours*

ART 230 **Painting II** **3 credits**
Prerequisite: ART 130 with a minimum C grade
Training and experience in the observation and application of painting media, acrylic or oil. Involves guidance in transforming what is observed or conceived into graphic and plastic forms, including traditional challenges of painting and composition, working with light, color, weight, and dimension. *1 lecture / 4 studio hours*

ART 232 **Advanced Painting and Drawing** **3 credits**
Prerequisites: ART 104, ART 230 with a minimum C grade
Intensive course designed for the advanced student, making drawing and painting a unique and personal experience. Through instructor guidance, the student develops a personalized approach to composition, color, and technique. Includes classroom critiques, outside assignments, and possible field trips. [Spring offering]
1 lecture / 4 studio hours

ART 240 **Raku Workshop** **3 credits**
Prerequisite: previous ceramics experience
Introduction to the Raku process. Students spend an intensive six-week period creating, glazing, and firing functional and sculptural ceramic objects. *1 lecture / 4 studio hours*

ART 241 **Sculpture II** **3 credits**
Prerequisite: ART 141
Continuation of ART 141 with refinement of presentation of where, when, and how the object is viewed. Concentration on a complete statement of form, space, and content. Further exploration of several media.
1 lecture / 4 studio hours

ART 250 **Printmaking II** **3 credits**
Prerequisite: ART 150 with a minimum C grade
Continued exploration and development of surface, relief, and intaglio techniques. *1 lecture / 4 studio hours*

ART 280 **Special Studies in Drawing** **3 credits**
Prerequisites: ART 102, ART 104 with a minimum 3.0 GPA and/or divisional permission
ART 283 **Special Studies in Painting** **3 credits**
Prerequisites: ART 232 and divisional permission
ART 284 **Special Studies in Ceramics** **3 credits**
Prerequisites: ART 146 and divisional permission
ART 285 **Special Studies in Sculpture** **3 credits**
Prerequisites: ART 241 and divisional permission
ART 286 **Special Studies in Printmaking** **3 credits**
Prerequisites: ART 250 and divisional permission
Special courses in specific art forms allow students who have completed regular course offerings to continue their studies at advanced levels. Individual students and faculty develop a project contract that sets forth objectives, standards of quality, evaluation guidelines, and deadlines. [occasional offerings]

ART 291 **Cooperative Education – Visual Arts** **3 credits**
Integration of classroom study and lab work with specific planned period of learning through job experience. Based on an individualized learning contract, designed for Advertising Design and Digital Media Arts majors who have demonstrated advanced skill levels and for those who have potential to perform professionally in a work environment. *270 work experience hours*

ASL — AMERICAN SIGN LANGUAGE

GenEd *Humanities*

ASL 101 **American Sign Language I** **3 credits**

The first in a sequence of courses designed for students with little or no prior knowledge of ASL. Voiceless communication in ASL is both the end goal and the means of instruction. Communicative skills and basic grammar are introduced in a culturally authentic context. [satisfies foreign language requirement]

3 lecture hours

GenEd *Humanities*

ASL 102 **American Sign Language II** **3 credits**

Prerequisite: ASL 101 with a minimum C grade or permission of instructor

The second in a sequence of courses designed for students with little or no prior knowledge of ASL. Voiceless communication in ASL is both the end goal and the means of instruction. Communicative skills and basic grammar are introduced in a culturally authentic context. [satisfies foreign language requirement]

3 lecture hours

AUT — AUTOMOTIVE TECHNOLOGY

AUT 110 **Introduction to Automotive Electronics** **3 credits**

Corequisites: AUT 111; MAT 037 or MAT 042

An introduction to voltage, current and resistance, series and parallel circuits, batteries, and electronic components. Also covers wiring schematics, wire repair, and circuit troubleshooting. For automotive students.

3 lecture / 1 laboratory hours

AUT 111 **Automotive Service Fundamentals** **5 credits**

Corequisites: AUT 110; MAT 037 or MAT 042

Introduction to the automobile and its operating systems. Emphasizes theories of operation, service facility practices and current servicing procedures, with detailed attention to each individual system including diagnosis and repair. Personal safety policies in the work environment are stressed in detail.

2 lecture / 6 laboratory hours

AUT 112 **Automotive Fuel Systems** **3 credits**

Prerequisites: AUT 110, AUT 111

An examination of gasoline and diesel automotive fuel systems, including fuel basics, electronic fuel injection systems, gasoline direct injection, diesel fuel delivery systems, and On-Board Diagnostics II (OBD II). Lessons focus on theory of operation, driveability diagnostic procedures, and the use of diagnostic equipment.

2 lecture / 3 laboratory hours

AUT 113 **Suspension, Steering and Alignment** **4 credits**

Prerequisites: AUT 110, AUT 111 with a minimum C grade

Theory of operation and service of vehicular suspension and steering systems, with emphasis on component inspection and replacement. Addresses four-wheel alignment with lab activities using a drive-on alignment rack and computer alignment machine. *2 lecture / 4 laboratory hours*

AUT 114 **Automotive Electricity and Electronics** **3 credits**

Prerequisites: AUT 110, AUT 111

An examination of electrical/electronic principles applied to current automotive systems. Subjects include electronic control systems, starting and charging systems, wiring diagrams, chassis wiring service, vehicle communication networks, passive restraints, electrical power management, infotainment, navigation, and electrical accessories. Diagnostic skills, testing procedures, and proper service and repair of components emphasized. *2 lecture / 3 laboratory hours*

AUT 115 Automotive Brake Systems 4 credits

Prerequisites: AUT 110, AUT 111 with a minimum C grade

The principles and servicing of both disc and drum brake systems used on today's automobiles and light trucks, including computer-controlled anti-lock braking systems with traction and stability control. Emphasis on malfunction diagnosis, use of road testing techniques and visual brake inspection procedures, repair integrity, plus hydraulic theory and component machining operations. *2 lecture / 4 laboratory hours*

AUT 122 Internship in Automotive Technology I 1 credit
AUT 123 Internship in Automotive Technology II 1 credit
AUT 221 Internship in Automotive Technology III 1 credit
AUT 222 Internship in Automotive Technology IV 1 credit
AUT 223 Internship in Automotive Technology – Independent Study 1 credit

Prerequisite: coordinator approval

Application of knowledge acquired from lecture and laboratory instruction to gain relevant, practical on-the-job experience in repairing customer vehicles in an actual automotive service facility. An experienced service employee within the business supervises the student/apprentice and works with the automotive program coordinator in developing goals and evaluating performance. *320 work experience hours*

AUT 211 Automotive Emissions and Driveability 3 credits

Prerequisite: AUT 112

Examines relationships between gasoline and diesel emissions and engine performance. Teachings from AUT 111 and AUT 112 applied to properly diagnose driveability concerns. Recommended repair procedures are explored to achieve the best performance and reduced emissions. Electronic engine controls examined with an emphasis on operation and emission standards. *2 lecture / 3 laboratory hours*

AUT 212 Automotive Air Conditioning 3 credits

Prerequisites: AUT 110, AUT 111 with a minimum C grade

Examines automotive air conditioning/heating systems in use today, with topics ranging from fundamentals of refrigeration to automatic temperature control (ATC) system operation. Addresses proper diagnosis and repair of systems and components as well as environmental obligations. *2 lecture / 2 laboratory hours*

AUT 213 Engine Service 4 credits

Prerequisites: AUT 110, AUT 111

Diagnosis, failure analysis, and rebuilding procedures for automobile engines. Topics include engine operating principles, component measurement techniques, engine removal and installation, and service information usage for diagnosis. Each student is required to completely disassemble, diagnose, and assemble several gasoline and diesel engines. Involves extensive use of special tools and equipment.
2 lecture / 5 laboratory hours

AUT 224 Manual Transmissions and Drivelines 3 credits

Prerequisites: AUT 110, AUT 111 with a minimum C grade

Study of automotive systems for torque multiplication and speed reduction includes the relationship of engine speed and vehicle speed and its effect on fuel economy. Other topics include clutch service, front and rear wheel drive applications, component replacement, differentials, diagnosis, removal and reinstallation procedures, and transmission overhaul. Involves extensive use of special tools and test equipment.
2 lecture / 3 laboratory hours

AUT 225 Automatic Transmission Service 3 credits

Prerequisites: AUT 110, AUT 111, AUT 224 with a minimum C grade

Principles of operation and proper diagnostic and repair procedures for current automatic transmissions and transaxles, including electronic computer-controlled designs. Covers basic hydraulic theory with emphasis on the use of test equipment for diagnosis and in-car service. Each student is required to disassemble, overhaul, and assemble several automatic transmissions and transaxles. *2 lecture / 3 laboratory hours*

AUT 226 Electrified Vehicles 3 credits

Prerequisites: AUT 114, AUT 122

Examination of high-voltage, electrified vehicles and special service techniques necessary to diagnose and repair electrical and mechanical faults. Hybrid, plug-in hybrid, and fully electric vehicle design and operation are explored, including use of special tools and equipment. Strong emphasis placed on personal and workplace safety. *2 lecture / 2 laboratory hours*

AVI — AVIATION TECHNOLOGY

All flight training courses involving the use of an aircraft are taught in conjunction with Infinity Flight Group at Trenton-Mercer Airport.

AVI 101 Aerospace Development 3 credits
Historical approach to U.S. and international aviation development including man's first efforts to fly, the development of aircraft, modern growth of the aerospace industry and the impact of aviation and flight on mankind. *3 lecture hours*

AVI 102 Aviation Transportation 3 credits
Prerequisite: ENG 101
Study of transportation systems and the aviation industry as they exist today. Topics include applicable government organizations, controls, and regulations. Airline organization, operation, management, and marketing as well as career opportunities are additionally examined. *3 lecture hours*

AVI 105 Aviation Weather 3 credits
Analysis of aviation weather applicable to professional commercial pilots. Topics include weather hazards including thunderstorms, turbulence, wind shear, restrictions to visibility, icing, and hydroplaning. Weather services available along with details of coded weather reports, forecasts, weather charts and prognostic charts are explored and applied in class for flight planning and in-flight decision-making. *3 lecture hours*

AVI 111 Flight Concepts 2 credits
Study of the principles of flight and air navigation, evolution of modern aviation (civil and military), and the basic physiological difficulties experienced in flight. [occasional offering] *2 lecture hours*

AVI 112 Primary Flight 2 credits
Prerequisites: AVI 131, ENG 101; eligibility for college-level math;
FAA-approved Medical; U.S. citizenship or TSA approval
Corequisites: AVI 131, ENG 101
Provides flight training required to begin the cross-country training phase for the FAA private pilot certificate. Consists of 23 hours of flight training, 13.4 hours of preflight planning, and 10.5 hours of ground/pre/post instruction. Fee required (see Mercer County Community College's *Aviation Policies and Procedures Manual*).
1 lecture / 46.9 field study hours

AVI 113 Flight I 2 credits
Prerequisites: AVI 112, AVI 131; eligibility for college-level math and English;
FAA-approved Medical; U.S. citizenship or TSA approval
Flight training required to complete the private pilot program by acquiring the aeronautical skills necessary to meet the FAA Airmen Certification Standards for the private pilot certificate. Consists of 30 hours of flight training, 10.4 hours of preflight planning, and 11.7 hours of ground/pre/post instruction. Fee required (see Mercer County Community College's *Aviation Policies and Procedures Manual*).
1 lecture / 52.1 field study hours

AVI 114 Flight II 2 credits
Prerequisites: AVI 113 with a minimum C grade; AVI 132
Private Pilot Certificate; FAA-approved Medical; U.S. citizenship or TSA approval
Corequisite: AVI 132
Required flight training for the commercial pilot certificate for the student who has met the requirements for the private pilot certificate in AVI 113. Consists of 54 flight hours, 17.4 hours of preflight planning, and 15.5 hours of ground/pre/post instruction. Fee required (see Mercer County Community College's *Aviation Policies and Procedures Manual*). *1 lecture / 86.9 field study hours*

AVI 131 Commercial Pilot I 3 credits
Prerequisites: MAT 115
Corequisite: MAT 115
Essentials to pass the Federal Aviation Administration private pilot examination. Subjects include introduction to airplane systems, airports, communications and air traffic control, weight and balance, meteorology, Federal Aviation Regulations, aeronautical charts, radio navigation, Aeronautical Information Manual, flight computer, medical factors of flight and cross-country flying. *3 lecture hours*

AVI 132 **Commercial Pilot II** **3 credits**
Prerequisites: AVI 131, AVI 113, and AVI 114,
successful grade on FAA private pilot computer exam – airplanes
Corequisites: AVI 113, AVI 114
Basic knowledge to pass the Federal Aviation Administration commercial pilot examination. Includes multi-engine advanced performance control, advanced meteorology, advanced multi-engine airplane systems, advanced radio navigation, commercial pilot FARs, physiology of flight, environmental systems, flight planning and commercial flight maneuvers. *3 lecture hours*

AVI 203 **Aircraft Components** **3 credits**
Prerequisites: CMN 112, eligibility for college-level math and English
Basic maintenance procedures, personnel, and regulations studied in conjunction with the fundamental components and systems of aircraft. Topics include FARs, personnel, inspections, data, aircraft engines, airframes, systems, operating procedures and limitations, instruments, and aircraft structures. *3 lecture hours*

AVI 208 **Aviation Seminar** **1 credit**
Guest speakers explain their role in the industry and share insights concerning prerequisite experience, the interview process, and prospects for employment. *1 lecture hour*

AVI 215 **Aerodynamics** **3 credits**
Corequisite: MAT 115
Analysis of the fundamental theory and elements of applied aerodynamics provides the knowledge and background for safe and effective flying. Lab explores the basic concepts of airfoil angle of attack and lift/drag characteristics. *2 lecture / 2 laboratory hours*

AVI 216 **Flight V** **4 credits**
Prerequisites: current FAA Helicopter Commercial Certificate with Instrument Rating;
FAA-approved Medical; U.S. citizenship or TSA approval
Students obtain (if not already possessing) a Private ASEL Certificate and acquire the aeronautical skills necessary to meet the requirements for the Commercial ASEL Certificate with an Instrument Airplane Rating. Consists of 82 hours of flight training, 111.5 hours of preflight planning, and 29.5 hours of ground/pre/post instruction. Fee required (see Mercer County Community College's *Aviation Policies and Procedures Manual*). *223 field study hours*

AVI 217 **Flight VI** **1 credit**
Prerequisites: Airplane Single Engine Land Commercial and Airplane Instrument Rating;
FAA-approved Medical; U.S. citizenship or TSA approval
Students develop the proficiency, knowledge, and skills to complete the required practical examination to add a multi-engine class rating to their single-engine commercial certificate and instrument rating. This training and assessment consist of 16.8 hours in a multi-engine aircraft, 13.4 hours of preflight planning, and 10 hours of ground/pre/post instruction. Fee required (see Mercer County Community College's *Aviation Policies and Procedures Manual*). *1 lecture / 40.2 field study hours*

AVI 231 **Commercial Pilot III** **3 credits**
Prerequisites: AVI 132, MAT 115
Corequisite: MAT 115
Complements Flight III and Flight IV courses, with basic information to pass the Federal Aviation Administration Instrument Pilot Examination. Subject areas include altitude instrument flying, instrument flight charts, IFR clearances, and IFR regulations. *3 lecture hours*

AVI 240 **Flight III** **2 credits**
Prerequisites: AVI 114, AVI 231
Corequisite: AVI 231
Continuation of flight training to obtain the commercial flight certificate, and beginning of instrument flight training. Students complete solo cross-country requirements. Consists of 60 hours of flight time, 9.5 hours of preflight planning, and 17.5 hours of ground/pre/post instruction. Fee required (see Mercer County Community College's *Aviation Policies and Procedures Manual*). *1 lecture / 87 field study hours*

AVI 241 **Flight IV** **2 credits**
Prerequisite: AVI 240
Students develop a high degree of proficiency in single-engine commercial maneuvers and instrument flying. Students gain the necessary flight skills required to successfully complete the FAA Instrument Rating and Commercial Certificate as outlined in the FAA Instrument and Commercial Airmen Certification Standards. Consists of 48.8 flight hours, 17 hours of preflight planning, and 19.3 hours of ground/pre/post instruction. Fee required (see Mercer County Community College's *Aviation Policies and Procedures Manual*).
1 lecture / 85.1 field study hours

AVI 250 **Airline Transport Pilot (ATP) Prep I** **6 credits**
Prerequisite: AVI 216
Students develop the proficiency, knowledge, and skills to complete the required day and night, VFR and IFR, cross-country hours for graduation to the ATP Prep II course. This training and assessment consist of 126 hours of flight training, 147 hours of preflight planning, and 21 hours of ground/pre/post instruction. Fee required (see Mercer County Community College's *Aviation Policies and Procedures Manual*).
294 field study hours

AVI 251 **Airline Transport Pilot (ATP) Prep II** **3 credits**
Prerequisite: AVI 250
Students develop the proficiency, knowledge, and skills to complete the required day and night, VFR and IFR, cross-country hours for completion of the Airline Transport Pilot certificate program. This training and assessment consist of 51.5 hours of flight training, 85.6 hours of preflight planning, and 4 hours of ground/pre/post instruction. Fee required (see Mercer County Community College's *Aviation Policies and Procedures Manual*). *141.1 field study hours*

BIO — BIOLOGY

BIO 100 **Introductory Biology** **3 credits**
Prerequisite: ENG 034
Corequisite: MAT 037 or MAT 042 or proficiency in basic algebra
Selected fundamental principles of biology for students who have not had high school biology or who need a review before taking other courses in biology, horticulture and the life sciences. Topics include scientific inquiry, chemistry of living organisms, techniques of observation, data gathering and analysis. [Does not fulfill any requirements for the Biology A.S. degree.] *3 lecture hours*

GenEd *Science*
BIO 101 **General Biology I** **4 credits**
Prerequisites: high school biology or BIO 100; MAT 038 or MAT 044
Corequisite: ENG 101
Introduces fundamental concepts and principles of biology. Topics include biological chemistry, cell biology, metabolism and energy, cell reproduction, molecular biology, and inheritance. Investigative laboratory exercises develop skills in basic techniques and reinforce lecture material. Required for biology majors.
3 lecture / 3 laboratory hours

GenEd *Science*
BIO 102 **General Biology II** **4 credits**
Prerequisite: BIO 101 with a minimum C grade
Introduces fundamental concepts, principles, and applications of biology. Topics include photosynthesis; plant structure, growth and reproduction; animal diversity, form and function; evolution; population ecology; community ecology; and ecosystem dynamics. Investigative laboratory exercises develop skills in basic techniques and reinforce lecture material. Required for biology majors. *3 lecture / 3 laboratory hours*

GenEd *Science*

BIO 103 **Anatomy and Physiology I** **4 credits**

Prerequisites: proficiency in basic algebra; high school biology or BIO 100

Corequisite: ENG 101

Systematic approach to the structure and function of the human body; general terminology and organization; cells and tissues; integumentary, muscular, skeletal, and nervous systems. Lab involves microscopy, the study of human anatomy via computer software and preserved specimens, and studies of physiological processes. [Does not fulfill any requirements for the Biology A.S. degree.]

3 lecture / 3 laboratory hours

GenEd *Science*

BIO 104 **Anatomy and Physiology II** **4 credits**

Prerequisite: BIO 103 with a minimum C grade or permission of course coordinator

Continuation of BIO 103, covering digestive, circulatory, urinary, reproductive, respiratory, and endocrine systems. Lab includes cat dissection, human anatomy study via computer software, and quantitative studies of physiological processes. [Does not fulfill any requirements for the Biology A.S. degree.]

3 lecture / 3 laboratory hours

GenEd *Science*

BIO 106 **Human Anatomy** **4 credits**

Prerequisite: MAT 037 or MAT 042 or proficiency in basic algebra

Introduction to the human body with emphasis on terminology and body organization from the cellular level to organs systems. Topics include histology and skeletal, muscular, nervous, integumentary, digestive, respiratory, urinary, reproductive, circulatory and endocrine systems. (Designed for programs requiring a one-semester human anatomy course; does not satisfy requirements in biology or health programs.)

3 lecture / 2 laboratory hours

GenEd *Science*

BIO 113 **Biological Science Concepts** **3 credits**

Prerequisite: MAT 037 or MAT 042 or proficiency in basic algebra

Survey of fundamental concepts, principles, and phenomena in biology. Provides a solid scientific basis on which opinions relating to issues in biology can be developed. Topics include diversity of life, cell biology, inheritance, biotechnology, and body processes. Lab exercises employ the scientific method and reinforce lecture concepts. Designed for the non-science major or as a foundational course.

2 lecture / 2 laboratory hours

GenEd *Science*

BIO 114 **Environmental Science Concepts** **3 credits**

Prerequisite: ENG 024 or equivalent proficiency

Exploration of the fundamental concepts of our local, regional, and global environment for the non-science major. Topics include aquatic and terrestrial ecosystems, biological and chemical principles relating to current environmental issues, basic ecological relationships which include plants and animals, ecological and technological concerns and advances as well as scientific analysis and solutions to current and future environmental problems. *3 lecture hours*

GenEd *Science*

BIO 201 **Microbiology** **4 credits**

Prerequisite: BIO 101 or BIO 103 with a minimum C grade or permission of course coordinator

Explores morphology, taxonomy, and metabolism of microbes with emphasis on fungi, protozoa, helminths, viruses and bacteria. Covers the role of microbes in nature, including biotechnology applications and medical importance; human defense mechanisms; and immunology. The lab develops techniques, reinforces certain lecture content, and introduces new material. *3 lecture / 3 laboratory hours*

BIO 202 **Woody Plants** **4 credits**
Prerequisite: BIO 101 or OHT 101 with a minimum C grade or permission of course coordinator
Designed for ornamental horticulture, plant science, and biology majors. The lab consists of field studies stressing sight identification of both native and ornamental species. Covers the use of keys, as time permits. [Spring offering] *3 lecture / 3 laboratory hours*

GenEd *Science*
BIO 203 **Entomology** **4 credits**
Prerequisite: BIO 101 or BIO 102 with a minimum C grade or permission of course coordinator
Intensive survey of the orders of insects, covering comparative anatomy, life cycles, physiology and economic importance. Includes management, preservation and identification methods. [Fall offering]
3 lecture / 3 laboratory hours

GenEd *Science*
BIO 204 **Ecology** **4 credits**
Prerequisite: BIO 101 with a minimum C grade
Corequisite: BIO 102
Fundamental concepts, theoretical principles, and practical applications of modern ecology: the study of the interactions of organisms with each other and their environment. Laboratory classes of this introductory course involve field work and research projects geared towards ecological application.
3 lecture / 3 laboratory hours

GenEd *Science*
BIO 208 **Genetics** **4 credits**
Prerequisite: BIO 101 with a minimum C grade or permission of course coordinator
Explores gene activity at the molecular and organismal levels. Topics include inheritance, chromosome structure and function, gene mapping, genomics, prokaryotic and eukaryotic gene expression, molecular biology, and population genetics. Includes lab exercises in biotechnology, bioinformatics, and classical genetics. *3 lecture / 3 laboratory hours*

GenEd *Science*
BIO 215 **Principles of Microbiology** **3 credits**
Prerequisites: CHE 100 and BIO 104 or BIO 106
Designed for funeral education students, an introduction to the morphology, taxonomy, physiology, and control of microbes. Emphasizes those microbes which cause disease in humans and presents elements of organic chemistry and biochemistry. *3 lecture hours*

BIO 217 **Pathophysiology** **3 credits**
Prerequisites: RN licensure or BIO 103 and BIO 104 or permission of course coordinator
Study of the fundamental changes in body physiology due to disease. Covers the basics of cell biology, inflammation, mechanisms of body defense, specific body systems, and common disorders, with emphasis on disease processes, manifestations, and treatment. *3 lecture hours*

BIO 293 **Honors Research in Biology I** **2 credits**
Prerequisites: BIO 102 and CHE 102, minimum 3.0 GPA in biology and chemistry courses, and faculty approval
BIO 294 **Honors Research in Biology II** **2 credits**
BIO 295 **Honors Research in Biology III** **2 credits**
BIO 296 **Honors Research in Biology IV** **2 credits**
Under the guidance of an area sponsor in an industrial or academic environment, students participate in a biology research project. Requires a written report and oral presentation to students and faculty at the conclusion of the project period. [Fulfills a technical elective requirement in the Biology and Chemistry programs.] *5 laboratory hours per week*

BUS — BUSINESS

BUS 101 **Introduction to Business** **3 credits**
Corequisite: ENG 101
Survey course of the American business system. Topics include forms of business ownership, financing, economic impacts, human resource management, marketing, management, accounting, the role of government, international issues, workplace ethics, legal concerns, and social responsibility.
3 lecture hours

BUS 102 **Introduction to Sports Management** **3 credits**
Prerequisite: ENG 101 with a minimum C grade
Examination of issues impacting the world of sports and management. Topics include the complexity of leadership, group dynamics, strategic and master planning, risk management, current social issues, Title IX and their effects on professional, intercollegiate, youth and other areas of sport. *3 lecture hours*

BUS 107 **Business Law I** **3 credits**
Foundation course dealing primarily with contracts: the making of contracts, contractual elements, contracts in action, discharge of contracts, and remedies. Orientation to the legal system includes examination of law history and purpose. Uniform Commercial Code applications are stressed. *3 lecture hours*

BUS 108 **Legal Environment of Business** **3 credits**
Prerequisite: BUS 107 with a minimum C grade
The law of agency and employment and labor-management relations. Regulation of business organizations: sole proprietorships, partnerships, and corporations. Addresses property law, bailments, personal property, intellectual property, real property, landlord-tenant relationships, wills, estates and trusts, and the evolving role/impact of the global business environment. *3 lecture hours*

BUS 109 **Personal Finance** **3 credits**
Prerequisite: MAT 125
Basics of budgeting, buying, income tax, investments, home ownership, and insurance along with emphasis on wills and trusts. *3 lecture hours*

BUS 111 **Sports Law** **3 credits**
Examines legal issues that impact the world of sports and sports management. Affecting professional, intercollegiate and other areas of athletics, matters explored include those involving agencies, contracts, torts, crimes, gender, disabilities, antitrust, internationalism, drugs, intellectual property, and alternative dispute resolution. *3 lecture hours*

BUS 202 **Customer Orientation** **3 credits**
Explores the fundamentals of customer service, with focus on the “human” side of business and the importance of understanding and supporting those who depend on your business. Students develop core competencies necessary for providing excellent customer service, including an appreciation of diversity, developing loyalty, and dealing with customers. *3 lecture hours*

BUS 205 **Business Statistics I** **3 credits**
Prerequisite: MAT 146
Corequisite: MAT 146
Emphasis on the application of statistical inference in business and economics, with attention to descriptive statistics, probability theory, sampling distribution and inference statistics. Additionally includes testing of hypotheses and confidence intervals. *3 lecture hours*

BUS 206 **Business Statistics II** **3 credits**
Prerequisite: BUS 205 with a minimum C grade
Further testing of hypotheses and confidence intervals, plus coverage of regression analysis, chi-square, analysis of variance, and non-parametric measurements with use of several computer-based statistical packages. *3 lecture hours*

BUS 209 **Business Communications** **3 credits**
Prerequisite: ENG 101 with a minimum C grade or equivalent background
Practical strategies for developing a clear writing style: organizing ideas, choosing effective words and composing concise paragraphs that make writing clear and persuasive. Includes letters of inquiry, claim, collection, and adjustment as well as resumes and cover letters. Requires oral and written business report. *3 lecture hours*

BUS 210 **Principles of Management** **3 credits**
Prerequisite: ENG 101 with a minimum C grade
Provides a framework for managing an organization, including discussion of the key management functions of planning, organizing, staffing, influencing and controlling, with emphasis on ethics and international management issues. *3 lecture hours*

BUS 211 **Funeral Service Internship I** **2 credits**
BUS 212 **Funeral Service Internship II** **2 credits**
BUS 213 **Funeral Service Internship III** **2 credits**
BUS 214 **Funeral Service Internship IV** **2 credits**
Prerequisite: eligibility determined by Director of Funeral Service Programs and is limited to students who are registered as interns with the New Jersey State Board of Mortuary Science or student trainees with the Pennsylvania State Board of Funeral Directors
These sequential courses in the Funeral Service Preparatory program combine business cooperative education (75 percent) and professional work (25 percent) in a cooperating funeral home, where students work under the direction of a licensed funeral director for 16 hours each week. Courses are supervised by the Director of Funeral Service Programs, a field supervisor, and the sponsoring funeral director.
16 work experience / 1 seminar hour per week

BUS 225 **Employee Motivation and Leadership** **3 credits**
Draws together cutting-edge theory and significant achievements in the study of work motivation and leadership, equipping students for success in the business world as team leaders and members. From a workshop format incorporating practical real-world applications and examples, students learn the theoretical importance of leadership principles, ethics, and empowering and developing others. *3 lecture hours*

GenEd *Diversity and Global Perspective*
BUS 230 **Global Environment of Business** **3 credits**
Prerequisite: ENG 101 with a minimum C grade
A survey course introducing the challenges confronting global business due to socio-political, economic, and cultural environments, including a discussion of ethics as it relates to these factors. Students are expected to read about topics such as political economy, cultural variation, trade theory, the international monetary system, foreign investment, and foreign exchange markets. *3 lecture hours*

BUS 239 **Entrepreneurship** **3 credits**
Prerequisites: ACC 106 or ACC 111 or permission of instructor; ENG 101 with a minimum C grade
Exposes students to the skills and resources necessary to become a successful entrepreneur. Topics include feasibility studies, cash management, business plans, pricing strategies, ethical issues, financing strategies, and financial statements. *3 lecture hours*

BUS 240 **Human Resource Management** **3 credits**
Prerequisite: ENG 101 with a minimum C grade
Examination of human resource management including determination of manpower requirements, the employment process, wage and salary administration, insurance, safety, discipline, and employee relations. Related topics include morale, research, and preparation for collective bargaining. *3 lecture hours*

BUS 244 **Introduction to Supply Chain Management** **3 credits**
Prerequisites: ACC 106 or ACC 111; ACC 205 or ACC 112; ENG 101 with a minimum C grade; IST 101, IST 102, or CIS 175; MAT 125 or advisor approved equivalent
A survey course designed to introduce students to the integrated activities of the supply chain, with emphasis on the flow of products, information, cash, and demand. Special topics include the global dimension, the role of technology, and strategic challenges. *3 lecture hours*

BUS 262 **International Dimensions of Management** **3 credits**
Prerequisite: BUS 230
Study of how management activities in a global enterprise differ from those in a purely domestic company. Emphasis on cross-cultural interaction and its effects on planning, organizing, staffing and controlling the operations of a multinational company. [occasional offering] *3 lecture hours*

BUS 299 **Business Cooperative Work Experience** **3 credits**
Prerequisites: sophomore standing and permission of coordinator
For MCCC degree students only. Integration of classroom study with specific planned periods of learning through job experience, designed for all business students. Seminars teach job-specific skills which can be practiced on the job. Course includes employer evaluation. *1 lecture / 180 work experience hours*

CHE — CHEMISTRY

CHE 100 **Introductory Chemistry** **3 credits**
Prerequisite: MAT 037 or MAT 042 or proficiency in basic algebra
Selected fundamental principles of general chemistry for students who have not had high school chemistry and for those who need a review before taking other chemistry courses. [Does not include laboratory instruction and does not fulfill any requirements in the Chemistry program.] *3 lecture hours*

GenEd *Science*
CHE 101 **General Chemistry I** **4 credits**
Prerequisites: high school chemistry or CHE 100; MAT 038 or MAT 044
Corequisite: ENG 101
Basic concepts and theoretical principles of modern chemistry. Topics include stoichiometry; atomic theory and the structure of matter; periodic table; chemical bonding; kinetic-molecular theory and the states of matter; gas laws; solutions; oxidation-reduction; and acid-base systems. Lab work introduces the use of computers for data collection and analysis. *2 lecture / 1 recitation / 3 laboratory hours*

GenEd *Science*
CHE 102 **General Chemistry II** **4 credits**
Prerequisite: CHE 101 with a minimum C grade or permission
Corequisite: MAT 146 or approved equivalent
Theoretical and practical aspects of kinetics; simple and ionic chemical equilibria; thermodynamics; spectrophotometry; electrochemistry; nuclear chemistry; and the major families of chemical elements with emphasis on the transition elements. Lab work includes qualitative cation and anion analysis plus additional computer applications for data collection and analysis. *2 lecture / 1 recitation / 3 laboratory hours*

GenEd *Science*
CHE 106 **Chemical Science Concepts** **3 credits**
Prerequisite: MAT 037 or MAT 042 with a minimum C grade
Fundamental topics in chemistry and biology are introduced utilizing forensics to explore basic science concepts. Topics include general, organic, and biochemistry, and general and molecular biology. Lab experiments integrate case-study analyses and modern instrumentation with techniques in enzymology, chromatography, microscopy, fingerprinting, DNA analysis, and serology. Prepares the student for informed engagement in society by providing scientific knowledge on which attitudes and opinions can be developed. *2 lecture / 2 laboratory hours*

GenEd *Science*
CHE 107 **General and Physiological Chemistry** **4 credits**
Prerequisites: high school chemistry or CHE 100; MAT 037 or MAT 042 or equivalent
Introduction to basic chemical and physical principles and their applications to life processes. Lab exercises illustrate these principles and the behavior of physiologically significant materials.
2 lecture / 1 recitation / 2 laboratory hours

GenEd *Science*

CHE 201 **Organic Chemistry I** **5 credits**

Prerequisite: CHE 102 with a minimum C grade

Theoretical principles of reaction mechanisms and the synthesis of important classes of organic compounds. Topics include stereoisomerism; alcohols; ethers; nucleophilic substitution; elimination reactions; and instrumental methods. Lab work introduces the synthesis, purification, separation and identification of organic compounds. *3 lecture / 4 laboratory hours*

GenEd *Science*

CHE 202 **Organic Chemistry II** **5 credits**

Prerequisite: CHE 201 with a minimum C grade

Follows CHE 201 with increased emphasis on spectroscopy and mechanisms. Topics include aromatic compounds; electrophilic substitution reactions; carbonyl chemistry; carboxylic acid derivatives, amines, carbohydrates and proteins. Lab work includes methods of synthesis, purification, and spectroscopic identification of organic compounds. *3 lecture / 4 laboratory hours*

CHE 293 **Honors Research in Chemistry I** **2 credits**

Prerequisites: BIO 102 and CHE 102, minimum 3.0 GPA in biology and chemistry courses, and faculty approval

CHE 294 **Honors Research in Chemistry II** **2 credits**

CHE 295 **Honors Research in Chemistry III** **2 credits**

CHE 296 **Honors Research in Chemistry IV** **2 credits**

Under the guidance of an area sponsor in an industrial or academic environment, students participate in a chemistry research project. Requires a written report and oral presentation to students and faculty at the conclusion of the project period. [Fulfills a technical elective requirement in the Biology and Chemistry programs.] *5 laboratory hours per week*

CHI — CHINESE

Note: Students who have taken two or more years of a foreign language, and have done so in the last two years, should begin that language at the 200 level or switch to a new language. If there is doubt, placement will be determined by testing or consultation with the academic division.

GenEd *Humanities*

CHI 101 **Beginning Chinese I** **3 credits**

Spoken communication in Mandarin Chinese is the goal and means of instruction. Initial weeks are dedicated to studying the sound and writing system. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar and culture are introduced. *3 lecture hours*

GenEd *Humanities*

CHI 102 **Beginning Chinese II** **3 credits**

For students who either completed CHI 101 or have otherwise gained elementary knowledge of Mandarin Chinese. Spoken communication in Mandarin is the goal and means of instruction. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar and culture are introduced. *3 lecture hours*

GenEd *Humanities*

CHI 201 **Intermediate Chinese I** **3 credits**

For students who either completed CHI 102 or have otherwise acquired prior reading and speaking abilities in Mandarin Chinese at a high-novice level. Reading, writing, listening, and speaking Mandarin are the means and goal of instruction. Vocabulary and grammar practiced on topics of daily life, art, politics, and history in Chinese-speaking communities. *3 lecture hours*

GenEd *Humanities*

CHI 202 **Intermediate Chinese II** **3 credits**

For students who either completed CHI 201 or have otherwise acquired prior reading and speaking abilities in Mandarin Chinese at a low-intermediate level. Reading, writing, listening, and speaking Mandarin are the means and goal of instruction. Vocabulary and grammar practiced on topics of daily life, art, politics, and history in Chinese-speaking communities. *3 lecture hours*

CIS — COMPUTER INFORMATION SYSTEMS

CIS 105 **Excel Basics** **1 credit**

Prerequisites: ENG 033, MAT 037

Learn how to increase productivity by designing and organizing worksheets to solve problems. Students acquire a working knowledge of Excel with emphasis on formulas, charts, data analysis, printing, managing large worksheets, and integrating Excel charts and worksheets into Word documents and PowerPoint presentations. *1 lecture / 1 laboratory hours*

CIS 112 **Introduction to PC Business Applications** **3 credits**

Prerequisite: OST 109 with a minimum C grade or equivalent keyboarding proficiency

Students become proficient in use of Microsoft Office – including Word, Excel, Access, and PowerPoint – to complete practical business projects. *2 lecture / 2 laboratory hours*

CIS 173 **PC Applications: Database** **3 credits**

Prerequisite: COS 101, COS 102, IST 101, or equivalent proficiency

Students acquire a working knowledge of Access, a relational database, with emphasis on creating tables, queries, reports, and forms. *2 lecture / 2 laboratory hours*

CIS 175 **PC Applications: Spreadsheets** **3 credits**

Prerequisite: IST 101 or equivalent proficiency

Students acquire a working knowledge of Excel with emphasis on formulas, charts, and managing worksheets and lists. *2 lecture / 2 laboratory hours*

CIS 280 **PC Applications: Project Management** **3 credits**

Prerequisite: IST 209

Explores frequently used tools for project management. Addresses usage of a major software package to build project plans complete with tasks and resources, to format project reports, to track actual work against the plan, and to take corrective action when things get off track. *2 lecture / 2 laboratory hours*

CIV — CIVIL ENGINEERING TECHNOLOGY

CIV 101 **Surveying I** **3 credits**

Corequisites: DRA 190 or divisional permission;
ENT 116 or prior drafting experience; MAT 115 or approved equivalent

Introduces the three basic surveying tools – the tape, level, and transit/theodolite – along with proper field procedures for basic surveying. These include taking field notes, taping and EDM, leveling, bearings and azimuths, topography, and mapping – the latter including an introduction to computer-aided design.
2 lecture / 3 laboratory hours

CIV 102 **Surveying II** **3 credits**

Prerequisite: CIV 101 or permission of instructor

Application of the fundamentals and techniques achieved in elementary surveying to solve additional problems in vertical curves, horizontal curves, traversing computations and profiles. Computations include bearings and azimuths, latitudes and departures, areas, and use of the planimeter. Applies AutoCAD and land development software, plus "Total Station" survey equipment for traversing, radial stakeout, and layout of horizontal curves.
2 lecture / 3 laboratory hours

CIV 103 **Statics** **3 credits**
Prerequisites: MAT 146 with a minimum C grade; one semester of high school or college physics
Corequisite: MAT 151
Calculus-based introduction to the basic principles of engineering statics, including terminology and types of force systems, for engineering science students. Topics include the resultant force of a force system; distributed and concentrated forces; force systems in equilibrium, trusses, frames and machines; friction; centroids; and moments of inertia. *3 lecture hours*

CIV 105 **Introduction to Engineering** **1 credit**
Provides an introduction to the practice of engineering including disciplines, work environment, and competencies. Outlines project management topics such as scope, budget, schedule, effective communication, and proposal preparation. Also includes career planning topics such as resumes, interviews, internships, transferring to four-year institutions, and professional licensure. *1 lecture hour*

CIV 106 **Mechanics** **3 credits**
Prerequisite: MAT 115 or divisional permission
Introduction to the basic principles of engineering mechanics, including terminology and types of force systems, for engineering technology students. Topics include the resultant force of a force system, distributed and concentrated forces, force systems in equilibrium, trusses, frames and machines, friction, centroids, and moments of inertia. *3 lecture hours*

CIV 216 **Highway Engineering** **3 credits**
Prerequisites: MAT 115 and ENT 116
Corequisites: CIV 102, DRA 190, or divisional permission
Explores the planning, design, construction, and characteristics of highways and city streets, including layout, traffic requirements, safety and control, drainage, subgrade structure, base courses, and surface pavements. Problems to be solved include geometric design, traffic volume, channelization, and hydrology. Lab projects involve roadway designing. [Spring offering] *2 lecture / 2 laboratory hours*

CIV 223 **Fluid Mechanics** **4 credits**
Prerequisite: MAT 115
Introduction to the field of fluid mechanics. Topics include the properties of fluids, buoyancy, basic fluid power, closed pipe flow, open channel flow, forces due to fluids in motion, flow measuring devices, and the energy balances of fluid systems. Lab experiments (requiring written reports) on non-compressible fluids illustrate the theoretical concepts. [Fall offering] *3 lecture / 3 laboratory hours*

CIV 227 **Structural Steel Design** **3 credits**
Corequisite: CIV 229
Application of basic principles of material mechanics to the analysis and design of structural steel members that occur most commonly in bridge and building construction. Requires thorough knowledge of the American Institute of Steel Construction Code as well as orderly computational procedures. Lab work involves the design of a building. [Fall offering] *2 lecture / 3 laboratory hours*

CIV 228 **Reinforced Concrete Design** **3 credits**
Prerequisite: CIV 227 or DRA 217
Examines the design of basic reinforced concrete structural members including rectangular beams, slabs, columns, footings, and retaining walls. Requires thorough knowledge of the ACI Standard Code. Covers field inspection procedures. Lab projects involve designing, mixing, and evaluating concrete cylinders and beams, adhering to alternate design and strength design approaches. [Spring offering] *2 lecture / 3 laboratory hours*

CIV 229 **Mechanics of Materials** **4 credits**
Prerequisite: CIV 106 with a minimum C grade
With an introduction to engineering materials and their mechanical properties, examines strains that occur in elastic bodies subjected to direct and combined stresses, shear and bending moment diagrams, deflections of beams, and stresses due to torsion. Lab testing involves various materials such as cast iron, steel, brass, aluminum, and wood to determine their physical properties and to demonstrate various testing techniques. [Fall offering] *3 lecture / 3 laboratory hours*

CIV 230 **Mechanics of Solids** **4 credits**

Prerequisites: CIV 103 and MAT 151 with a minimum C grade

Calculus-based introduction to engineering materials and their mechanical properties, examining strains that occur in elastic bodies subjected to direct and combined stresses, shear and bending moment diagrams, deflections of beams, and stresses due to torsion. Lab testing involves various materials such as cast iron, steel, brass, aluminum, and wood to determine their physical properties and demonstrate various testing techniques. *3 lecture / 3 laboratory hours*

CMN — COMMUNICATION

CMN 101 **Mass Media** **3 credits**

Corequisite: ENG 101

Survey of the growth and development of books, newspapers, magazines, film, radio, television, cable, the Internet, and new media delivery systems. Analysis of the mass media's impact on society and individuals, and whether the media effectively fulfill their functions as deliverers of information, persuasion, entertainment, and culture. *3 lecture hours*

CMN 102 **Media Issues and Ethics** **3 credits**

Prerequisite: ENG 101 with a minimum C grade

An examination of current issues and ethical dilemmas in mass media such as sensationalism, press censorship, violence, political coverage, rights of privacy, and photo manipulation. The implications of recent developments in mass media and current regulation of broadcast and cable media are discussed. Students read, evaluate and analyze media ethical case studies. *3 lecture hours*

CMN 103 **Community Reporting** **3 credits**

Prerequisite: ENG 101

An experiential learning course in which students build the skills of ethical and practical reporting through coverage of community stories in the field. Students lean about the forces that drive public perception of the media and how solutions focused reporting can increase civic engagement and reduce political polarization. *3 lecture hours*

GenEd *Humanities*

CMN 107 **Cinema** **3 credits**

Study of artistic achievement in the film medium from the point of view of the director (author). Classic and contemporary feature films are viewed, analyzed and discussed, including the works of such directors as Griffith, Eisentein, Chaplin, Hitchcock, Bergman, DeSica, and Welles. *3 lecture hours*

GenEd *Communication*

CMN 111 **Speech: Human Communication** **3 credits**

Prerequisite: eligibility for placement in ENG 101

Exploration of the fundamental elements, characteristics, and processes of communication, including communicating in a multicultural society, interpersonal, intrapersonal, as well as small group contexts. Oral presentation experiences are heavily integrated throughout the course with a focus on public speaking design and delivery. *3 lecture hours*

GenEd *Communication*

CMN 112 **Public Speaking** **3 credits**

Corequisite: ENG 101

Introduction to principles and practice of audience-centered, credible, confident messages for diverse audiences. Includes a variety of presentations: special occasion, personal experience, impromptu, panel, informative, and persuasive. Special focus on communication anxiety management, organizational patterns, supporting research, visual aids, and dynamic delivery. Sustained reading, writing, and testing are also part of the course. *3 lecture hours*

CMN 122 Organizational Communication 3 credits
Prerequisite: ENG 101
Study of the knowledge, skills, sensitivity, and values associated with the variety of communications within and between organizations. An exploration of various methods, channels, and audiences of organizational communication in the corporate world. *3 lecture hours*

CMN 125 Public Relations 3 credits
Prerequisite: ENG 101 with a minimum C grade
Comprehensive study of public relations including identifying and reaching internal and external publics, dealing with print and electronic media, advertising, printing, direct mail, and preparing a public relations plan and budget. Also involves the writing of news releases, public service announcements, and advertising copy. [occasional offering] *3 lecture hours*

CMN 131 Journalism I 3 credits
Corequisite: ENG 101
Introduction to the news media with particular emphasis on the newspaper and newswriting, the history of the press, and controversial issues facing the press. Active participation with the student paper, *The College Voice*, is integral. *3 lecture hours*

CMN 141 Introduction to Television Production 3 credits
Basic theory and operation of TV production equipment including camera, switcher, character generator, prompter, audio console, and lighting. Following study of studio procedure, students plan, produce, write, and direct several short video productions. *2 lecture / 2 studio hours*

CMN 142 Introduction to Field Production 3 credits
Production of programming with complete formats such as news, interview, music, drama, and fashion. Students plan, produce, write, and direct 15-minute interview/demonstration programs.
2 lecture / 2 studio hours

CMN 144 Screenwriting 3 credits
Prerequisites or Corequisites: ENG 101, ENG 102
Aimed at the conception, planning and writing of screenplays. Through a series of writing exercises, scenes, short scripts and treatments, the student is expected to complete a 20-page short film script. The basics of character development, narrative, structure, texture, genre, and the ability to visualize in writing are explored.
2 lecture / 2 laboratory hours

CMN 146 Social Media Technologies 3 credits
Extensive exploration of current social media technologies, utilizing the Mac platform, for storytelling and narrative purposes. With emphasis on usability, management and distribution, topics include multimedia development and design; the media elements of text, graphics, sound and video; and trends in emerging hardware and software. Multimedia projects demonstrate technical understanding and coherent narratives.
2 lecture / 2 laboratory hours

CMN 147 Introduction to Story 3 credits
Aimed at the analysis, deconstruction, and construction of story. Analyzing a series of films, television shows, graphic novels, video games and transmedia properties, students explore the basics of character development, narrative, arc, structure, and genre. *2 lecture / 2 laboratory hours*

CMN 148 Introduction to Editing 3 credits
Covers the art of composing space and time through the arrangement and assembly of images and sounds, including basic concepts of editing, storytelling, and emotion. Students develop their editing skills utilizing current and professional non-linear editing software and tools. *2 lecture / 2 laboratory hours*

CMN 151 Introduction to Radio 3 credits
An orientation to commercial radio in the United States. Topics include historical development, ownership, management, sales, programming, promotion, commercial and news writing, audience measurement, and government regulation. Students learn the hands-on technical skills necessary to operate broadcast consoles and audio editing applications. Production projects include newscasts, commercials, and a weekly music program. *2 lecture / 2 studio hours*

CMN 153 **Digital Audio Production I** **3 credits**
Students practice and develop audio production techniques used in broadcasting and other commercial applications. Theory of audio fundamentals combines with lab exploration of digital editing, digital multi-tracking, digital music creation, synchronizing audio with video. Students write and/or produce commercials, documentaries and short soundtracks for video and other entertainment venues. *2 lecture / 2 studio hours*

CMN 157 **Podcasting** **3 credits**
Exploration of podcast production with an emphasis on content creation. Analysis of existing podcasts assist students in formulating subject material for their own podcast. Defining an audience, aligning content, writing and producing the podcast, evaluating and defining areas for improvement are all considered as the student works to produce several episodes of a consistent podcast. Podcast hosting and distribution methods also addressed. *2 lecture / 2 studio hours*

CMN 201 **Persuasion and Propaganda** **3 credits**
Prerequisite: CMN 111 or CMN 112
Inquiry into the forces of persuasion and propaganda as they exist in a technological society and how they influence beliefs, attitudes and actions. *3 lecture hours*

CMN 211 **Interpersonal Communication in Human Relations** **3 credits**
Prerequisite: CMN 111 or CMN 112
Combining theory and practice, examines the nature and skills of interpersonal communication. Emphasizes the uniqueness of interpersonal communication as opposed to other forms of human communication.
3 lecture hours

GenEd *Diversity and Global Perspective*
CMN 214 **Issues in Intercultural Communication in the U.S.** **3 credits**
Examines communication that bridges diverse cultures, values and realities. Explores racial, sexual, and class identities and the impact of privilege on the ability to relate to others. Develops effective communication skills for addressing obstacles to global citizenship. *3 lecture hours*

GenEd *Diversity and Global Perspective*
CMN 215 **Communication and Gender** **3 credits**
Prerequisite: ENG 101 or equivalent English skills
Critically analyzes issues of gender and communication. Examines theoretical perspectives used to explain gender phenomena, gender socialization, male and female interactions and stereotypes, with an emphasis on improving communication skills. *3 lecture hours*

CMN 231 **Journalism II** **3 credits**
Prerequisite: ENG 101
Addresses the various kinds of newswriting (straight news, features, interpretative, editorial), editing, and the techniques of reporting (interviewing; surveys; coverage of events, meetings, speeches). Actual newspaper production aspects including layout, photojournalism, and graphics are experienced through practical work on the student paper, *The College Voice*. *3 lecture hours*

CMN 241 **Applied Field Production** **3 credits**
Prerequisite: CMN 142
Develops practical skills and knowledge of video production while executing a project for a community client in a professional atmosphere. Pre-production, production, and post-production activities center around the realities of client expectations, professional deadlines, and working together as one production unit. Advanced post-production techniques are implemented utilizing professional-level software and applications.
2 lecture / 2 laboratory hours

CMN 242 **Advanced Film Production** **3 credits**
Prerequisites: CMN 241, CMN 243
Advanced television students enhance knowledge and skills while writing, editing, producing and marketing a short film or documentary. Students apply pre-production, production, and post-production skills with the goal of competing in a television program film festival. *2 lecture / 2 studio hours*

CMN 243 Cinematography 3 credits
Prerequisites: CMN 141, CMN 142
Covers directing, lighting, and camera work through lecture and text materials. Includes an overview of cinematic production with attention to the art of lighting and cinematography. Additionally introduces steadi-cam camera technique, camera lens systems, cinema lighting techniques, and hi-definition image acquisition. *2 lecture / 2 studio hours*

CMN 246 Social Media Management 3 credits
Prerequisites: CMN 146 and ENG 101
Examines social media as a strategic marketing tool involving planning, budgeting, content creation, measurement & analysis, crisis communication, and ethical considerations. Explores careers and best practices in social media management. *2 lecture / 2 laboratory hours*

CMN 250 Announcing for Media 3 credits
Students explore, practice and develop announcing techniques used in broadcasting and other media applications. Practical assignments provide training for a variety of professional roles such as radio disc jockey, talk show host, podcast host, broadcast journalist, and voice-over announcer. Students produce commercials, public service announcements, interview programs, and corporate/industrial voice-overs and host a radio show. *2 lecture / 2 laboratory hours*

CMN 252 Applied Radio Programming and Production 3 credits
Prerequisites: CMN 153 and CMN 250 with a minimum C grade
Study of the development and nature of current radio formats, programming philosophies, and group ownership. Students analyze and critique current radio formats and create a commercially-viable format of their own. Students apply advanced production techniques to produce station “imagers,” format demos, and an audition CD suitable for entry-level positions. *2 lecture / 2 studio hours*

CMN 253 Digital Audio Production II 3 credits
Prerequisite: CMN 153
An overview of multitrack recording techniques using state-of-the-art digital audio workstations. Topics include mastering techniques, digital signal processing, auto-tune, session management, and techniques for real-time and processed audio plug-ins including reverb, delay, sampling, automation, MIDI sequencing, and virtual instruments. Students produce multilayered recordings using live talent in a studio environment.
2 lecture / 2 laboratory hours

CMN 254 Live Sound Reinforcement 3 credits
Prerequisite: CMN 153
Basic principles of the behavior of sound in various environments, with emphasis on signal flow, acoustics, sound reinforcement setups and installation, signal processing, as well as microphone selection and placement. Includes setting up sound systems and mixing live music. Topics include microphones, recording equipment, control consoles, reproduction techniques, amplification, distribution, loudspeaker systems, frequency response, decibels, and dynamic range. *2 lecture / 2 laboratory hours*

CMN 255 Sound Design for the Entertainment Industry 3 credits
Prerequisites: CMN 153, CMN 254
Examines audio production techniques, technologies, and aesthetics related to the development of a compelling soundtrack for theatre, television, radio or the Internet. Through training in all phases of digital sound recording, editing and mixing, students work with location and field recording equipment and use advanced editing and mixing techniques associated with digital audio workstations.
1 lecture / 4 laboratory hours

CMN 256 Digital Audio Production III 3 credits
Prerequisite: CMN 253
Continues the study of multitrack recording techniques using state-of-the-art digital audio workstations. Topics include advanced mastering techniques, digital signal processing, auto-tune, session management, techniques for real-time and processed audio plug-ins including reverb, delay, sampling, automation, MIDI sequencing, and virtual instruments. Students produce multiple multilayered recordings using live talent in a studio environment acting as a producer, engineer, mixer, and mastering engineer.
2 lecture / 2 laboratory hours

CMN 275 **TV Technology and Culture** **3 credits**
Prerequisite: ENG 102
Critical survey of the key areas of television studies: technology and media ownership, textual analysis, and audiences. Topics include federal regulations, audience measurement, distribution and programming strategies, and cultural theory. Promotes industry networking skills through field trips, meeting with media professionals, and creating a resume/portfolio. *3 lecture hours*

CMN 285 **Special Studies in Television Production** **3 credits**
Prerequisites: CMN 290, minimum 3.0 GPA, and divisional permission
Opportunity for students who have completed all regular television writing and production courses to continue their studies at an advanced level. Individual students and faculty develop a project contract that sets forth objectives, standards of quality, evaluation guidelines, and deadlines. [occasional offering]

CMN 286 **Special Studies in Radio Production** **3 credits**
Prerequisites: CMN 151, CMN 153, CMN 161, CMN 250, CMN 253, minimum 3.0 GPA, and divisional permission
Opportunity for students who have completed all regular radio writing and production courses to continue their studies at an advanced level. Individual students and faculty develop a project contract that sets forth objectives, standards of quality, evaluation guidelines, and deadlines. [occasional offering]

CMN 287 **Special Studies in Communication** **3 credits**
Prerequisites: second-year standing as a Communication program major at MCCC and permission of the program coordinator; minimum 3.0 GPA
Opportunity for students who have completed all regular communication and communication writing courses to continue their studies at an advanced level. Individual students and faculty develop a project contract that sets forth objectives, standards of quality, evaluation guidelines, and deadlines.

CMN 290 **Internship: Communications** **3 credits**
Prerequisites: second-year standing and coordinator approval
Work experience at a radio station, TV station, cable system, industrial or instructional TV facility, or other allied business. *1 lecture / 180 work experience hours*

COS — COMPUTER SCIENCE

GenEd *Technology*
COS 101 **Introduction to Computer Science** **4 credits**
Prerequisite: MAT 037 (or MAT 037A and 037B) or proficiency in basic algebra
Introduces both majors and non-majors to the concepts and topics of computer science, including computer architecture, algorithm analysis, operating systems, and programming languages. Students develop algorithmic thinking and abstraction using a 3-D animation programming language and MATLAB, a numerical programming tool for scientists and engineers. *3 lecture / 2 laboratory hours*

GenEd *Technology*
COS 102 **Computer Science I – Algorithms and Programming** **4 credits**
Prerequisite: COS 101, IST 108, or IST 109
Corequisite: MAT 146 or higher
Algorithm design and object-oriented programming in the Java language. Topics include data representation, input/output, control structures, exception handling, classes, methods, inheritance, polymorphism, encapsulation, overloading and dynamic memory. *3 lecture / 2 laboratory hours*

COS 204 **Discrete Mathematical Structures** **4 credits**
Prerequisite: MAT 151 or equivalent
Primarily intended for Computer Science majors, covers wide variety of topics serving as the mathematical framework for the design and analysis of algorithms. Topics include induction and recursion, relations, functions, sets, propositional logic, Boolean algebra, grammars, permutations and combinations, and finite state machines. *4 lecture hours*

COS 210 **Computer Science II – Data Structures** **4 credits**
Prerequisites: COS 102 or equivalent and MAT 146 or MAT 151
Study of advanced programming topics focused on logical structures of data as well as the design, implementation and analysis of algorithms operating on these structures. Topics include linked lists, stacks, trees, queues, graphs and analysis of efficiency. Also covers searching, sorting and hashing techniques. *3 lecture / 2 laboratory hours*

COS 231 **Fundamentals of Computer Architecture** **4 credits**
Prerequisites: COS 102 or equivalent and MAT 146 or MAT 151
Explores the levels of organization in digital computers: logic circuit design, integrated circuits, and assembly language coding. *3 lecture / 2 laboratory hours*

CRJ — CRIMINAL JUSTICE

CRJ 101 **Introduction to the Criminal Justice System** **3 credits**
Overview of the systems of criminal justice in the United States, including a survey of the agencies for the administration of justice and the relationships among them. *3 lecture hours*

CRJ 102 **Police in the Community** **3 credits**
Study of the relationship between the police and the public they serve with particular emphasis on ethical standards, human relations, civil rights, and community service. *3 lecture hours*

CRJ 103 **Introduction to Corrections** **3 credits**
Study of the relationship between the correction officer and the prisoner including the history of corrections, the rights of the confined, parole and work release, and the philosophies of rehabilitation and punishment. *3 lecture hours*

CRJ 104 **Introduction to Security** **3 credits**
Introduction to the historical, philosophical, and legal bases of the security field. Examines all aspects of private security systems and functions, including the technology of security and the role of security in different organizational settings. [occasional offering] *3 lecture hours*

CRJ 105 **Criminology** **3 credits**
In-depth analysis and evaluation of criminal behavior including street crime, organized crime, and occupational crime. Students learn to investigate, categorize, and describe the theories of criminality and social control. *3 lecture hours*

CRJ 202 **Criminal Law** **3 credits**
Examines the evolution and development of criminal laws as well as the nature of crime, basic principles of criminal law, plus defenses and court presentations. *3 lecture hours*

CRJ 206 **Police Administration** **3 credits**
Examines the contemporary law enforcement agency and its functions, structure, and operational techniques; implications of generalized and specialized units; development of resources by time and area of function; analysis of line, staff, and auxiliary functions; and current issues facing today's police agencies. *3 lecture hours*

CRJ 207 **Criminal Investigation** **3 credits**
The strategies, techniques, and methods employed in criminal investigations – at the crime scene, follow-up investigation, *modus operandi*, sources of information, and interrogation. *3 lecture hours*

CRJ 211 **Community Corrections** **3 credits**
Examines the major types of community-based correctional alternatives such as fines, community service, drug courts, probation, day reporting centers, halfway houses, parole, and other intermediate sanctions. Covers correctional law and management, controversies, political pressures, and emerging trends. *3 lecture hours*

CRJ 212 **Juvenile Justice** **3 credits**
Overview of the major issues in the field of juvenile justice, including causes of delinquency and the development of modern treatment methods. Emphasis on the delinquent's relationships with family, school, peers, and the juvenile justice system. *3 lecture hours*

CRJ 299 **Cooperative Education – Criminal Justice** **3 credits**
Prerequisites: sophomore status; CRJ 101; CRJ 206 or CRJ 103; divisional permission
Exposure to the philosophy, goals, and daily operations of a criminal justice agency. Through supervised work, the student experiences the roles of criminal justice employees and evaluates their responsibilities. Designed for the student interested in the realistic application of criminal justice theory to the justice system.
1 lecture / 180 work experience hours

CSB — COLLEGE SUCCESS FOR BUSINESS

CSB 100 **College Success and Wellness for Business** **2 credits**
A comprehensive orientation to the college experience providing academic and personal wellness management tools geared toward students studying in business-related disciplines. Topics include general study skills, academic technology, introduction to college resources and services, an exploration of business careers, financial literacy, and general wellness. *2 lecture hours*

CSH — COLLEGE SUCCESS FOR HEALTH PROFESSIONS

CSH 100 **College Success for Health Professions** **2 credits**
A complete orientation to the college experience providing academic, interpersonal, and wellness strategies geared toward students in pursuit of a health professions related degree. Topics include study skills, soft skills development, and investigation of health professions related careers. Students also apply strategies to promote optimal physical and emotional wellness. *1 lecture / 1 laboratory hours*

CSW — COLLEGE SUCCESS AND WELLNESS

CSW 100 **College Success and Personal Wellness** **2 credits**
A comprehensive orientation to the college experience providing academic and personal wellness management tools. Topics include general study skills, academic technology, introduction to college resources and services, and healthy living. *2 lecture hours*

DAN — DANCE

GenEd *Humanities / Diversity and Global Perspective*
DAN 101 **Introduction to Dance and Culture** **3 credits**
Prerequisite: ENG 101 or permission of instructor
Introductory study of dance as an art form, investigating the impact of gender, politics, religion, and culture on how dance is perceived. Develops a fuller appreciation of how dance has been used over the course of human history in western and non-western cultures to communicate human needs and to express what words cannot communicate. [Fall and Spring offering] *3 lecture hours*

DAN 102 **Ballet I** **2 credits**
Introduces traditional or classic ballet terminology, forms, and techniques. Emphasizes body alignment and physical skill needed for proper classical ballet movements. [Spring offering] *1 lecture / 2 studio hours*

DAN 103 **Modern Dance I** **2 credits**
Introduces the techniques and motor skills of modern dance, including basic body skills, placement, alignment, and continuity. [Fall offering] *1 lecture / 2 studio hours*

DAN 105 **Hip Hop and Jazz I** **2 credits**
Covers not only the history of these highly related forms, but the fundamental dance techniques of both emphasizing the syncopated rhythms and isolations of the body at a beginning level, while encouraging individual style. [Fall and Spring offering] *1 lecture / 2 studio hours*

DAN 112 **Ballet II** **2 credits**
Prerequisite: DAN 102 or permission of instructor
Study of ballet technique on an intermediate level. [Spring offering] *1 lecture / 2 studio hours*

DAN 113 **Modern Dance II** **2 credits**
Prerequisite: DAN 103
Study of modern dance techniques on an intermediate level, and an introduction to repertory. [Fall offering] *1 lecture / 2 studio hours*

DAN 115 **Hip Hop and Jazz II** **2 credits**
Prerequisite: DAN 105 or permission of instructor
Study of commercial forms of dance at the intermediate level. With emphasis on more challenging syncopated rhythms, exercises are led to help the student develop a personal style. More nuanced exercises serve expressing emotion and isolations of the body. Additionally, this course exposes students to the history of Jazz and Hip Hop. [Fall and Spring offering] *1 lecture / 2 studio hours*

DAN 116 **Studio Dance Technique I** **3 credits**
DAN 117 **Studio Dance Technique II** **3 credits**
DAN 118 **Studio Dance Technique III** **3 credits**
DAN 119 **Studio Dance Technique IV** **3 credits**
A sequence of courses required of all students in the dance program, provides an intensive approach to skill development, discipline, and knowledge for mastery of the three concert dance styles: ballet, jazz, and modern. Daily technique classes cater to specific needs and abilities. Related issues of career planning, personal health, and ensemble work are also addressed. [Fall and Spring offering] *6 studio hours*

DAN 120 **Choreography I** **3 credits**
Prerequisite: DAN 116 or divisional permission
Introduces several choreographic strategies used to develop an idea into a dance structured for the stage. Students are exposed to the tools of choreography beginning with basics – time, space, and force – and then move on to more complex issues faced by intermediate choreographers: form, style, abstraction, compositional structures, and choreographic devices. [Spring offering] *2 lecture / 2 studio hours*

DAN 285 **Special Studies in Dance** **3 credits**
Prerequisites: DAN 101, DAN 116, DAN 117, DAN 120 and permission of program coordinator
Opportunity for students who have completed regular course offerings to continue their studies at an advanced level. Individual students and faculty develop a project contract that sets forth objectives, standards of quality, evaluation guidelines, and deadlines. [Fall offering] *6 studio hours*

DMA — DIGITAL MEDIA ARTS

DMA 110 **Digital Imaging** **3 credits**
Designed to meet the needs of artists and designers in diverse fields, involves the leading professional paint and photo retouching software. Addresses the practical and creative aspects of producing art and illustrations and manipulating photographs and other images through a series of hands-on assignments.
1 lecture / 4 laboratory hours

DMA 115 **Vector Drawing** **3 credits**
Acquaints with the basics of production and use of vector graphics for use in print and illustration, web-based media, and animation. Skill development concentrates on the use of tools and transformation options of Adobe Illustrator, with emphasis on digital drawing for both text and graphics, use of Wacom pen tablet, key tools within Illustrator, and production of standard industry graphics for use in print, web, and animation.
1 lecture / 4 laboratory hours

DMA 120 **3-D Modeling I** **3 credits**
Develops visual problem-solving abilities using computers as art and design tools. Students create and manipulate three-dimensional forms and scenes, their colors, surface textures, lighting and cameras to design effective compositions in virtual 3-D space. Useful for graphic arts, communications, interior design and architectural professions, prepares students for Animation I and 3-D Modeling II. Windows-based PC computers, scanners, and current professional software are used. *1 lecture / 4 laboratory hours*

DMA 135 **Digital Narrative** **3 credits**
Prerequisite: DMA 115 with a minimum C grade
Exploration of narrative art, its structure and approaches as it applies to time-based graphics. Students investigate narrative in a variety of formats – from comics to animation to film editing and various "artistic" permutations in between – with emphasis on current digital practices. *1 lecture / 4 studio hours*

GenEd *Technology*
DMA 144 **Internet Tools and Techniques** **3 credits**
Introduction to the tools and techniques used to create blogs, commercial websites and Internet applications. Topics include the history of the Internet, Internet software and hardware, ethical issues surrounding privacy, accessibility and ownership on the Internet, information architecture and content strategies, and the tools used for blogging, creating web pages and rich web applications. Students research, analyze, diagram, and create Internet applications and websites. *1 lecture / 4 studio hours*

DMA 145 **Web Design I** **3 credits**
Prerequisites: DMA 110, placement in college-level English
Introduction to web design using a professional software application. Focuses on principles of design and interactivity. Students learn how to create images for the web, manage files, organize imagery using tables, style text using cascading style sheets, create animated gifs, and add interactivity using basic JavaScript behaviors. *1 lecture / 4 studio hours*

DMA 210 **Motion Graphics** **3 credits**
Prerequisite: CMN 141 or DMA 135 with a minimum C grade or divisional permission
Digital art in motion: concepts and techniques of visual storytelling emphasizing issues of pacing, continuity and dramatic structure. 2-D graphics, video and sound are combined using new media tools to explore the possibilities of new media art. Course content is applicable to the fields of 3-D animation, film and television title sequences, commercials, multimedia design and music videos. [Spring offering] *1 lecture / 4 studio hours*

DMA 225 **2D Animation** **3 credits**
Prerequisites: DMA 135 with a minimum C grade or divisional permission
Using 3-D animation software and video interface, students produce special effects and character animations from storyboard to output. Windows-based personal computers and current professional software are used. [Fall offering] *1 lecture / 4 studio hours*

DMA 226 **3D Animation** **3 credits**
Prerequisites: DMA 120 and DMA 135 with a minimum C grade or divisional permission
Advanced 3-D character animation and special effects involving character animation, inverse kinematics, and particle systems. Students produce a recording of their work and develop presentation skills. Windows-based personal computers and current professional software are used. [Spring offering] *1 lecture / 4 studio hours*

DMA 245 **Web Design II** **3 credits**
Prerequisite: DMA 145 with a minimum C grade
Applies intermediate to advanced web design concepts with an emphasis on UI Design. Students design and develop websites utilizing professional software, identify target audiences based on client needs, produce websites according to accessibility standards, manage digital assets online, build website components, and work in a team-based environment. *1 lecture / 4 studio hours*

DMA 250 **Digital Portfolio Seminar** **3 credits**
Prerequisite: DMA 145 (for web) or DMA 210 (for multimedia) or DMA 225 (for 3D animation) or ADV 201 or ART 130 or ART 141 or PHO 203 or CMN 241 or CMN 250 with a minimum C grade or divisional permission
Introduction to the culture, technologies, history, and theories of new media. Advanced digital media arts students explore topics in digital media while developing a digital portfolio to present their work.
1 lecture / 4 studio hours

DMA 275 **Interdisciplinary Studio** **3 credits**
Prerequisite: DMA 210 with a minimum C grade or divisional permission
Students explore the possibilities and implications of combining digital and traditional tools and techniques in the service of personal expression as fine art. Focuses on exploring each individual's aesthetic expression and the development of individual style. A variety of techniques, software, and theoretical issues are presented. Students are expected to create a series of pieces for exhibition, with emphasis on the printed output. [occasional offering] *1 lecture / 4 studio hours*

DMA 290 **Digital Media Arts Internship** **3 credits**
Prerequisite: coordinator approval
Work experience at participating animation studios, advertising agencies, design firms, and film and video effects houses. *1 lecture / 180 work experience hours*

DRA — DRAFTING / COMPUTER-AIDED DESIGN

DRA 132 **Architectural Computer Drafting** **3 credits**
Prerequisites: BCT 110, BCT 120, DRA 190 or divisional permission
Using architectural software, students produce professional drawings; compile contract documents; and date, store and retrieve information on both two- and three-dimensional projects. Involves creation of walls, doors, windows and roofs as well as implementation of symbols for structural, electrical, mechanical, plumbing, furnishing, and site work. *2 lecture / 2 laboratory hours*

DRA 190 **Introduction to Computer-Aided Drafting** **2 credits**
Introduction to the use of the computer as a drafting tool. Includes concepts, terminology, and basic commands necessary to prepare drawings using CAD software. Requires basic knowledge of the computer keyboard. *1 lecture / 2 laboratory hours*

DRA 191 **Introduction to Building Information Modeling** **2 credits**
Introduction to the use of the computer using building information modeling software. Topics include basic terminology and concepts of modeling, geometry, and the basic commands necessary to prepare a building model and several drawings. *1 lecture / 2 laboratory hours*

DRA 216 **Heating, Refrigeration and Air Conditioning Drafting** **3 credits**
Prerequisites: ENT 116 or permission of instructor, HRA 102
Study of the aspects of drawing needed by a drafter in order to prepare finished drawings for the installation of heating, refrigeration, and air conditioning systems. Intended primarily for students in the Heating, Refrigeration and Air Conditioning program. [occasional offering] *1 lecture / 4 laboratory hours*

DRA 218 **3-D Modeling / 3-D Printing** **3 credits**
Prerequisite: MET 122 or advisor permission
An introduction to 3-D solids modeling and printing software. Students build a prototype model using SolidWorks software and print a 3-D model to explore the basic size and look of a product or machine part. Orthographic drawings with dimensions are also produced for part building using traditional machining techniques. *2 lecture / 2 laboratory hours*

DRA 238 **Advanced Computer-Aided Design** **3 credits**
Prerequisite: DRA 190
Advanced computer drafting course using CAD software. Includes a review of basic command options, display options, hatching and sectioning, text, and dimensioning. Introduces 3-D drawing and surface modeling. *2 lecture / 2 laboratory hours*

DRA 248 **Advanced Building Information Modeling** **3 credits**
Prerequisite: DRA 191 with a minimum C grade
Advanced computer-aided design and drafting using BIM software. Students build intelligent 3-D models of designs using parametric, feature-based modeling software. After refinement, 2-D drawings are created from the 3-D model. *2 lecture / 2 laboratory hours*

DRA 251 **Solids Modeling** **3 credits**
Prerequisite: DRA 238 with a minimum C grade
An introduction to solids modeling and rendering software. Students explore the capabilities and potentials of computer software used to construct solids models then render the resulting image.
2 lecture / 2 laboratory hours

ECO — ECONOMICS

GenEd *Social Science*
ECO 103 **Basic Economics** **3 credits**
Prerequisites: ENG 101 and MAT 037 (or MAT 037A and 037B)
with a minimum C grade or placement in college-level mathematics
Basic economics concepts enable students to better understand, analyze, and discuss current economic events and problems. Includes demand, supply and prices, measures of gross domestic product, the circular flow of income, market structures, government fiscal policy, monetary policy, the national banking system, and international trade. *3 lecture hours*

GenEd *Social Science*
ECO 111 **Macroeconomics** **3 credits**
Prerequisites: ENG 101 and MAT 146
Analysis of the determinants of aggregate income, output, employment and price level under various market conditions. Includes national income and product account, consumption and investment theory, government stabilization via fiscal and monetary policy, macroeconomic impact of international trade and finance, and inflation/unemployment trade-off controversies. *3 lecture hours*

GenEd *Social Science*
ECO 112 **Microeconomics** **3 credits**
Prerequisites: ENG 101 and MAT 146
Introduction to economic principles and their application to major issues of public policy: concepts of supply and demand, nature and operation of market structures, analysis of costs and revenues, theory of production, selected problems of public policy in relation to agriculture, antitrust policy, labor relations and microeconomic aspects of world trade. *3 lecture hours*

EDU — EDUCATION

EDU 102 **Introduction to Exceptional Children** **3 credits**
Introduction to the field of special education and to exceptionality. Inclusion, an approach to teaching students with special needs in general education, is emphasized. Topics include historical overview, legislation, consideration of specific disabilities, instructional techniques and equipment, as well as teaching gifted students and non-native speakers. *3 lecture hours*

EDU 109 **Introduction to Education:**
Foundations, History, and Trends of American Education **3 credits**
Introduction to American education and the teaching/learning process for future educators. Topics include history and philosophy of education, curriculum, teaching strategies, school law, diversity, technology and recent trends. Students are involved in creative activities, research, and analysis of current literature. Requires 25 hours of field observation in an educational setting. *3 lecture hours*

EDU 120 **Introduction to Early Childhood Education** **3 credits**
Emphasizes the needs of young children in conjunction with appropriate care and educational programs. Topics include environment, developmentally appropriate practices, emerging literacy, cognitive development, learning through play, and school/home relationships. Observation and/or participation in a childcare setting are required. *3 lecture hours*

EDU 130 **Infant/Toddler Social and Emotional Well-Being** **3 credits**
Designed for students interested in a career in a childcare or nursery school environment. A component of the New Jersey Infant/Toddler Credential, the course supports practitioners working with infants and toddlers to strengthen their capacity as caregivers of the very young. *3 lecture hours*

EDU 131 **Supervised Field Experience in Infant/Toddler Settings** **3 credits**
Prerequisite or Corequisite: EDU 130
A companion course to EDU 130, designed for students interested in a career in a childcare or nursery school environment. Student field experiences critically evaluated by both students and teachers serve as a forum for discussion. A component of the New Jersey Infant/Toddler Credential, the course supports practitioners working with infants and toddlers to strengthen their capacity as caregivers of the very young.
2 lecture / 60 practicum hours

EDU 210 **Education Field Experience** **6 credits**
Prerequisites: minimum C grade in EDU 109 and SOC 104,
or minimum C grade in EDU 102 and EDU 201, and divisional permission
Corequisite: EDU 211
Internship of 15-20 hours per week in a New Jersey school approved by the coordinator of the Education / Special Education Assistant program. The student performs the duties of an education assistant under the supervision of cooperating teachers. Assignments to schools are made on the basis of the student's interests and occupational goals; arrangements must be made during the preceding semester. [Spring offering]
4 days per week

EDU 211 **Education Seminar** **3 credits**
Prerequisites: minimum C grade in EDU 109 and SOC 104,
or minimum C grade in EDU 102 and EDU 201, or divisional permission
Corequisite: EDU 210
Examines the correlation between educational theory and practice. Students engage in research with professional journals, demonstration classes illustrating varied methods and materials, teaching units, and observation visits to area schools. [Spring offering] *3 lecture hours*

EDU 214 **Curriculum and Methods for Early Childhood** **3 credits**
Prerequisite: EDU 120
Exposes students to a variety of methods for the planning and implementation of quality instruction in an early childhood setting. Students study strategies for creating positive learning environments while developing curricula for various subjects and learning styles. *3 lecture hours*

EET — ELECTRONICS ENGINEERING TECHNOLOGY

EET 130 **Fundamentals of Electronics** **3 credits**
Prerequisite or Corequisite: MAT 037 (or MAT 037A and 037B)
Introduction to DC and AC circuits, electromagnetic devices, electronic components, and analog and digital circuits. For non-electronics majors. *2 lecture / 2 laboratory hours*

EET 138 **Introduction to Electronics I** **4 credits**
Prerequisite or Corequisite: MAT 038 or MAT 044
Focuses on direct current (DC) devices and circuits. Progresses from the fundamentals of electricity, Ohm's Law, Kirchoff's Law, series and parallel circuits to the study of resistors, capacitors, inductors, batteries, transistors, and diodes as they pertain to DC circuits. *3 lecture / 3 laboratory hours*

EET 139 **Introduction to Electronics II** **4 credits**
Prerequisite: EET 138 or equivalent
Continuation of EET 138. Covers the basics of AC circuits and devices including resistors, capacitors, inductors and semiconductors. Introduces fundamental waveforms such as sine waves and pulses and their behavior in solid state circuits. *3 lecture / 3 laboratory hours*

EET 140 **Electronic Construction** **2 credits**
Teaches the use of hand tools, drilling and other metalworking methods as well as correct soldering and repair techniques. Students apply these skills to chassis construction and wiring, and also gain experience in working with printed circuit boards. *1 lecture / 3 laboratory hours*

EET 145 **Fiber Optics** **3 credits**
Prerequisites: EET 130 or EET 138; MAT 038
A study of fiber optics as it pertains to the communications process. Topics include the physics and behavior of light in a fiber. Skills learned include connectorization of fiber and the use of the special tools and test equipment required. Successful completion of this course can lead to FOA certification.
2 lecture / 3 laboratory hours

EET 214 **Communications Electronics** **4 credits**
Prerequisite: EET 219
Study of information transmission and reception involving both digital and analog systems. Topics include AM, FM, noise, spectra, receivers, transmitters, lines and cables, and antennas. *3 lecture / 3 laboratory hours*

EET 219 **Electronic Networks** **4 credits**
Prerequisite: EET 139 or EET 144
Analysis and design considerations for electronic circuits, including power supplies using semiconductor diodes and zener diodes, and Class A amplifiers using bipolar and FET transistors.
3 lecture / 3 laboratory hours

EET 230 **Linear Integrated Circuits** **4 credits**
Prerequisite: EET 219 or EET 131
Covers the basic building blocks of linear systems, such as inverting and non-inverting amplifiers, comparators, and filters. *3 lecture / 3 laboratory hours*

EET 251 **Digital Circuit Fundamentals** **4 credits**
Prerequisite: EET 130 or EET 139 or EET 144
Introduces the basic theory, concepts and devices behind digital circuitry and computers, including gates, registers, flip-flops, counters, decoders and encoders, half- and full-adders, and clocks. The electrical characteristics, limitations, and connections of digital integrated circuit packages are explored. Corresponding labs reinforce lecture materials through practical examples. *3 lecture / 3 laboratory hours*

EET 263 **Digital Technology – Introduction to Microprocessors and Assembly Language** **4 credits**
Prerequisite: EET 251
Introduces the operation of a simple computer at the physical (electrical) level using gates, registers, and other basic circuits introduced in the prerequisite course. Students gain experience building and programming a simple computer. Covers memory, basic microprocessor architecture, assembly language programming, and analog-to-digital as well as digital-to-analog converters. *3 lecture / 3 laboratory hours*

EET 266 **Programmable Logic Controllers** **4 credits**
Prerequisite: EET 251
Introduces the theory and practical concepts of programmable logic controllers and their applications within industrial or manufacturing environments. Topics include PLC components, digital logic, ladder logic design, and software programming. Corresponding labs reinforce lectures with practical hands-on programming of Allen-Bradley PLC units using RSLogix software. *3 lecture / 3 laboratory hours*

ENG — ENGLISH

Note: Initial selection of an English composition course is determined by results of college skills placement testing. Applicability of credits for courses below the 100 level toward degree requirements is limited. Consult an academic advisor.

ENG 023 **Introduction to College Composition I** **4 credits**
First-level developmental course designed to help students write 400- to 650-word essays on topics in various academic disciplines. Students are guided in developing a writing process that improves essay development, coherence, grammar, and punctuation. Prepares students for Introduction to College Composition II, a second-level foundation course. *4 lecture hours*

ENG 024 **Introduction to College Composition II** **4 credits**
Prerequisite: ENG 023 or placement test
Second-level developmental course. Students write 400- to 750 word essays about concepts in various academic disciplines. Focus is on developing a writing process that helps student writers to form positions and analyze and evaluate their own and other writers' ideas. Students also improve their sentence and essay structure, tone, and overall coherence. *4 lecture hours*

ENG 033 **Introduction to College Reading I** **4 credits**
Prerequisite: placement test
Designed to provide access to collegiate study through engaging students as readers and thinkers while drawing on and integrating their individual life experiences. Students read, respond to, and think critically about readings, using literacy approaches that help them grow as readers and thinkers during the semester and beyond. *4 lecture hours*

ENG 034 **Introduction to College Reading II** **4 credits**
Prerequisite: ENG 033 or placement test
Designed to foster student engagement with complex ideas from college-level texts and other media. Students critically read, analyze, and synthesize readings from across academic disciplines, and problem-solve when course material allows, using literacy approaches that help them grow as readers and thinkers during the semester and beyond. *4 lecture hours*

GenEd *Communication*
ENG 101 **English Composition I** **3 credits**
Prerequisite: placement test or minimum C grade in ENG 024 and ENG 034
College-level composition course designed to assist students in writing 750- to 1500-word essays on topics in various academic disciplines. Focuses on development and support of ideas, essay structure, critical thinking, analysis of readings, and other aspects of writing. Students are introduced to research techniques and documentation. *2 lecture / 2 lab*

GenEd *Communication*
ENG 102 **English Composition II** **3 credits**
Prerequisite: ENG 101 with a minimum C grade
Second-level composition course designed to assist students in writing 1500- to 3000-word essays, including a formally documented research paper. Readings introduce students to literature and the analysis of concepts, language, and formal elements. *3 lecture hours*

GenEd *Communication*
ENG 112 **English Composition II with Speech** **3 credits**
Prerequisite: ENG 101 with a minimum C grade
A variation on standard ENG 102, differing with its focus on the interpretation, analysis and creation of a broad spectrum of workplace documents rather than on literature. Construction of a lengthy, well-supported research paper and accompanying PowerPoint presentation is central. Speech component is fulfilled through multiple in-class presentations. *3 lecture hours*

GenEd *Humanities*
ENG 201 **Introduction to Literature: Drama** **3 credits**
Prerequisite: minimum C grade in ENG 102 or divisional permission
Examines the evolution of staged presentations from religious ritual to secular theater, covering works from the classical Greek period to the present day. Focuses on Elizabethan theater, Restoration comedy, 19th century realism, and contemporary theater. [Spring offering - alternate semesters] *3 lecture hours*

GenEd *Humanities*
ENG 202 **Introduction to Literature: Novel** **3 credits**
Prerequisite: minimum C grade in ENG 102 or divisional permission
Study of novels from various periods selected for their intrinsic value and as representative types of fiction. [Spring offering] *3 lecture hours*

GenEd *Humanities / Diversity and Global Perspective*
ENG 203 **World Literature I** **3 credits**
Prerequisite: minimum C grade in ENG 102 or divisional permission
A survey of important literary works from cultures around the world dating from ancient times through the 17th century. [Fall offering] *3 lecture hours*

GenEd *Humanities / Diversity and Global Perspective*
ENG 204 **World Literature II** **3 credits**
Prerequisite: minimum C grade in ENG 102 or divisional permission
A survey of important literary works from cultures around the world from the 17th century through the present day. [Spring offering] *3 lecture hours*

GenEd *Humanities*
ENG 205 **American Literature I** **3 credits**
Prerequisite: minimum C grade in ENG 102 or divisional permission
Introduction to and selective study of authors representing the enduring traditions and styles of American literature from the Puritan period through the Civil War. [Fall offering] *3 lecture hours*

GenEd *Humanities*
ENG 206 **American Literature II** **3 credits**
Prerequisite: minimum C grade in ENG 102 or divisional permission
Survey of American literature from 1865 to the present, including authors whose work represents the traditions and styles of American literature. Short stories, novels, poetry, and essays cover topics such as regionalism, realism, naturalism, modernism, and postmodernism. [Spring offering] *3 lecture hours*

GenEd *Humanities*
ENG 208 **Modern American Novel** **3 credits**
Prerequisite: minimum C grade in ENG 102 or divisional permission
Traces the triumph of prose Realism over Naturalism and the recurrent forms and techniques of the contemporary novel in the American idiom. Emphasizes the novel as the dominant modern American literary art form, as a social document, and as a portrait of time and place. [Fall offering] *3 lecture hours*

GenEd *Humanities*
ENG 211 **Shakespeare** **3 credits**
Prerequisite: minimum C grade in ENG 102 or divisional permission
A survey of Shakespeare's tragedies, comedies, and histories – a body of work whose characters, themes, and language influence and permeate literature worldwide, and is essential to cultural literacy. [occasional offering] *3 lecture hours*

GenEd *Humanities*

ENG 212 **Introduction to Literature: Poetry** **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Explores poetry as imagery, figurative language, allusion, tone, rhythm, meter, rhyme and stanza form. Students read major English and American poetry as well as verse from a variety of cultures to provide background for reading poems more incisively. [Fall offering - alternate semesters] *3 lecture hours*

GenEd *Humanities / Diversity and Global Perspective*

ENG 213 **African American Literature** **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Survey class focusing on the critical evaluation of literature by writers of the African Diaspora produced in the Americas from the 18th century to the present and the contexts in which they were produced. Genres studied may include fiction, nonfiction, poetry, drama, and autobiography. [Spring offering] *3 lecture hours*

GenEd *Humanities / Diversity and Global Perspective*

ENG 214 **Literature of the East** **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Survey of rich, diverse, non-Western creative and philosophical traditions influencing literary expression in a wide variety of genres, including regional and diasporic literature spanning the world. Covers classical era texts to experimental literary forms coming from the East and Middle East today. *3 lecture hours*

ENG 215 **Creative Writing I** **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Develops writing skills in various genres, such as fiction, poetry, and essay. Recognized models in literary modes are analyzed for craftsmanship. Through workshop framework, students benefit from peer and instructor criticism and are encouraged to find individual voice under instructor guidance. [not a Literature elective] *3 lecture hours*

GenEd *Humanities*

ENG 216 **Literature Into Film** **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Focuses on the marriage of two art forms – literature and film – and pays particular attention to how the medium affects the writer and the writer the medium. Examines selected novels, short stories, plays, essays and/or memoirs as original works and as each evolves into film. [Fall and Spring offering] *3 lecture hours*

ENG 218 **Creative Writing II** **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Promotes continuing development of creative writing skills; analyzes recognized models by major modern writers. Through workshop framework, peers and instructor critique student work. Students are encouraged to hone their writing voices under instructor guidance. [not a Literature elective] *3 lecture hours*

GenEd *Humanities*

ENG 220 **Science Fiction Literature** **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Explores science fiction through a study of genre elements and the challenges these genres present. By examining a diverse selection of speculative literature, participants better appreciate and interpret such works and how they both reflect and change our culture. [Spring offering] *3 lecture hours*

GenEd *Humanities / Diversity and Global Perspective*

ENG 221 **Women in Literature** **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

A discussion-based course that explores literature by women writers. Texts cover a variety of authors and genres as well as themes, issues and theories concerning the production of gender in literary works. Further develops the literary analysis and academic writing skills acquired in ENG 102. [Fall offering] *3 lecture hours*

GenEd *Diversity and Global Perspective*

ENG 222 Children's Literature **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Survey class focusing on the critical evaluation of literature written for children and the contexts in which they were produced. Works studied may include folk tales, traditional fairytales, picturebooks, canonized fiction, poetry, and contemporary works. [Fall and Spring offering] *3 lecture hours*

ENG 223 LGBTQ+ Literature **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Introduction to LGBTQ+ authors, literature, and theory, including various genres, themes, and social and historical contexts of the queer literary tradition. Students examine how texts construct, challenge, and negotiate concepts such as queerness, gender, sexuality, power, privilege, visibility, and public and private identities. *3 lecture hours*

GenEd *Humanities*

ENG 227 English Literature I **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Survey of representative literature from the Anglo-Saxon and Middle English periods through the Neoclassical period. Particular attention to the works of Chaucer, Shakespeare, Milton, Donne, Dryden and Pope. Examines literary, social, cultural, and political movements as writers grappled with empire, religion, science, war, gender, sexuality, race, and class. [Fall offering - alternate semesters] *3 lecture hours*

GenEd *Humanities*

ENG 228 English Literature II **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Survey of representative English literature from the Romantic and Victorian periods up to the present. [Spring offering - alternate semesters] *3 lecture hours*

ENG 230 Special Studies in Literature **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Consists of special courses in literature which cater to needs expressed by the student and the broader general community. Taking advantage of particular faculty expertise, the course is offered on an occasional basis. *3 lecture hours*

GenEd *Diversity and Global Perspective*

ENG 232 Post-Colonial Women Writers **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Examines works written in English by women of color in Asia, Africa, the Americas, and Australia. Explores contributions of the writer to the body of modern world literature – poetry, fiction, drama – along with aspects of the writers' politics and the social milieus that form their work. [occasional offering]
3 lecture hours

GenEd *Diversity and Global Perspective*

ENG 234 Caribbean Literature **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Survey of Caribbean literature in English from the 17th century to present. Examines how Caribbean writers have imagined and articulated freedom, subjectivity and history against and beyond colonialism and its legacies. Investigates how colonialism, post-colonialism, and the lived experiences of Caribbean people have shaped literature across multiple genres. *3 lecture hours*

ENG 239 Literature of War and Conflict **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Surveys literary responses to war and conflict with particular focus on the psychological effects of warfare. Examines multiple genres, cultures, eras, and viewpoints, but primary focus may rest on a particular era or conflict. May include texts by Homer, Sun Tzu, Stephen Ambrose, Oppenheimer, Hemingway, Tim O'Brien, and Elie Wiesel. [occasional offering] *3 lecture hours*

ENG 256 **Fantasy Literature** **3 credits**

Prerequisite: minimum C grade in ENG 102 or divisional permission

Explores fantasy literature through a study of genre elements and the challenge this genre presents to readers of mainstream literature. By examining works written in and translated to English, participants better appreciate and interpret such works and how they represent an increasingly important sub-section of literary expression. [Fall offering] *3 lecture hours*

ENT — ENGINEERING TECHNOLOGY

ENT 116 **Engineering Graphics** **2 credits**

Corequisites: ENG 033 and MAT 033 or equivalent proficiency

Broad-based course in basic graphic concepts of engineering drawing, including such topics as orthographic projection, sectioning, isometric drawing, and dimensioning. *1 lecture / 2 laboratory hours*

ESL — ENGLISH AS A SECOND LANGUAGE

Note: Initial selection of an ESL course is determined by results of ESL placement testing.

ESL 051 **ESL Speech Concepts I** **4 credits**

Prerequisite: score of 55-69 on Listening section of Accuplacer test

Develops listening and speaking competency in English. Stresses spontaneous spoken English to develop comprehensibility and fluency. New vocabulary and grammar are acquired and practiced in meaningful contexts. Reading, writing, and the study of vocabulary and grammar are assigned outside of class to facilitate fluent listening and speaking during class meetings. *4 lecture hours*

ESL 052 **ESL Reading and Critical Thinking I** **4 credits**

Prerequisite: score of 60-74 on Reading section of Accuplacer test

Provides guided reading, critical analysis, and interpretation of a variety of academic texts in English for the high-beginner level student. New vocabulary and grammar acquired from reading meaningful texts. Practice of language elements and structures assigned outside of class to facilitate analysis and interpretation of texts during class meetings. *4 lecture hours*

ESL 053 **ESL Writing Concepts I** **4 credits**

Prerequisite: score of 1 on WritePlacer section of Accuplacer test

Develops academic writing in English. Guides critical analysis of academic texts in English. Supports the development of ideas and the effective structure of essays and a research paper. New vocabulary and grammar are acquired from reading meaningful texts and practiced through meaningful original writing. *4 lecture hours*

– –

ESL 061 **ESL Speech Concepts II** **4 credits**

Prerequisite: ESL 051 or score of 70-84 on Listening section of Accuplacer test

Develops listening and speaking competency in English. Stresses spontaneous spoken English to develop comprehensibility and fluency. New vocabulary and grammar are acquired and practiced in meaningful contexts. Reading, writing, and the study of vocabulary and grammar are assigned outside of class to facilitate fluent listening and speaking during class meetings. *4 lecture hours*

ESL 062 **ESL Reading and Critical Thinking II** **4 credits**

Prerequisite: ESL 052 or score of 75-94 on Reading section of Accuplacer test

Provides guided reading, critical analysis, and interpretation of a variety of academic texts in English for the high-beginner level student. New vocabulary and grammar acquired from reading meaningful texts. Practice of language elements and structures assigned outside of class to facilitate analysis and interpretation of texts during class meetings. *4 lecture hours*

ESL 063 **ESL Writing Concepts II** **4 credits**
Prerequisite: ESL 053 or score of 2 on WritePlacer section of Accuplacer test
Develops academic writing in English. Guides critical analysis of academic texts in English. Supports the development of ideas and the effective structure of essays and a research paper. New vocabulary and grammar are acquired from reading meaningful texts and practiced through meaningful original writing. *4 lecture hours*

ESL 071 **ESL Speech Concepts III** **4 credits**
Prerequisite: ESL 061 or score of 85-100 on Listening section of Accuplacer test
Develops listening and speaking competency in English. Stresses spontaneous spoken English to develop comprehensibility and fluency. New vocabulary and grammar are acquired and practiced in meaningful contexts. Reading, writing, and the study of vocabulary and grammar are assigned outside of class to facilitate fluent listening and speaking during class meetings. *4 lecture hours*

ESL 072 **ESL Reading and Critical Thinking III** **4 credits**
Prerequisite: ESL 062 or score of 95-111 on Reading section of Accuplacer test
Provides guided reading, critical analysis, and interpretation of a variety of academic texts in English for the high-beginner level student. New vocabulary and grammar acquired from reading meaningful texts. Practice of language elements and structures assigned outside of class to facilitate analysis and interpretation of texts during class meetings. *4 lecture hours*

ESL 073 **ESL Writing Concepts III** **4 credits**
Prerequisite: ESL 063 or score of 3-4 on WritePlacer section of Accuplacer test
Develops academic writing in English. Guides critical analysis of academic texts in English. Supports the development of ideas and the effective structure of essays and a research paper. New vocabulary and grammar are acquired from reading meaningful texts and practiced through meaningful original writing. *4 lecture hours*

ETT — ENTERTAINMENT TECHNOLOGY

ETT 102 **Introduction to the Entertainment Industry** **3 credits**
Prerequisite: eligibility for placement in ENG 101
An introduction to terminology, working methods, processes, equipment, and facilities for various entertainment industry venues with a particular emphasis on theatre and music technology and production. Laboratory work includes an introduction to various lighting programs and digital audio production software. Related current events and career opportunities are discussed. Attendance at several applicable events is required. *2 lecture / 2 laboratory hours*

ETT 200 **Technical Production** **1 credit**
Prerequisites: ETT 102, THR 102, and prior advisor approval
Supervised laboratory in the technical areas of production including planning, construction, and running of productions. Emphasizes careful pre-planning and appropriate safety procedures along with follow-up critiques and evaluation of the work done. Graded on pass-fail basis. *90 hours minimum*

ETT 205 **Arts and Entertainment Management** **3 credits**
Prerequisite: ETT 102 with a minimum C grade
An introduction to common issues and best practices in the management of arts and entertainment organizations. Students gain a basic understanding of business requirements and challenges in producing entertainment. Topics include common management structures in not-for-profit and for-profit arts and entertainment organizations, marketing, public relations, fundraising, budgeting, and human resources. Legal concerns addressed include contracts, copyright, licensing, and royalties. *3 lecture hours*

ETT 290 **Entertainment Technology Internship** **2 credits**

Prerequisites: ETT 200 and prior advisor approval

Work experience at a professional scenery fabrication shop, rental/supply house, off-Broadway theater, or any entertainment-related organization. Serves to bridge the student's academic and commercial careers by cultivating professional work experience and industry contacts. Each student, supervised by faculty and a manager at the internship site, creates a portfolio and keeps a log/journal to be shared in group seminars. Graded on pass-fail basis. 1 class hour every other week. *190 internship hours*

FAS — FASHION

FAS 105 **Fashion: The Global Marketplace** **3 credits**

Prerequisite: placement in college-level English

An overview of the fashion industry beginning with a historical perspective that covers both domestic and international influences. Integrates creative fashion concepts with business concepts commonly used in general marketing. Topics include international sourcing and trade, and retailing. *3 lecture hours*

FAS 110 **Introduction to Fashion Drawing** **3 credits**

Prerequisite: ART 102

Coordinated with Fashion Design I, develops techniques, skills, and knowledge needed to produce fashion drawings that are clear, accurate, realistic and attractive. Vocabulary of various clothing styles and details are introduced. *1 lecture / 4 laboratory hours*

FAS 120 **Introduction to Fashion Industries** **3 credits**

Corequisite: FAS 130

Foundational course introducing the fashion design, merchandising, and retail industries from concept to consumer. Industry terminology and standard practices are explored along with career opportunities. Toward immediate employment, students study for the NRF Retail Industry Fundamentals Certification, participate in practice tests, and pursue the certificate option. *1 lecture / 4 laboratory hours*

FAS 130 **Introduction to Textiles for Fashion** **3 credits**

Prerequisite or Corequisite: ENG 101

Explores how textiles are produced and how appropriate performance characteristics are incorporated into materials and products. Students make informed decisions regarding materials and products to communicate effectively with team members in the workplace, suppliers, contractors and buyers. Careers in the global textile industry are discussed. *3 lecture hours*

FAS 140 **Fashion Technology** **3 credits**

Corequisite: FAS 110

Covers two computer software applications used in the fashion design industry to design and create apparel and accessories. Projects explore a range of fashion designing and related drawings in both vector and pixel-based applications. *1 lecture / 4 laboratory hours*

FAS 150 **Technical Skills for Apparel Production I** **3 credits**

Introduces muslin draping techniques on the dress form, flat pattern making, and garment construction on the sewing machine. Based on the scope of a student's project or level of study, additional costs for materials and supplies are required. *1 lecture / 4 laboratory hours*

FAS 205 **Fashion Visual Merchandising and Display** **3 credits**

Prerequisites: BUS 101, ENG 101, MKT 101, MKT 230

An integrated and customer-centered approach to merchandising. Covers strategic planning, product objectives and categories, industry zones, and product life cycles. Topics include pricing, positioning, placement, market research, environments, demographics, geographics, and psychographics. Emphasizes fashion forecasting with the buying-selling cycle for retail buyers. *3 lecture hours*

FAS 220 **History of Costume Design** **3 credits**
Prerequisite: FAS 105
Comprehensive overview of fashion history and its development as a globalized industry. A survey of chronological geographic and cultural trends that have influenced modern fashion addresses men's and women's clothing and accessories. *3 lecture hours*

FAS 230 **Fundamentals of Fashion Retail Buying and Merchandising** **3 credits**
Prerequisites: FAS 105, FAS 205
Covers methods of analyzing customer demand, assisting retailers with merchandising activities, product sourcing, logistics related to importing, and techniques to maximize profits. Students produce reports to evaluate sales and profitability performance as well as management strategies. *3 lecture hours*

FAS 250 **Technical Skills for Apparel Production II** **3 credits**
Advanced sewing/draping skills are developed to produce finished garments from individually designed fashion and apparel pieces. Based on the scope of a student's project or level of study, additional costs for materials and supplies are required. *1 lecture / 4 laboratory hours*

FAS 260 **Fashion Industries Capstone and Portfolio** **3 credits**
Prerequisites: FAS 110, FAS 120
Enables students to finalize an original, professional portfolio showcasing individual abilities and skills. Students select a target market as well as a product focus which best display their proficiencies and prepare them for further study or careers in the fashion industry. *1 lecture / 4 laboratory hours*

FIR — FIRE SCIENCE

FIR 101 **Introduction to Fire Science** **3 credits**
History and philosophy of fire protection and prevention involves a survey of equipment, tactics, building construction, extinguishing agents, hazardous materials, and fire department organization. *3 lecture hours*

FIR 104 **Building Construction** **3 credits**
Examination of building design and construction with emphasis on fire protection and life safety. Review of pertinent standards and codes. *3 lecture hours*

FIR 110 **Fire Prevention and Code Enforcement I** **7 credits**
Acquaints with the history, theory, and practice of fire prevention and code enforcement. Topics include relevant codes, recognition of fire hazards, and implementation of an inspection program. Meets the 104-hour requirement for eligibility to take the national ICC Fire Inspector I examination. Successfully passing leads to New Jersey Division of Fire Safety Fire Inspector certification. *6 lecture / 2 laboratory hours*

FIR 201 **Hazardous Materials** **3 credits**
Prerequisite: CHE 100 or equivalent background
Study of basic fire chemistry relating to the categories of hazardous materials including problems of recognition, reactivity, and health encountered by firefighters. *3 lecture hours*

FIR 202 **Water Supply for Fire Protection** **3 credits**
Explores water supply storage and distribution as well as efficient use of water at the fire scene.
3 lecture hours

FIR 203 **Fire Protection Systems** **3 credits**
Study of various automatic detection and signaling devices and systems, automatic sprinklers, standpipes, and special extinguishing installations. *3 lecture hours*

FIR 204 **Fire Fighting Tactics** **3 credits**
Examines pre-fire planning, fire ground organization and problem-solving, and proper utilization of manpower and equipment. *3 lecture hours*

FIR 205 **Fire Department Organization** **3 credits**
Study of the history, methods, types, and principles of fire department organization and management. Emphasizes supervisory responsibilities and functions. *3 lecture hours*

FIR 206 **Fire Investigation** **3 credits**
Provides the fundamental and technical knowledge needed for proper fire scene interpretations, including recognizing and conducting origin and cause, preservation of evidence and documentation, scene security, motives of the firesetter, and types of fire causes. *3 lecture hours*

FIR 208 **Fire Department Safety and Health Administration** **3 credits**
Develops an understanding of fire service safety and risk management programs including fire service requirements, compliance with OSHA regulations, national consensus standards, and NFPA 1500.
3 lecture hours

FIR 209 **Fire Prevention and Code Enforcement II** **3 credits**
Prerequisite: FIR 107
Examines duties of the fire official, legal aspects, and coordination with other governmental agencies. Topics include fire code administration, principles of personnel management, records management, variances, penalties, and enforcement procedures. Approved by the New Jersey Bureau of Fire Safety toward Fire Official certification pursuant to the Uniform Fire Safety Act. *3 lecture hours*

FIR 211 **Fire Investigation II** **3 credits**
Prerequisite: FIR 206
Provides advanced technical knowledge on rule of law, fire scene analysis, fire behavior, evidence collection and preservation, scene documentation, case preparation and courtroom testimony. *3 lecture hours*

FRE — FRENCH

Note: Students who have taken two or more years of a foreign language, and have done so in the last two years, should begin that language at the 200 level or switch to a new language. If there is doubt, placement will be determined by testing or consultation with the academic division.

GenEd *Humanities*
FRE 101 **Beginning French I** **3 credits**
For students with little or no prior knowledge of French. Spoken communication in French is the goal and means of instruction. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar and culture are introduced. *3 lecture hours*

GenEd *Humanities*
FRE 102 **Beginning French II** **3 credits**
For students who either completed FRE 101 or have otherwise gained elementary prior knowledge of French. Spoken communication in French is the goal and means of instruction. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar and culture are introduced. *3 lecture hours*

GenEd *Humanities*
FRE 201 **Intermediate French I** **3 credits**
For students who either completed FRE 102 or have otherwise acquired prior reading and speaking abilities in French at a high-novice level. Vocabulary and grammar applied to discussions on Francophone culture, politics, and history. New vocabulary and grammar introduced. French reading, writing, listening, and speaking are the means and goal of instruction. *3 lecture hours*

GenEd *Humanities*

FRE 202 **Intermediate French II** **3 credits**

Continuation of FRE 201; not strictly sequenced. For students who either completed FRE 102 or have otherwise acquired reading and speaking abilities in French at a high-novice level. Reading, writing, listening, and speaking are the means and goal of instruction. Vocabulary and grammar practiced on topics of culture, politics, and history. *3 lecture hours*

FUN — FUNERAL SERVICE

FUN 203 **Funeral Service Principles** **3 credits**

Prerequisites: ENG 101 and enrollment in Funeral Service Program

Introduction to the basic services performed by the funeral director from first call to final disposition. Includes religious practices, Veterans Administration and Social Security, transportation and funeral merchandise. Emphasizes vocabulary, ethical practices and professional attitudes. *3 lecture hours*

FUN 206 **Introduction to Funeral Service** **3 credits**

Prerequisites: ENG 101 and enrollment in Funeral Service Program

Focus on terminology, the impact of grief on society, the history of funeral service, and various professional organizations. Includes variations in funeral practices due to cultural differences, reactions to death, grief and bereavement, and the impact of family structures. *3 lecture hours*

FUN 215 **Funeral Service Law** **3 credits**

Prerequisites: BUS 107 and enrollment in Funeral Service Program

Basic principles of law impacting the funeral service profession, with emphasis on common law, New Jersey statutes, rules and regulations and FTC compliance. Includes cemetery law, burial standards, rights and wrongs concerning the body and burial, and zoning restrictions. *3 lecture hours*

FUN 217 **Funeral Service Management** **3 credits**

Prerequisites: ACC 106, FUN 203, FUN 215

Business and management practices pertinent to funeral service with emphasis on small business. Particular consideration to staff organization, employer/employee relations, funeral home budget, funeral service merchandising, insurance, price determination and quotation, advertising, OSHA, and applicable federal regulations. *3 lecture hours*

FUN 220 **Funeral Service Laws, Rules and Regulations** **1 credit**

Prerequisite: FUN 215 or permission of Director of Funeral Service Programs

Laws, rules and regulations that specifically influence funeral service practice in New Jersey. Covers general licensure and intern requirements, rules for operating a funeral home, embalming procedures, general and specific rules of practice, advertising and continuing education. Compares and contrasts practices in New Jersey and Pennsylvania. *1 lecture hour*

FUN 223 **Funeral Service Pathology** **3 credits**

Prerequisite: BIO 106 (or BIO 103 and BIO 104) or permission of Director of Funeral Service Programs

Survey of the major diseases, including pathological changes related to disease processes and the effects of physical and chemical trauma on the human body. Facilitates understanding of medical terminology relevant to funeral service. *3 lecture hours*

FUN 227 **Restorative Art** **3 credits**

Prerequisites: BIO 106 (or BIO 103 and BIO 104); FUN 247
or permission of Director of Funeral Service Programs

Examines facial anatomy including underlying structures and facial features, restoration, color and cosmetics. Lab work develops proficiency in anatomical modeling and the practical application of cosmetics.
2 lecture / 2 laboratory hours

FUN 229 **Funeral Service Counseling** **3 credits**

Prerequisites: FUN 206 and PSY 101 or permission of Director of Funeral Service Programs

Promotes an appreciation of care-giving roles in relation to grieving persons and addresses the background material, skills and procedures needed for helping situations. Situations requiring professional therapy are differentiated from those requiring referrals for more specialized counseling. *3 lecture hours*

FUN 247 **Principles of Embalming I** **3 credits**

Prerequisites: BIO 106 (or BIO 103 and BIO 104), ENG 101 and enrollment in Funeral Service Program

Includes review of historical background, ethical and sanitary considerations, signs and tests of death, postmortem changes and basic procedures, instruments and equipment employed in embalming with emphasis on procedures for handling infectious/contagious disease. *3 lecture hours*

FUN 249 **Principles of Embalming II** **2 credits**

Prerequisite: FUN 247 with a minimum C grade

Continuation of FUN 247. Topics include cavity treatment, types of embalming chemicals and their uses, causes of embalming failure, discolorations, vascular difficulties, decomposition, dehydration, edema, deformities and malformations, and radiation. *2 lecture hours*

FUN 251 **Embalming Lab and Practicum** **3 credits**

Prerequisites: permission of Director of Funeral Service Programs; students must be registered interns

Develops practical embalming skills, combining work experience in a funeral home (8-10 hours per week) and at the MCCC embalming facility with discussion of applications. Topics include OSHA, embalming procedures, embalming products, cavity treatment, infant embalming and special cases.
3 laboratory and/or discussion hours plus 112-140 hours of work experience

FUN 295 **Funeral Service Field Experience** **3 credits**

Prerequisites: approval from Director of Funeral Service Programs; students must be registered interns

Combines classroom discussion with 8-10 hours per week as an intern (or student-trainee) in an approved funeral home. Topics include death certificates, permits, vital statistics compliance, computer applications, Social Security and Veterans Administration paperwork, obituary writing, government compliance and other current issues. *2 hours seminar plus 112-140 hours of work experience*

FUN 299 **NBE Preparation** **1 credit**

Prerequisite or Corequisite: required Funeral Service courses

In preparation for the Funeral Service program capstone event, the National Board Examination (NBE), students review topics covered in the curriculum through classroom discussion and practice tests. Students must take the NBE in order to graduate from the Funeral Service program(s). *1 lecture / 1 studio hour*

GAM — GAME DESIGN

GAM 120 **Game Design Theory and Culture** **3 credits**

Students explore the historical and cultural significance of play through human history to include today's video game phenomenon by examining many game models across several genres. Conceptual and production processes involved in current industry game design and development are introduced, with particular emphasis on the design of creative models expressing gaming concepts. *1 lecture / 4 laboratory hours*

GAM 140 **Game Design I** **3 credits**

Prerequisite: ART 102 with a minimum C grade

Students develop fundamental skills designing computer games. Topics include environments, interfaces, rules, dynamics, play mechanics, goals, conflicts and aesthetics. Students learn to use standard industry level-building software and digital sculpting tools. Emphasis is placed on conceptual design of game play, interface, and the processes of 2-D and 3-D content creation. *1 lecture / 4 laboratory hours*

GAM 145 **Game Programming I** **3 credits**

Prerequisite: GAM 120

Analysis of an existing professional game engine contributes to an understanding of a game's architecture and development. Working within the limits of the game engine, students design their own programming projects, modifying the logic and engine to create custom game experiences. *2 lecture / 2 laboratory hours*

GAM 240 **Game Design II** **3 credits**

Prerequisite: DMA 120 with a minimum C grade

Emphasis on prototyping and level-building of game design concepts expands on the topics explored and skills developed in Game Programming I. Additional topics include content importing and configuration, mapping, lighting, physics, and scripted interaction. *1 lecture / 4 laboratory hours*

GAM 245 **Game Programming II** **3 credits**

Prerequisite: GAM 145

Builds upon the existing skills developed in GAM 145 - Game Programming I. Students expand their knowledge of the Unity3D Game Engine and C# programming language to learn higher-level programming techniques for topics such as quaternion computation, AI behaviors, pathfinding, networking, advanced collision detection, and task management for large-scale games. *1 lecture / 4 laboratory hours*

GAM 260 **Game Development** **3 credits**

Prerequisites: GAM 140 and GAM 240 with a minimum C grade

In this capstone course, students work in interdisciplinary production teams to develop computer games and modules utilizing industry-standard game engines. Coursework centers on producing scripted real-time modules, play testing, and documentation to specify game design concepts. *1 lecture / 4 laboratory hours*

GER — GERMAN

Note: Students who have taken two or more years of a foreign language, and have done so in the last two years, should begin that language at the 200 level or switch to a new language. If there is doubt, placement will be determined by testing or consultation with the academic division.

GenEd *Humanities*

GER 101 **Beginning German I** **3 credits**

Spoken communication in German is the goal and means of instruction. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar and culture are introduced. *3 lecture hours*

GenEd *Humanities*

GER 102 **Beginning German II** **3 credits**

For students who either completed GER 101 or have otherwise gained elementary prior knowledge of German. Spoken communication in German is the goal and means of instruction. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar and culture are introduced. *3 lecture hours*

GenEd *Humanities*

GER 201 **Intermediate German I** **3 credits**

For students who have either completed GER 102 or have otherwise acquired prior reading and speaking abilities in German at a high-novice level. Reading, writing, listening, and speaking are the means and goal of instruction. Vocabulary and grammar practiced on topics of culture, politics, and history. *3 lecture hours*

GenEd *Humanities*

GER 202 **Intermediate German II** **3 credits**

For students who have either completed GER 102 or have otherwise acquired prior reading and speaking abilities in German at a high-novice level. Reading, writing, listening, and speaking are the means and goal of instruction. Vocabulary and grammar practiced on topics of culture, politics, and history. *3 lecture hours*

HIS — HISTORY

GenEd *Humanities / Historical Perspective*
HIS 101 **History of Western Civilization to 1648** **3 credits**
[not recommended for students who have taken HIS 112] Introduction to the political, social, cultural, and economic events that distinguished Western civilization to 1648. Major topics include ancient Near Eastern civilizations, Greece and Rome, the Middle Ages, and the Renaissance and Reformation. Examination of highlight works, including literary and visual sources. *3 lecture hours*

GenEd *Humanities / Historical Perspective*
HIS 102 **History of Western Civilization Since 1648** **3 credits**
[not recommended for students who have taken HIS 113] Introduction to the political, social, cultural, and economic events that have distinguished Western civilization since 1648. Major topics include Absolutism, the Scientific Revolution, the Enlightenment, the French Revolution, Industrialization, Nationalism, World Wars I and II, and recent trends. Examination of highlight works, including literary and visual sources. *3 lecture hours*

GenEd *Humanities / Historical Perspective*
HIS 105 **United States History to 1865** **3 credits**
Surveys American history to 1865 with emphasis on general concepts and processes. Examines colonial settlement and society, revolution and nation building, the market revolution and Jacksonian democracy, gender, slavery, and the Civil War. *3 lecture hours*

GenEd *Humanities / Historical Perspective*
HIS 106 **United States History Since 1865** **3 credits**
Surveys American history since 1865 with emphasis on general concepts and processes. Examines Reconstruction, the Gilded Age, Progressivism, World Wars, the New Deal, the Cold War, civil rights, gender, social class, and 21st century issues. *3 lecture hours*

HIS 107 **The Civil War** **3 credits**
Examines slavery, sectionalism, the meaning of Union, racism, and the triumph of Industrial Capitalism. Assesses these issues from social, cultural, economic, and political perspectives to determine the causes, course, and effects of the American Civil War. *3 lecture hours*

GenEd *Humanities / Historical Perspective / Diversity and Global Perspective*
HIS 109 **African American History** **3 credits**
Studies the history of the African American from the beginnings in the 15th century to the present. Special emphasis on the investigation and analysis of the historic sources of the problems that African Americans confront in America today. *3 lecture hours*

HIS 110 **Film and History** **3 credits**
An analytical and topical study of 20th century American social, cultural, economic, and political history as represented in film. *3 lecture hours*

GenEd *Humanities / Historical Perspective / Diversity and Global Perspective*
HIS 112 **World History to 1500** **3 credits**
[not recommended for students who have taken HIS 101] Survey of world history from pre-history to 1500, examining the development of ancient societies in Asia, Europe, Africa, the Americas, and Oceania. Examines interactions among peoples of different societies including ancient Egypt and Nubia, India, classical Greece and Rome, the Islamic states, Han China, early Korea and Japan, and Andean and Mesoamerican societies. *3 lecture hours*

GenEd *Humanities / Historical Perspective / Diversity and Global Perspective*
HIS 113 **World History Since 1500** **3 credits**
[not recommended for students who have taken HIS 102] Survey of world history from 1500 to the present, examining the development of societies in Asia, Europe, Africa, the Americas, and Oceania. Charts the development of individual societies in the Modern Age by focusing on interactions among diverse cultures and the driving forces of changes such as industrialization/technology, nationalism and colonization/de-colonization. *3 lecture hours*

HIS 122 **American Sports History** **3 credits**
Examines sports' prominence in American life since the mid-19th century. Focuses on sports as a reflection of our social, political and economic make-up and on sports' ability to affect and shape our institutions. Particular attention is given to social class, race and ethnicity, gender, community, technology, and commercialization and the media. *3 lecture hours*

GenEd *Humanities / Historical Perspective / Diversity and Global Perspective*
HIS 213 **Twentieth-Century World History** **3 credits**
Corequisite: ENG 101
Study of world history from the age of imperialism through the modern era. Focuses on the World Wars, the Cold War, colonization and decolonization, political ideologies, genocides, gender, race and ethnicity, religion, class, technology, poverty, terrorism, cultural history, and other global issues. *3 lecture hours*

GenEd *Humanities / Historical Perspective*
HIS 214 **The United States Since 1945** **3 credits**
Intensive study of American history since World War II examines World War II, the Cold War at home and abroad, the Civil Rights movement, Vietnam, social upheavals and new forms of cultural expression during the 1960s, gender and class, technology, and 21st century issues. *3 lecture hours*

GenEd *Diversity and Global Perspective*
HIS 215 **The Holocaust and Other Genocides** **3 credits**
Prerequisite: HIS 102 or HIS 113 recommended
Analyzes the Holocaust and other genocides of the 20th and 21st centuries from an historical perspective. Specific topics include anti-Semitism in Europe, Nazism, the Final Solution, Armenian nationalism, the Khmer Rouge, and African genocides. Texts, testimonies, films, and other resources contribute to understanding events and responses. Particular attention is given to universal themes including prejudice, racism, evil, and moral responsibility. *3 lecture hours*

GenEd *Humanities / Historical Perspective / Diversity and Global Perspective*
HIS 218 **History of Latin America** **3 credits**
Survey of Latin America from pre-Columbian origins to current times. Topics include Indian civilizations, discovery and conquest, colonial rule, independence movements, as well as 19th century and current issues and events. *3 lecture hours*

HIS 220 **History of Daily Life in the Modern Western World** **3 credits**
Examines the continuities and changes in daily life among ordinary people from the 17th century to the present. Although seemingly powerless for much of this period, certain social categories such as peasants, slaves, poor workers, and women played significant roles in the development of the modern world. This course explores those roles by studying the social and cultural aspects of daily life as revealed through a variety of primary sources and secondary studies. *3 lecture hours*

GenEd *Humanities / Historical Perspective / Diversity and Global Perspective*
HIS 221 **History of American Women** **3 credits**
Studies the role and lives of outstanding women in selected historical periods, focusing on composite historical forces that shaped their lives. Current research in anthropology, psychology, and sociology supplements the historical content. [occasional offering] *3 lecture hours*

HIS 226 **History of New Jersey** **3 credits**
Surveys New Jersey history from the pre-colonial era to the present, with special emphasis on race, gender, ethnicity, social class, and the state's meaningful place in the larger story of American history. [occasional offering] *3 lecture hours*

GenEd *Humanities / Historical Perspective / Diversity and Global Perspective*
HIS 231 **Women in Antiquity** **3 credits**
Examines the legal, social, and cultural roles and status of women in the Ancient Near East, Egypt, Greece, and Rome through review of ancient literature, legal and economic texts, art, and archaeology, supplemented with scholarly commentaries. *3 lecture hours*

GenEd *Diversity and Global Perspective*
HIS 232 **Women in Europe Since 1500** **3 credits**
Examines, through a variety of sources, the history of women in Western society since 1500. Through close readings and critical discussion of literature, legal and economic texts, art, as well as scholarly commentary, a deeper appreciation of the legal, social, and cultural roles and status of women in Europe from the Reformation to the present is developed. While focusing mostly on the historical conditions of women, this course also explores the history of gender and sexuality. *3 lecture hours*

HIS 233 **Medieval European History** **3 credits**
Corequisite: ENG 101
Social, economic, technological, political, and religious history of Europe, the Middle East, and North Africa from the fall of the Roman Empire to the 1500s with particular attention given to Byzantium, the Muslim empires, the Crusades, and the origins of modern Europe by the early Renaissance. *3 lecture hours*

GenEd *Humanities / Historical Perspective*
HIS 235 **Early Modern Europe** **3 credits**
Corequisite: ENG 101
Introductory survey of European history between 1500 and 1800, including the Renaissance, Reformation, Scientific Revolution, Europe's encounters with non-European societies, and the development of absolutism. National developments are examined and placed in a broad, comparative context. Emphasis on primary sources to provide a deeper appreciation for events and people of the period. *3 lecture hours*

HOS — HOSPITALITY

HOS 100 **Hospitality Success Skills** **1 credit**
Introduces skills necessary to be successful in the hospitality program and the hospitality industry. Emphasizes career options and how to make the most of the educational experience through self management, internship opportunities, and effective study habits. Additional topics include customer service, history and trends of the hospitality industry, and the role of cultural diversity. *1 lecture hour*

HOS 101 **Food Preparation I** **3 credits**
Prerequisites or Corequisites: HOS 111, HOS 118
Introduction to the principles, skills, and techniques associated with the culinary arts, involving various cooking methods including classic and modern techniques. Identification of various kitchen staples, food products, and equipment used within the commercial food operation. Hands-on activities require the preparation of a wide variety of recipes. Chef whites required. *1 lecture / 4 laboratory hours*

HOS 102 **Food Preparation II** **3 credits**
Prerequisites: HOS 101 and HOS 118 or equivalent proficiency
Refines culinary skills in quantity food preparation through operation of a student-run restaurant. Includes kitchen and dining room organization and operations; menu development and design; management of service and culinary personnel; service standards; serving the general public; merchandising and sales promotion; and banquet management. Chef whites required. *1 lecture / 4 laboratory hours*

HOS 104 **Hotel Management and Lodging Operations** **3 credits**
Preliminary study of operations and management in the lodging industry with special emphasis on front desk operations and management, housekeeping, corporate structure, staffing, sales, security, and accounting.
3 lecture hours

HOS 109 **Advanced Culinary Arts** **3 credits**
Prerequisites: HOS 101 and HOS 118 or equivalent proficiency
Comprehensive review of current culinary arts practices, including advanced professional culinary skills, recipes, techniques, and use of ingredients. Involves practice of a wide variety of classical and modern cooking techniques as well as basic and advanced sanitation measures in kitchen operations.
1 lecture / 4 laboratory hours

HOS 110 **Breakfast / Pantry** **2 credits**
Prerequisites: HOS 101, HOS 118
Covers basic breakfast preparation, presentation, and merchandising techniques for some basic baked goods, breakfast proteins, as well as garnishes. Practical laboratory experience involves preparing and serving meals. Use, safety, care, and storage of hand tools – including cook's and vegetable knives – are emphasized.
1 lecture / 3 laboratory hours

HOS 111 **Culinary Math** **1 credit**
Prerequisite: MAT 037 or MAT 042
Focus on key mathematic concepts related to culinary arts. Students demonstrate a working knowledge of topics including calculating yield percent, determining portion costs, periodic food costs, 'selling price' determinations, weights and measures, changing recipe yields, and converting between metric and U.S. measurements. *1 lecture hour*

GenEd *Diversity and Global Perspective*
HOS 115 **Food and Culture** **3 credits**
Applying a global perspective of the symbolic, social, political, and economic role of food in different cultures, examines the geographical and historical conditions that give rise to various regional cuisines. Lectures, demonstrations, and hands-on participation reveal how institutions and organizations influence food habits and beliefs. *2 lecture / 2 laboratory hours*

HOS 116 **Techniques of Healthy Cooking** **3 credits**
Prerequisites: HOS 101, HOS 118
Study of nutritional guidelines for selecting, preparing and cooking a wide variety of food products, including desserts. Cooking techniques include sautéing, roasting, steaming and grilling. Healthful menu planning applies "tricks of the trade" techniques to trim calories and fats. Chef whites required.
1 lecture / 4 laboratory hours

HOS 118 **Sanitation and Safety in Food Service Operations** **2 credits**
Laws and principles governing safe food service, from purchasing, receiving, preparing, serving, and storing to re-heating food products. Prepares students to take the National Restaurant Association Education Foundation certification exam as part of the course. *2 lecture hours*

HOS 120 **Introduction to the Hospitality Industry** **3 credits**
Close-up view of the lodging, food service, travel and tourism fields, with introduction to hospitality management, marketing, guest services, hospitality law, human relations and allied hospitality fields.
3 lecture hours

HOS 185 **Table Service** **2 credits**
Prerequisites or Corequisites: HOS 111, HOS 118
Focus on dining room operations including all aspects of service including dining room systems, merchandising, and customer service. Lab hours in the dining room, where students serve customers in one of the student-run restaurants, reinforce classroom discussion. *1 lecture / 3 laboratory hours*

HOS 203 **Hospitality Purchasing** **3 credits**
Prerequisites or Corequisites: HOS 111, HOS 118
Accepted practices for receiving, storing and issuing food and nonfood products within the hospitality industry. Covers purchasing major equipment, small wares, tableware, textiles, and vendor services. *3 lecture hours*

HOS 204 **Hospitality Marketing** **3 credits**
Addresses marketing plans, market research, market segmentation, positioning, consumer behavior, advertising, promotion, pricing theory, and hospitality group sales. *3 lecture hours*

HOS 208 **Hospitality Law** **3 credits**
Introduction to hospitality law, its effect on hospitality management, and the legal principles that govern the hospitality industry. *3 lecture hours*

HOS 210 **Applied Kitchen Skills – Cafe** **3 credits**
Prerequisite or Corequisite: HOS 109
An advanced course in pantry and deli preparation and organization. Developing speed skills with quantity production while following industry guidelines for sanitation and safety, students demonstrate proper plate presentation, including seasonal production, in a dining room pantry. *1 lecture / 4 laboratory hours*

HOS 217 **Professional Baking I** **3 credits**
Prerequisite: MAT 037 or MAT 042
Prerequisites or Corequisites: HOS 111, HOS 118
Fundamental principles and procedures for preparing baked goods, pastries, and desserts. Promotes the understanding of baking formulas in bakeshop production planning and ability to produce high-quality items through the development of manual skills. Stresses the use of equipment and supplies in a safe and sanitary manner. Chef whites required. *1 lecture / 4 laboratory hours*

HOS 218 **Professional Baking II** **3 credits**
Prerequisites: HOS 111, HOS 118, HOS 217
Intermediate principles and procedures for preparing baked goods, specialty cakes, pastries and pies. Emphasizes producing quality items through the development of manual skills, knowledge of ingredients and proper use of advanced bakery formulas. Stresses use of high-quality ingredients, equipment, advanced manual skills, and safe and sanitary bakeshop practices. *1 lecture / 4 laboratory hours*

HOS 219 **Professional Baking III** **2 credits**
Corequisites: HOS 118, HOS 217
Advanced principles and procedures for preparing baked goods, specialty cakes, pastries and pies, and other specialty desserts. Emphasizes producing high-quality items. *1 lecture / 3 laboratory hours*

HOS 230 **Experimental Kitchen** **2 credits**
Prerequisites: HOS 101, HOS 111, HOS 118
Covers tastes and flavors (sweet, salt, bitter, sour, and umami). Students explore culinary herbs and spices, salts, peppers, oils, vinegars, essences, fragrances, oleoresins, concentrates, freeze dried fruit and vegetable products, and other flavor carriers used in cooking and culinary research and development. Includes a hands-on lab application of techniques learned. *1 lecture / 3 laboratory hours*

HOS 231 **Meat, Poultry and Fish Fabrication** **1 credit**
Prerequisites or Corequisites: HOS 111, HOS 118
Addresses the fundamentals of purchasing specifications; receiving, handling, and storing meat and seafood; plus techniques for fabricating cuts for professional kitchens. *2 laboratory hours*

HOS 235 **American Regional Cuisine** **2 credits**
Prerequisite or Corequisite: HOS 109
Prepare, taste, serve, and evaluate traditional regional dishes of America. Study and practices emphasize ingredients, flavor profiles, preparations, and techniques representative of cuisines of the United States.
1 lecture / 3 laboratory hours

HOS 240 **Classical Cuisine / Advanced International** **2 credits**
Prerequisite or Corequisite: HOS 109
Students demonstrate a working knowledge in their approach to flavor profiles by applying cooking methods practiced by each ethnic group visited. Traditional preparation and plate presentation is emphasized utilizing both classic and modern approaches. *1 lecture / 3 laboratory hours*

HOS 245 **Chocolates and Confections / Retail Bakeshop** **3 credits**
Prerequisite: HOS 217
The essentials for creating sculptures, forming simple centerpieces, and preparing chocolates and other confections with soft, hard, and liquid centers. Along with merchandising concepts, traditional and contemporary production practices are explored for products including pastillage, nougatine, and assorted sugar and chocolate decorative pieces. *1 lecture / 4 laboratory hours*

HOS 246 **Artisanal Breads** **2 credits**
Prerequisite: HOS 217
An in-depth study and practice of Artisan bread baking. Old World techniques are applied with an emphasis on levians, poolish, and sponge bread methods. *1 lecture / 3 laboratory hours*

HOS 247 **Restaurant Desserts** **3 credits**
Corequisite: HOS 218
How to produce and merchandise restaurant-style desserts. Along with an emphasis on dessert menu planning, production techniques are practiced involving plate-up, garnish, and component style desserts.
1 lecture / 4 laboratory hours

HOS 249 **Advanced Pastry** **2 credits**
Corequisite: HOS 218
How to produce and merchandise restaurant-style desserts. Along with an emphasis on dessert menu planning, production techniques are practiced involving plate-up, garnish, and component style desserts.
1 lecture / 3 laboratory hours

HOS 255 **Garde Manger** **2 credits**
Prerequisites: HOS 101, HOS 118
Addresses basic and advanced garde manger and charcuterie techniques such as the preparation and serving of hot and cold hors d'oeuvres, aspics, pates, mousses, terrines, and cold dishes along with advanced techniques for the planning and arrangement of buffets. Covers table arrangement and planning, creation of model nonedible food displays, as well as manipulation of specialized tools to produce decorative buffet items and showpieces such as ice sculptures, pastillage, marzipan, and fondant. *1 lecture / 3 laboratory hours*

HOS 267 **Event Planning** **3 credits**
Examines the various aspects required in planning and implementing meetings, expositions, conventions, and other events large and small. Along with methods and strategies for overall project management and organization, special emphasis addresses budgeting, promotion, and designing the event environment.
3 lecture hours

HOS 287 **Hotel / Restaurant Management Internship** **1 credit**
Prerequisites: minimum GPA of 2.0 or permission of program coordinator; eligibility usually limited to students who have completed their second semester or with permission of the HRIM coordinator
Supervised field experience in the operation and management of various departments or functional areas at selected hotels, restaurants, and institutions. Focus on leadership skills, human relations development, service in the hospitality industry, and reducing turnover with teamwork. *240 internship hours*

HOS 289 **Culinary / Pastry Arts Internship** **1 credit**
Prerequisites: minimum GPA of 2.0 or permission of program coordinator; eligibility usually limited to students who have completed their second semester or with permission of the HRIM coordinator
Supervised field experience in the operation and management of various departments or functional areas at selected hotels, restaurants, and institutions. Focus on leadership skills, human relations development, service in the hospitality industry, and reducing turnover with teamwork. *400 internship hours*

HPE — HEALTH / PHYSICAL EDUCATION

HPE 101 Basic Concepts of Nutrition 3 credits
Prerequisites: MAT 033 and ENG 024 or equivalent
Study of the fundamental concepts of nutrition with emphasis on the relationships of nutrients to health. Topics include basic diet constituents, principles of body function, considerations for various age groups, dietary regulations, myths, food patterns, weight control, and food safety. *3 lecture hours*

HPE 105 First Aid, CPR and AED 3 credits
Prepares rescuers and lay responders with the knowledge and hands-on skills necessary to safely minimize the consequences of injury and illness and help sustain life in an emergency until medical help arrives. Successful candidates earn Basic Life Saving Healthcare Provider CPR/AED and Heartsaver First Aid Certifications through the American Heart Association. *2 lecture / 2 laboratory hours*

HPE 110 Concepts of Health and Fitness 2 credits
Prerequisite: ENG 033 or equivalent
Through lectures and laboratories, essential knowledge and skills in health and all dimensions of wellness are explored. Through self-assessments, students develop a wellness profile and program designed to achieve and/or maintain optimal livelong health and wellness. Physical activity is required.
1 lecture / 2 laboratory hours

HPE 111 Living with Health 3 credits
Prerequisite: ENG 034 or college-level proficiency in reading
Through self-assessments and critical thinking, students optimize their physical, psychological, social, intellectual and environmental well-being. Topics include health determinants, disease, disability, consumer education, health literacy, infectious and chronic diseases, aging, diversity, immediate and long-term effects of lifestyle choices including fitness, diet, stress management, destructive behaviors, dependency, and sexuality.
3 lecture hours

HPE 113 Medical Terminology 3 credits
Prerequisite: ENG 101 placement
Basic medical terms with an emphasis on general organizational principles. Topics include the use of prefixes, suffixes, and roots to convey meaning. Exercises provide practice with vocabulary, pronunciation, and report writing. Appropriate for students in nursing, allied health, and medical office assistant programs.
3 lecture hours

HPE 134 Prevention, Assessment and Care of Athletic Injuries 3 credits
Prerequisites: BIO 103, ENG 101 and HPE 110 or HPE 111
The art and science of athletic training with emphasis on relating theory and practice. Topics include terminology; injury prevention; and the causes, symptoms, and care of common sports injuries. *3 lecture hours*

HPE 151 Introduction to Exercise Science 1 credit
A series of lectures, guest presentations, and student-initiated field interviews introduces the history and future of exercise science; the wide range of related careers; current issues in health, wellness, and fitness; and various professional and certifying organizations. *1 lecture hour*

HPE 164 Principles of Coaching 3 credits
Introduces the art and science of coaching while relating theory and practice. Includes principles of coaching, management, physical conditioning, regulations, legal issues, safety, staffing, strategy, and public relations. Suitable for students contemplating further study in sports and leisure services. Prepares students for the American Sport Education Program (ASEP) Coaching Certification. *3 lecture hours*

HPE 171 Personal Fitness 1 credit
Assists in the development of a personal fitness program including weight and cardiovascular fitness equipment. Emphasizes strength, flexibility, cardiovascular, and weight control. A medical history is required; a physical exam may be required. Full-time students who complete this course may use the Fitness Center free of charge. *1 lecture hour*

HPE 225 **Beginning Tennis** **1 credit**
Introduces new players to the following strokes and grips: forehand, backhand, serve, volley, lob, and overhead smash. Additionally addresses rules, scoring, tennis etiquette, and tennis vocabulary. Utilization of videotapes, practice drills, and game situations develop skills. *2 laboratory hours*

HPE 226 **Intermediate and Advanced Tennis** **1 credit**
Prerequisite: HPE 225 or permission of instructor
For students who have received formal instruction (such as HPE 225), have played competitively, or who have been playing for two or three years and can rally consistently with an opponent. Skills presented include the slice, drop shot, half volley, drop volley, offensive lob, defensive lob, and slice serves. Additionally covers footwork and strategy. *2 laboratory hours*

HPE 241 **Applied Exercise Physiology** **3 credits**
Prerequisites: BIO 103, ENG 101
Addresses anatomical, biomechanical, and physiological effects of physical activity on the human body as well as methods of assessment and how to design and implement exercise programs for individuals and groups. Lab activities include practical applications of theoretical concepts. *2 lecture / 2 laboratory hours*

HPE 242 **Exercise Measurement and Prescription** **3 credits**
Prerequisites: BIO 104, HPE 241
Emphasizes development of the protocol knowledge and skills necessary for appropriate assessments and exercise prescriptions which cater to the physical fitness needs of generally healthy populations, those with medical protocol considerations, and athletic populations. *2 lecture / 3 laboratory hours*

HPE 243 **Exercise Science Field Experience** **3 credits**
Prerequisite: HPE 242
Provides essential experiences and networking opportunities for 225 hours in a supervised exercise science setting suitable to student interests. Emphasizes career planning and the application of anatomy and physiology, basic nutrition, exercise measurement and prescription, exercise physiology, program management and promotion, and safety.

HRA — HEATING, REFRIGERATION AND AIR CONDITIONING

HRA 101 **Principles of Refrigeration / Air Conditioning I** **2 credits**
Corequisite: MAT 037 (or MAT 037A and 037B) or equivalent proficiency
Fundamental principles of pressure and temperature relationships, heat transfer, and heating and cooling concepts. Specific topics include leak detection, types of refrigerants, piping materials, and connections. [Fall offering] *1 lecture / 2 laboratory hours*

HRA 102 **Principles of Refrigeration / Air Conditioning II** **2 credits**
Prerequisite: HRA 101
Corequisite: EET 130 or equivalent
Fundamental operating principles of compressors, condensers, and evaporators. Specific topics include types of metering devices, general accessory configuration, and procedures for charging and evaluating systems. [Fall offering] *1 lecture / 2 laboratory hours*

HRA 103 **Refrigeration / Air Conditioning Electrical Controls** **4 credits**
Prerequisites: EET 130, HRA 102
Examines types and application of various electromechanical devices such as motors, contractors, overload devices, thermostats, controls, and relays as well as various types of test and metering equipment.
2 lecture / 4 laboratory hours

HRA 104 **Domestic Heating and Air Conditioning Systems** **4 credits**
Prerequisite: HRA 103
Operating fundamentals for the diagnosis and repair of various domestic heating and cooling units including window and central units, refrigerators, freezers, gas furnaces, and heat pumps. *2 lecture / 4 laboratory hours*

HRA 202 **Light Commercial Systems I** **2 credits**
Prerequisites: EET 130, HRA 103, HRA 104
Corequisite: HRA 203
Explores electrical and mechanical component configurations, including wiring and controls, for light commercial systems. *1 lecture / 2 laboratory hours*

HRA 203 **Light Commercial Systems II** **2 credits**
Prerequisites: EET 130, HRA 104
Corequisite: HRA 202
Study of electromechanical light commercial system operation, diagnosis and repair, including piping configurations, defrost systems, pressure switches, and pressure regulators. *1 lecture / 2 laboratory hours*

HRA 205 **Heavy Commercial Systems** **4 credits**
Prerequisite: HRA 104
Operation, maintenance, diagnosis, and repair of heavy commercial systems including electrical controls, mechanical components, and electrical circuitry. [Fall offering] *1 lecture / 4 laboratory hours*

IST — INFORMATION SYSTEMS TECHNOLOGY

Note: Students should consult their academic advisor and the college or university to which they intend to transfer regarding information technology course requirements. The receiving institution always makes the final decision concerning transferability of credits.

IST 033 **Tech Studio** **2 credits**
Prerequisite: instructor or advisor permission
An introductory hands-on computer technology course for students who have had little or no exposure to computers. Topics include the basics of operating systems, the Internet, word processing, multi-media, the cloud, programming, and e-mail. Students develop file management skills and work with web-based applications. *1 lecture / 2 laboratory hours*

GenEd *Technology*
IST 101 **Computer Concepts with Applications** **3 credits**
Prerequisites: ENG 101 and MAT 037 or MAT 042
Introduces students to computer concepts and applications through both lecture and lab materials. Lectures focus on hardware and software, the Internet, multimedia, security and ethics issues, and information. Lab addresses in-depth exposure to Excel spreadsheet and Python software program language.
2 lecture / 2 laboratory hours

GenEd *Technology*
IST 102 **Computer Concepts with Programming** **3 credits**
Prerequisites: ENG 034; MAT 037 (or MAT 037A and 037B) or equivalent proficiency
An introduction to computer literacy including a programming laboratory. Lectures cover the Internet; software; system components; peripherals; communications; databases; security, ethics, and privacy; programming languages; and enterprise computing. The laboratory covers forms, menus, decisions, loops, arrays, searching, the user interface, and database programming with Java. *2 lecture / 2 laboratory hours*

IST 105 **Information Security Concepts & Principles** **3 credits**
Prerequisite: ENG 101
Students gain an understanding of information security concepts and principles. Legal and ethical issues related to cybersecurity are covered. Case studies provide practical skills in securing systems and data. Designed for all users of technology wanting to learn the basics of protecting information and systems in today's digital world. *2 lecture / 2 laboratory hours*

IST 108 **Introduction to Programming with Mobile Application Development** **4 credits**

Prerequisite: MAT 037 or MAT 042 or proficiency in basic algebra

Introduces computing and programming concepts, and explores mobile and web technologies. Topics include variables, decision-making, iteration, lists, functions, decomposition, event-driven programming, databases, client-server computing, web services, platforms, programming languages, animation, texting, and geolocation. Students learn by creating Android mobile applications using App Inventor, a visual programming language. *3 lecture / 2 laboratory hours*

GenEd *Technology*

IST 109 **Introduction to Programming** **3 credits**

Prerequisites: proficiency in basic algebra, MAT 037 (or MAT 037A and 037B)

Introduces fundamental programming structure, tools and documentation, including how to design interfaces and develop Task Object Event (TOE) and Object Properties and Settings charts, hierarchy charts, pseudocode, and flowcharts. Problem-solving techniques and program design using logic control structures of sequence, selection, iteration, arrays, and sequential files are emphasized in laboratory exercises using VB.NET. *2 lecture / 2 laboratory hours*

IST 110 **Introduction to Python** **3 credits**

Prerequisite: IST 101 or IST 102

Designed for students majoring in Computer Information Systems or those with little or no programming background. Python is a widely used interpreted, object-oriented programming language focused on readability and code optimization with a simple, easy to learn syntax. This course is designed for students with basic programming experience in an object-oriented language. *2 lecture / 2 laboratory hours*

IST 140 **The Internet and Computer Technology** **3 credits**

Prerequisite: computer literacy

Introduction to Internet technology and the use of the World Wide Web as a tool. Topics include Internet and web history, client-server networks, web browsers, search engines and queries, multimedia, electronic commerce, social networking utilities, electronic mail, and computer security. Students design a web page using HTML. *2 lecture / 2 laboratory hours*

IST 144 **Website Development** **4 credits**

Introduces website development skills. Thorough examination of Hypertext Markup Language (HTML) includes navigations, tables, Cascading Style Sheets (CSS), images, audios, videos, and forms. Students learn the latest web design and development technologies including HTML5, CSS3, JavaScript, and jQuery.
3 lecture / 2 laboratory hours

IST 208 **Android Application Development** **4 credits**

Prerequisite: COS 102 or equivalent

Teaches how to develop applications for Android devices using Java programming language along with the Android SDK. Students learn how to apply Java and object-oriented technology to mobile application development. Doing real projects within the Eclipse integrated development environment further advances practical programming knowledge and skills. *3 lecture / 2 laboratory hours*

IST 209 **Project Management Concepts** **3 credits**

Cultivates strategies to orchestrate carefully designed action plans to complete projects successfully, often incorporating complex, dynamic and changing requirements. Explores the management of technology, people, and change to achieve goals, reach targets, and deliver the project on time and within budget.
2 lecture / 2 laboratory hours

IST 218 **iOS Application Development** **4 credits**

Prerequisite: COS 102 or equivalent

Introduces the tools and skills needed to create apps for iPhone and iPad. Students learn the Swift programming language and use it with Xcode to create apps on the iOS platform. The course uses Apple's latest “Everyone Can Code” college curriculum with hands-on, real world projects.
3 lecture / 2 laboratory hours

IST 222 **PL/SQL Programming** **3 credits**
Prerequisites: IST 109, IST 262
Incorporates programming, problem solving, programming logic, and design techniques. Students acquire advanced programming skills such as accessing and updating data in a relational database and developing applications using PL/SQL. *2 lecture / 2 laboratory hours*

IST 244 **Web Application Development** **4 credits**
Prerequisite: one of the following: IST 144, IST 108, IST 109, COS 101, COS 102, DMA 145 or equivalent
Introduction to server-side programming and database integration contributes to the creation of dynamic and interactive web applications. Primary programming languages and technologies covered include ASP.NET, C#, SQL Server, and MVC (Models, Views and Controllers) programming model. *3 lecture / 2 laboratory hours*

IST 250 **Decision Support Using MS Excel** **4 credits**
Prerequisites: IST 102, IST 109, IST 123
Techniques for building complete Excel-based decision support systems in a highly accessible manner. Topics include referencing and names, functions and formulas, charts, pivot tables, macros, programming structures, building user interfaces, and VBA for optimization and simulation. The extended functionality topics include statistical analysis, the Solver and modeling, simulation, and working with large datasets.
3 lecture / 2 laboratory hours

IST 251 **Management of Computer Technology** **3 credits**
Prerequisite: completion of 30 credits toward Information Systems or Information Technology degree program
Explores solutions to the challenges facing a typical computer technology manager, including project life-cycles, security, access, end-user computing, project planning, scheduling, staffing, employee development, and external threats to private computers. *2 lecture / 2 laboratory hours*

IST 253 **Database Concepts** **3 credits**
Prerequisite: IST 102 or IST 109
Covers relational database technology and how to apply it in solving basic and advanced database problems and cases. Provides the foundation for the advanced study of individual database management systems, electronic commerce, and enterprise computing. *2 lecture / 2 laboratory hours*

IST 256 **Systems Analysis** **3 credits**
An introduction to systems analysis and design, including analyzing the business case, requirements modeling, and development strategies. Additionally covers output and user interface design, data design, systems architecture and implementation, and systems operation, support, and security. *2 lecture / 2 laboratory hours*

IST 259 **Project Management** **4 credits**
How to select, initiate, operate, and control all types of projects, including how to manage risks and uncertainties. Equips students with the quantitative skills, knowledge of organizational issues, and insights into human behavior that are needed for effective project management. *3 lecture / 2 laboratory hours*

IST 260 **SQL Server Database Design** **4 credits**
Covers user-defined functions and constraints, database methodologies including OLAP (Online Analytical Processing) and OLTP (Online Transaction Processing) issues, and SQL Server. Additionally covers the relational database model, normalization issues, and ensuring data integrity through the use of views, triggers, and stored procedures. *3 lecture / 2 laboratory hours*

IST 261 **SQL Server System Administration** **4 credits**
Prerequisite: IST 260
Covers the concepts and skills required for support of SQL Server and Microsoft Certified Database Administration (MCDBA) certification: backing up and restoring databases, setting up and managing users, managing database security, managing the replication environment, tuning the database system, and troubleshooting any problems that arise. *3 lecture / 2 laboratory hours*

IST 262 **Oracle SQL** **4 credits**
Prerequisite: IST 109
Introduces Oracle services, including writing SQL statements, creating databases, manipulating data and tables, working with log files, and performing general database administration. Assists students with preparing for series of examinations leading to the Oracle Certified Associate (OCA) Certificate.
3 lecture / 2 laboratory hours

IST 263 **Database Administration I** **4 credits**
Prerequisite: IST 262
Addresses Oracle Database software installation along with new database creation and administration. Students configure the database to support an application, create users, define storage structures, set up security, design a backup and recovery strategy, and monitor the database to ensure its smooth operation. *3 lecture / 2 laboratory hours*

IST 264 **Database Administration II** **4 credits**
Prerequisite: IST 263
Combines training, experience, and testing to ensure a strong foundation and expertise in the industry's most advanced database management system. Focus includes an Oracle database configuration for multilingual applications, the Oracle Recovery Management and Flashback technology, and database performance monitoring tools. *3 lecture / 2 laboratory hours*

IST 265 **Database Cloud Computing Concept** **3 credits**
Prerequisites: IST 109, IST 253
Corequisite: IST 262
Teaches database deployment using cloud platforms to program and administer databases in a variety of cloud computing scenarios while managing the platform for scalability, troubleshooting performance issues, and implementing strong security. *2 lecture / 2 laboratory hours*

IST 275 **Data Analytics and Visualization** **3 credits**
Students acquire a detailed knowledge of descriptive statistics while learning how to use MS Excel to clean, manipulate, and interpret real world data sets with the goal of creating readable, well-constructed data visualization dashboards. *2 lecture / 2 laboratory hours*

IST 298 **Information Systems Cooperative Education** **2 credits**
Prerequisite: final course for degree in Information Technology
Integration of classroom study with specific planned period of learning through job experience. Based on individualized learning contract. *180 work experience hours*

ITA — ITALIAN

Note: Students who have taken two or more years of a foreign language, and have done so in the last two years, should begin that language at the 200 level or switch to a new language. If there is doubt, placement will be determined by testing or consultation with the academic division.

GenEd *Humanities*
ITA 101 **Beginning Italian I** **3 credits**
Spoken communication in Italian is the goal and means of instruction. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar and culture are introduced. *3 lecture hours*

GenEd *Humanities*
ITA 102 **Beginning Italian II** **3 credits**
For students who either completed ITA 101 or have otherwise gained elementary prior knowledge of Italian. Spoken communication in Italian is the goal and means of instruction. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar and culture are introduced. *3 lecture hours*

GenEd *Humanities*
ITA 201 **Intermediate Italian I** **3 credits**
For students who have either completed ITA 102 or have otherwise acquired prior reading and speaking abilities in Italian at a high-novice level. Reading, writing, listening, and speaking are the means and goal of instruction. Vocabulary and grammar practiced on topics of culture, politics, and history. *3 lecture hours*

GenEd *Humanities*

ITA 202 **Intermediate Italian II** **3 credits**

For students who have either completed ITA 102 or have otherwise acquired prior reading and speaking abilities in Italian at a high-novice level. Reading, writing, listening, and speaking are the means and goal of instruction. Vocabulary and grammar practiced on topics of culture, politics, and history. *3 lecture hours*

JPN — JAPANESE

Note: Students who have taken two or more years of a foreign language, and have done so in the last two years, should begin that language at the 200 level or switch to a new language. If there is doubt, placement will be determined by testing or consultation with the academic division.

GenEd *Humanities*

JPN 101 **Beginning Japanese I** **3 credits**

Spoken communication in Japanese is the goal and means of instruction. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar and culture are introduced. *3 lecture hours*

GenEd *Humanities*

JPN 102 **Beginning Japanese II** **3 credits**

For students who either completed JPN 101 or have otherwise gained elementary prior knowledge of Japanese. Spoken communication in Japanese is the goal and means of instruction. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar and culture are introduced. *3 lecture hours*

LAS — LIBERAL ARTS STUDIES

LAS 101 **Introduction to Liberal Arts Studies** **1 credit**

Introduction to reading and inquiry in the social sciences and humanities. By exploring a common book-length reading, students build interdisciplinary knowledge and skill in critical reading and response, including discussion, interpretation, and writing. For first-year Liberal Arts majors needing one credit for full-time status; often paired with CSW 100. *1 lecture hour*

LAS 201 **Liberal Arts Special Topics** **1 credit**

Investigation of a specialized liberal arts topic chosen by individual instructors, allowing students to delve into a focused interest. Recommended for second-year students who need one credit and wish to engage in close study. Upcoming topics available in the Liberal Arts Division office each semester before class registration begins. *1 lecture hour*

LAS 225 **Liberal Arts Studies Internship** **1 credit**

Prerequisites: 3.0 GPA, permission of internship advisor

Liberal Arts program students in their last 30 credits gain practical experience in an approved social science or humanities-related setting outside of the college, guided by a faculty internship advisor. Interns demonstrate their ability to apply liberal arts concepts and objectives via employer evaluation, written self-evaluation, and discussion with advisor. *60 hours including supervised internship, independent work, and advisor meetings*

LAT — LATIN

Note: Students who have taken two or more years of a foreign language, and have done so in the last two years, should begin that language at the 200 level or switch to a new language. If there is doubt, placement will be determined by testing or consultation with the academic division.

GenEd *Humanities*

LAT 101 **Beginning Latin I** **3 credits**
For students with little or no prior knowledge of Latin. Reading comprehension of literary and scholarly texts in Latin being the end goal, emphasizes the communicative skills of reading and writing based on culturally authentic texts. Grammar is thoroughly introduced and analyzed. Some spoken communication in Latin is practiced. *3 lecture hours*

LEG — LEGAL STUDIES

LEG 129 **Role of the Paralegal** **3 credits**
Study of the relationship among paralegals, attorneys, and clients particularly as it relates to law office economics, legal ethics, and confidentiality. Stages in a civil lawsuit and a criminal prosecution are examined; legal interviewing, investigation, and an orientation to legal research are stressed. *3 lecture hours*

LEG 130 **Civil Litigation I** **3 credits**
Study of the law of torts designed to acquaint the paralegal with the various forms of tort actions encountered in the law office. *3 lecture hours*

LEG 132 **Civil Litigation II** **3 credits**
Prerequisite: ENG 101 with a minimum C grade
Overview of the litigation process covering the pleadings of cases from initial complaint through ultimate judgment, with emphasis on tasks performed by paralegals. Addresses medical terminology and rules of evidence. *3 lecture hours*

LEG 133 **Legal Research and Writing** **3 credits**
Prerequisite: ENG 101
Study of basic skills often required in the general practice of law. Utilizing computer-assisted legal research, includes an introduction to several common kinds of legal writing with an emphasis on that which the paralegal encounters on a day-to-day basis in a law office. *3 lecture hours*

LEG 143 **Family Law** **3 credits**
Survey of procedures and pleadings in domestic relations including the preparation of divorce complaints, answers, counterclaims, motions, disclosure statements, and property settlement agreements. Includes issues of custody, visitation rights, child support and maintenance, adoptions and name changes. [Spring offering] *3 lecture hours*

LEG 255 **Ethics and Professionalism** **3 credits**
Prerequisite: LEG 129
A legal technology enhanced capstone course with a focus on advanced legal research and writing. Covers legal ethics rules on professionalism, UPL, confidentiality, client funds, solicitation of cases, competence, and case conflicts. Applying CIRAC/IRAC analysis principles, students research the law and Model Rules and prepare an analysis of legal ethics issues. *3 lecture hours*

LEG 256 **Career Development for Law and Justice Professionals** **1 credit**
Students prepare essential documents for the job market correlating to their major (Criminal Justice A.S. degree or Paralegal Studies A.A.S.) including resumes, cover letters, and professional emails. Students learn networking skills, job search strategies, and interviewing techniques. *1 lecture hour*

LEG 258 **Research and Project Management: Legal, Business, and Justice Applications** **3 credits**

Enhanced research and project management principles as applied to support roles in legal, corporate, and justice employment settings. Applying technology, research, and effective project management skills, students manage projects in the areas of factual investigation, business formation, justice administration, and civil matters. Legal specialty course. *3 lecture hours*

LIB — LIBRARY TECHNOLOGY

LIB 103 **Introduction to Academic Research** **1 credit**

Prerequisite: eligibility for placement in ENG 101

Basic principles of scholarly research and inquiry. Focuses on information literacy skills needed for developing effective search processes and critical evaluation of academic resources, plus the ethical use of information. Students are introduced to multi-disciplinary resources includimg periodical databases, books, e-books, multi-media, reference sources, and web-based information. *1 lecture / 1 laboratory hours*

MAT — MATHEMATICS

Note: Students should check mathematics course recommendations with the college or university to which they intend to transfer. The receiving institution always makes the final decision concerning transferability of credits. Information about mathematics course equivalencies among New Jersey institutions is available at www.njtransfer.org

Initial selection of a mathematics course is determined by results of college skills placement testing. Students who have completed math courses at another college must present transcripts and course outlines or syllabi. Consult mathematics faculty for advice.

Applicability of credits for courses below the 100 level toward degree requirements is limited. Consult an academic advisor. All prerequisite courses must be passed with a minimum C grade before enrolling in any subsequent mathematics course.

MAT 007 **Beginning Algebra Support** **1 credit**

Corequisite: MAT 037

A supplemental course that provides individualized and focused instruction for select skills to support progress in MAT-037 Beginning Algebra. Topics include solving linear equations and inequalities, graphing linear equations, operations with integers, operations with rational numbers, and simplifying perfect squares and radicals. *1 lecture hour*

MAT 008 **Intermediate Algebra for STEM Support** **1 credit**

Corequisite: MAT 038

A supplemental course that provides individualized and focused instruction for select skills to support progress in MAT-038 Intermediate Algebra for STEM. Topics include graphic and solving linear equations, factoring polynomials, operations with rational numbers, simplifying radical expressions, and simplifying quadratic expressions. *1 lecture hour*

MAT 015 **Beginning Algebra for Non-STEM** **2 credits**

Beginning algebra course designed for students with experience in algebra needing to strengthen their mastery of the fundamentals. Topics include exponents; linear equations and inequalities; algebraic operations with whole numbers, decimals, fractions, and percents; ratio and proportion; graphing; and square roots. *2 lecture hours*

MAT 033 **Pre-Algebra** **4 credits**

Developmental mathematics course designed for students needing a review of basic arithmetic, including an introduction to algebra. Topics include operations with whole numbers, decimals, fractions, percents, ratio and proportion, signed numbers, and an introduction to algebraic equations. [Foundation course does not fulfill mathematics elective requirement; only offered by special request at off-campus locations.] *4 lecture hours*

MAT 037 **Beginning Algebra** **4 credits**
Foundation mathematics course designed for students with experience in algebra but who need to strengthen their mastery of the fundamentals. Topics include exponents, polynomials, factoring, graphing first-degree equations, quadratic equations, rational expressions, and radical expressions. [Foundation course does not fulfill mathematics elective requirement.] *4 lecture hours*

MAT 038 **Intermediate Algebra for STEM** **4 credits**
Prerequisite: MAT 037 or MAT 042 with a minimum C grade
or placement by Mathematics department
Developmental mathematics course designed for students needing an introduction to intermediate algebra. Topics include graphing linear equations in two variables, systems of two linear equations, rational expressions and equations, radicals and rational exponents, and linear and quadratic functions. Those who complete this course with a grade of C or better may register for MAT 146. [Foundation course does not fulfill mathematics elective requirement.] *4 lecture hours*

MAT 042 **Foundation Math for Non-STEM** **3 credits**
Prerequisite: MAT 041 with a minimum C grade or appropriate placement test score
Foundation mathematics course designed for students with experience in algebra but who need to strengthen their mastery of the fundamentals. Topics include linear equations, linear inequalities, absolute value equations, absolute value inequalities, exponents, polynomials, factoring, and quadratic equations. Those who complete this course may register for MAT 115, MAT 120, or MAT 125. [Foundation course does not fulfill mathematics elective requirement.] *6 laboratory hours*

MAT 044 **Foundation Math for STEM** **3 credits**
Prerequisite: MAT 037 or MAT 042 with a minimum C grade
Developmental mathematics course designed for students needing an introduction to intermediate algebra. Topics include graphing linear equations in two variables, systems of two linear equations, rational expressions and equations, radicals and rational exponents, and linear and quadratic functions. Those who complete this course with a grade of C or better may register for MAT 146. [Foundation course does not fulfill mathematics elective requirement.] *6 laboratory hours*

GenEd *Mathematics*
MAT 115 **Algebra and Trigonometry I** **3 credits**
Prerequisite: MAT 037 (or MAT 037A and 037B) or MAT 042 or appropriate placement test score
Primarily for students majoring in engineering technology related programs. Algebraic topics discussed include systems of linear equations, determinants, factoring, trigonometric functions and their graphs, radian measure, solutions of triangles, and application problems. *3 lecture hours*

GenEd *Mathematics*
MAT 116 **Algebra and Trigonometry II** **3 credits**
Prerequisite: MAT 115 with a minimum C grade or permission of the Mathematics department
Continuation of MAT 115. Topics include complex numbers, logarithmic and exponential functions, solving systems of nonlinear equations, trigonometric identities and equations, inverse trigonometric functions, and analytic geometry. *3 lecture hours*

GenEd *Mathematics*
MAT 120 **Mathematics for Liberal Arts** **3 credits**
Prerequisite: MAT 015
Primarily for students in non-scientific/non-technical majors, emphasizes mathematical systems, reasoning, and mathematical structures. Includes sets, symbolic logic, numeration systems, number systems in other bases, growth models, and geometric structures. *3 lecture hours*

GenEd *Mathematics*

MAT 125 **Elementary Statistics I** **3 credits**

Prerequisite: MAT 037 (or MAT 037A and 037B) or MAT 042 with a minimum C grade or appropriate placement test score

A basic introduction to statistical concepts and methods. Topics include descriptive statistics, basic probability concepts, discrete and normal probability distributions, hypothesis testing and confidence intervals with one sample mean and one sample proportion, as well as regression and correlation. Studies include the use of statistical software. *3 lecture hours*

GenEd *Mathematics*

MAT 126 **Elementary Statistics II** **3 credits**

Prerequisite: MAT 125 with a minimum C grade or consultation with course coordinator / Mathematics chairperson

Continuation of MAT 125. Topics include random sampling, experimental and observational studies, fundamentals of probability, confidence intervals and hypothesis testing on two populations and two proportions, F and Chi-Square distributions, analysis of variance, and basic nonparametric tests. Studies include the use of statistical software. *3 lecture hours*

GenEd *Mathematics*

MAT 140 **Applied College Algebra** **4 credits**

Prerequisite: MAT 037 (or MAT 037A and 037B) or MAT 042 with a minimum C grade or appropriate placement test score

Designed for students majoring is disciplines involving less intensive math, for which a more conceptual understanding of college algebra is appropriate. Employing extensive examples from a variety of fields, topics include the study of linear, exponential, logarithmic, polynomial and rational functions. *Not* intended as preparation for Pre-Calculus or Calculus. *3 lecture / 1 laboratory hours*

GenEd *Mathematics*

MAT 146 **Pre-Calculus** **4 credits**

Prerequisite: MAT 038 or MAT 044 with a minimum C grade or appropriate College Level Math placement test score

In-depth study of polynomial, rational, exponential, logarithmic, trigonometric and inverse trigonometric functions, equations, and identities; systems of equations including matrices; extensive use of graphing calculators. [grade of B- or better is strongly recommended to proceed to MAT 151] *4 lecture hours*

GenEd *Mathematics*

MAT 149 **Calculus** **4 credits**

Prerequisite: MAT 146 with a minimum C grade or appropriate College Level Math placement test score

Application-based topics include the fundamental techniques of differentiation and integration of algebraic, trigonometric, exponential and logarithmic functions. Study focuses on optimization, maxima-minima and marginal analysis for differentiation and includes substitution method among other specific integration techniques. Not intended as a prerequisite for MAT 152. *4 lecture hours*

GenEd *Mathematics*

MAT 151 **Calculus I for the Mathematical and Physical Sciences** **4 credits**

Prerequisite: MAT 146 with a minimum C grade or appropriate College Level Math placement test score

First course in the standard integrated calculus sequence. Topics include differentiation of algebraic, exponential, logarithmic, trigonometric, hyperbolic, and inverse trigonometric functions. Applications include curve sketching, related rates, maxima, minima, and approximations as well as integration and applications of the definite integral. *4 lecture hours*

GenEd *Mathematics*

MAT 152 **Calculus II for the Mathematical and Physical Sciences** **4 credits**

Prerequisite: MAT 151 with a minimum C grade
and consultation with Mathematics faculty member

Continuation of MAT 151. Topics include techniques of integration, areas, volumes, arc length, surface area, improper integrals, Simpson's Rule, infinite sequences, MacLaurin and Taylor series, differentiation of polar and parametric equations, conic sections in rectangular and polar form, and rotation of axes.
4 lecture hours

GenEd *Mathematics*

MAT 200 **Statistics for Social and Health Sciences I** **3 credits**

Prerequisite: MAT 038 or MAT 044 or Multiple Measures placement

An applied statistics course for the social sciences, nursing, etc. Topics include sampling procedures, descriptive statistics, regression and correlation, discrete, binomial and normal probability distributions, confidence intervals and hypothesis tests for one mean, two means, one proportion, and two proportions, one-way and two-way ANOVAs, goodness-of-fit tests and tests of independence. Uses Minitab statistical software. *3 lecture hours*

GenEd *Mathematics*

MAT 201 **Probability and Statistics for Science and Engineering** **4 credits**

Prerequisite: MAT 151 or MAT 149 with a minimum C grade

Calculus-based course designed for engineers, computer scientists and science majors with emphasis on applications of statistical techniques to the analysis of data. Topics include descriptive statistics; probability theory; probability distributions including binomial, Poisson, uniform, exponential, normal, chi square; one and two variable mean and proportion data analysis, simple regression and correlation and analysis of variance. Requires use of Minitab statistics software. *4 lecture hours*

GenEd *Mathematics*

MAT 208 **Linear Algebra** **4 credits**

Prerequisite: MAT 151 with a minimum C grade
and consultation with Mathematics faculty member

An introduction to linear algebra topics including linear equations and matrices, determinants, independence and basis, vector spaces and subspaces, the four fundamental subspaces, orthogonality, linear transformations and eigenvalues and eigenvectors. Applications of linear algebra are included.
4 lecture hours

GenEd *Mathematics*

MAT 251 **Calculus III** **4 credits**

Prerequisite: MAT 152 with a minimum C grade
and consultation with Mathematics faculty member

Continuation of MAT 152. Includes parametric equations, vectors, solid analytic geometry, partial derivatives, multiple integrals, and topics in vector calculus including Green's theorem and Stoke's theorem.
4 lecture hours

GenEd *Mathematics*

MAT 252 **Differential Equations** **4 credits**

Prerequisite: MAT 152 with a minimum C grade
and consultation with Mathematics faculty member

Topics include solutions of ordinary differential equations, solving linear differential equations of higher order using differential operators, methods of undetermined coefficients and variation of parameters. Strong emphasis on solving differential equations using the Laplace transform, Cauchy-Euler equation, infinite series, and matrix methods. Applications to geometry and physical science are discussed. *4 lecture hours*

MKT — MARKETING

MKT 101 **Principles of Marketing** **3 credits**
Prerequisite: ENG 101 with a minimum C grade
A study of the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services that satisfy individual and organizational objectives. *3 lecture hours*

MKT 106 **Introduction to Sports Marketing** **3 credits**
Prerequisite: ENG 101 with a minimum C grade
Exploration of the comprehensive nature of sports marketing from a strategic marketing perspective. Examination of basic and detailed concepts covers such areas as sponsorships, branding, promotions, public relations, licensing, and consumer research and behavior, including their effects on professional, intercollegiate and other areas of sport. *3 lecture hours*

MKT 230 **Principles of Retailing** **3 credits**
Prerequisite: MKT 101
Introduction to the field of retailing. Issues include establishment of a store, store location, layout, organization and planning, buying, merchandising, promotion, credit, control and personnel. *3 lecture hours*

MLA — MEDICAL LABORATORY ASSISTANT

MLA 101 **Medical Laboratory Assistant Training** **5 credits**
Prerequisite: PBT 101
Corequisite: PBT 101
Participate in a controlled laboratory environment to learn proper specimen preparation and processing including, but not limited to specimen acceptability, specimen ordering, accessioning, aliquoting, transport, and distribution of collected laboratory specimens to in-house and reference laboratories. Proper training in quality control, waived and point-of-care testing as well as data-entry of clinical specimens using a laboratory information system will be provided.
3 lecture / 4 laboratory hours

MLA 102 **Medical Laboratory Assistant Practicum** **3 credits**
Prerequisite: MLA 101
Practical experience in the role of a medical laboratory assistant at clinical sites, under direct supervision by an instructor and staff at a local healthcare facility. *135 studio hours*

MLT — MEDICAL LABORATORY TECHNOLOGY

Except as noted, enrollment in MLT courses is limited to students who have completed all basic skill requirements and who have received full acceptance into the professional phase of the program. The minimum passing grade for all MLT courses is C+.

MLT 112 **Introduction to Medical Laboratory Technology** **3 credits**
Prerequisite: permission of program coordinator
Basic principles, techniques, and vocabulary applicable to medical laboratory technology. Topics include lab safety, specimen collection and transport, phlebotomy, urinalysis, immunology/serology, and computer technology as well as an overview of the four major laboratory disciplines of hematology/coagulation, immunohematology, chemistry, and microbiology. The laboratory component develops laboratory skills related to the lecture topics. *2 lecture / 3 laboratory hours*

MLT 200 **Clinical Chemistry** **4 credits**
Prerequisite: permission of program coordinator
Principles and theory of chemical analysis performed on clinical specimens. In-depth study examines specimen processing, analysis, test interpretation, and quality control procedures used in routine manual and automated clinical chemistry testing. Laboratory exercises involve bench techniques, dilutions, and test procedures. Group presentations highlight various chemistry analyzers. *3 lecture / 2 laboratory hours*

MLT 207 **Clinical Immunohematology** **4 credits**
Prerequisite: permission of program coordinator
Basic theory and concepts of antigen-antibody reactions as they pertain to blood cell transfusions. Blood group antigens and the genetics of their inheritance are examined along with principles of immunology. Methods are introduced for performing blood grouping, compatibility testing, and component selection. The laboratory component develops technical skills through hands-on experience in blood bank procedures.
3 lecture / 3 laboratory hours

MLT 212 **Clinical Hematology** **4 credits**
Prerequisite: permission of program coordinator
Study of blood cells in bone marrow, peripheral blood, and body fluids. Normal and abnormal blood cell maturation, physiology, and morphology are examined along with coagulation, another branch of hematology, involving hemostasis (the stopping of blood flow). The laboratory component develops technical skills used to perform hematology and coagulation lab tests. *3 lecture / 3 laboratory hours*

MLT 214 **Clinical Microbiology** **6 credits**
Prerequisite: permission of program coordinator
Principles and methods used in diagnostic microbiology. Test procedures routinely applied in medical bacteriology, parasitology, mycology, and virology are covered with an emphasis on the isolation, identification, and antimicrobial susceptibility testing of pathogenic microorganisms. Immunologic and molecular methods used for infection agent identification are also covered. *5 lecture / 3 laboratory hours*

MLT 215 **Clinical Practice** **10 credits**
Prerequisites: MLT 112, MLT 200, MLT 207, MLT 212, MLT 214, or permission of program coordinator
Clinical practice at an affiliated facility under the direction and supervision of laboratory educators. Students conduct routine analytical procedures, develop laboratory skills, apply knowledge of testing principles, and demonstrate acquired laboratory competencies. Includes presentation of a laboratory case study correlating test results with clinical condition. *560 clinical hours*

MOA — MEDICAL OFFICE ASSISTANT

MOA 101 **Medical Ethics and Office Procedures** **3 credits**
Prerequisite: ENG 101
Focuses on administrative skills necessary for work in a medical office. Includes communicating with patients, telephone management, organizing and maintaining records, coordinating appointments, and legal and ethical issues. Students use medical management software for scheduling and records management. *3 lecture hours*

MOA 103 **Medical Billing and Coding Procedures** **3 credits**
Prerequisite: ENG 101
Extensive coverage of CPT and ICD-9-CM coding procedures. Students learn to abstract information from the patient record and combine it with reimbursement and coding guidelines to optimize physician payment.
2 lecture / 2 laboratory hours

MUS — MUSIC

Appreciation and History

GenEd *Humanities*
MUS 103 **Introduction to Music** **3 credits**
Enhances the student's knowledge and enjoyment of a variety of music styles and historical contexts through listening and discussion. Requires attendance at live concerts. No prior musical training necessary.
3 lecture hours

GenEd *Humanities / Diversity and Global Perspective*

MUS 155 **History of Jazz and Blues** **3 credits**

Study of the evolution of jazz and blues from their origins in West African music and dance to their development as major 20th century art forms. Examines the significant stylistic phases of jazz from early blues and ragtime through swing and be-bop to avant garde and fusion. Also explores the impact of the African American tradition on contemporary rock and pop music. *3 lecture hours*

GenEd *Humanities / Diversity and Global Perspective*

MUS 156 **History of American Pop Music** **3 credits**

Analytical and historical survey of American popular music with an emphasis on the period from 1950 to the present. Students develop an understanding of the cultural, social, technological, and musical forces shaping each decade covered. Students apply critical analysis to musical styles, instrumentation, and song structure in addition to issues of race, ethnicity, social class, and gender as formative factors influencing its evolution. *3 lecture hours*

GenEd *Humanities*

MUS 224 **Music History and Literature I – Antiquity Through Baroque** **3 credits**

Prerequisites: MUS 103 and MUS 105 or equivalent experience

Study of the evolution of Western European music from its ideological and practical origins in ancient Greece and Rome through the Medieval, Renaissance, and Baroque periods, in the context of sociohistorical forces and events affecting its development. Basic music theory background desirable. *3 lecture hours*

GenEd *Humanities*

MUS 225 **Music History and Literature II – Baroque Through Modern** **3 credits**

Prerequisite: MUS 224

Continued study of the evolution of Western European music from the classical period, with its roots in the Enlightenment and culmination in Romanticism, through its variegated manifestations in the 20th century. Basic music theory background desirable. *3 lecture hours*

Music Theory

MUS 105 **Fundamentals of Music Theory** **3 credits**

Offers the student with no prior musical training an introduction to the basics of music theory. Topics include notation of pitch and rhythm, scale structure, key signatures in major and minor keys, plus chord construction and voice leading. [Fall offering] *2 lecture / 2 laboratory hours*

MUS 127 **Music Theory I** **3 credits**

Prerequisite: MUS 105 or permission of department

Corequisite: MUS 167

Topics include more advanced chord construction, figured bass, harmonic analysis, the principles and procedures of four-part writing emphasizing the primary triads and their inversions, as well as non-harmonic tones. Reinforced through ear training and sight singing. [Spring offering] *2 lecture / 2 laboratory hours*

MUS 128 **Music Theory II** **3 credits**

Prerequisite: MUS 127

Corequisite: MUS 168

Completion of the diatonic system. Harmonic principles and procedures introduced in MUS 127 are expanded to include application to the supertonic, leading tone, mediant and submediant harmonies in both triad and seventh chord form. Introduces more advanced part-writing, as well as harmonic and structural analysis of 18th and 19th century repertoire. Reinforced through aural skills training and keyboard harmony. [Fall offering] *2 lecture / 2 laboratory hours*

MUS 167 **Musicianship I** **1 credit**
Corequisite: MUS 127
Progressive exercises in sight singing, ear training in the form of melodic, rhythmic and harmonic dictation, as well as the practice of keyboard harmony. Emphasis on diatonic materials and the primary triads. Coordinated with conceptual materials presented in MUS 127. *2 laboratory hours*

MUS 168 **Musicianship II** **1 credit**
Prerequisites: MUS 127, MUS 167
Corequisite: MUS 128
Continuation of studies begun in MUS 167 with more advanced exercises in sight singing, ear training and keyboard harmony as well as expanded use of the diatonic system including all diatonic triads. Coordinated with conceptual materials presented in MUS 128. *2 laboratory hours*

MUS 227 **Music Theory III** **3 credits**
Prerequisite: MUS 128
Corequisite: MUS 267
Study of chromatic harmony especially as used in modulation. Students recognize and compose harmonic progressions involving secondary dominants, diminished seventh chords, as well as altered and borrowed chords, correlated with exercises in ear training, sight-singing, and keyboard harmony. Also includes harmonic and formal analysis of 18th and 19th century repertoire. [Spring offering] *2 lecture / 2 laboratory hours*

MUS 267 **Musicianship III** **1 credit**
Prerequisites: MUS 128, MUS 168
Corequisite: MUS 227
Further studies in sight singing, ear training, and keyboard harmony building upon skills acquired in MUS 167 and MUS 168. Introduces chromatic materials including modulation to the dominant and to the relative major and minor. Coordinated with conceptual materials presented in MUS 227. *2 laboratory hours*

Piano Class

MUS 121 **Piano Class I** **1 credit**
Fundamentals of piano playing, covers music reading, chords, various accompaniment styles, coordination of both hands, and sight-reading skills. Group instruction is given via an electro-piano lab. College pianos are available for practice. No prior piano instruction necessary. *2 laboratory hours*

MUS 122 **Piano Class II** **1 credit**
Prerequisite: MUS 121
Continuation of playing skills and activities initiated in MUS 121. *2 laboratory hours*

MUS 221 **Piano Class III** **1 credit**
Prerequisite: MUS 122
Continuation of MUS 122. Explores various periods of keyboard literature as well as increasingly difficult technical skills, sight reading, and transposing. *2 laboratory hours*

MUS 222 **Piano Class IV** **1 credit**
Prerequisite: MUS 221
Continuation of MUS 221. *2 laboratory hours*

Guitar Class

MUS 142 **Guitar Class I** **1 credit**
Opportunity to learn to play the guitar; no previous experience necessary. Covers basic chords, song accompaniment, music reading, and pertinent music forms. Some acoustic guitars are available for student use in class. *1 lecture / 1 laboratory hour*

College Chorus

MUS 174 **Chorus I** **1 credit**
MUS 175 **Chorus II** **1 credit**
MUS 274 **Chorus III** **1 credit**
MUS 275 **Chorus IV** **1 credit**
Opportunity to sing choral repertoire in a variety of genres from all periods of music history. Rehearsals culminate in one or two public performances each semester. Some prior singing experience required. *3 class hours*

Chamber Ensemble

MUS 170 **Chamber Ensemble I** **1 credit**
MUS 171 **Chamber Ensemble II** **1 credit**
MUS 270 **Chamber Ensemble III** **1 credit**
MUS 271 **Chamber Ensemble IV** **1 credit**
Opportunity to explore, through rehearsal and performance, traditional chamber music repertoire drawn from a variety of historical periods. The student is trained in the proper phrasing, articulation, and dynamics specific to each style. Open to players of all appropriate instruments. *3 class hours*

Orchestra

MUS 182 **Orchestra I** **1 credit**
MUS 183 **Orchestra II** **1 credit**
MUS 282 **Orchestra III** **1 credit**
MUS 283 **Orchestra IV** **1 credit**
Prerequisite: prior orchestral instrument playing experience
Opportunity to explore, through rehearsal and performance, orchestral repertoire from a variety of historical periods. The student is trained in proper phrasing, articulation, and dynamics as well as learning how to play within a large group. Course culminates in a final public concert performance. *3 class hours*

Individual Instruction

MUS 109 **Applied Music I** **1 credit**
MUS 110 **Applied Music II** **1 credit**
MUS 209 **Applied Music III** **1 credit**
MUS 210 **Applied Music IV** **1 credit**
Private lessons on keyboard, voice, or band/orchestral instrument with a member of the artist-teacher staff. Special fee required. *one-half hour per week*

Jazz Studies

MUS 178 **Jazz Band I** **1 credit**
Prerequisites: ability to play a jazz band instrument and to read music notation
MUS 179 **Jazz Band II** **1 credit**
MUS 278 **Jazz Band III** **1 credit**
MUS 279 **Jazz Band IV** **1 credit**
Opportunity to explore classic jazz literature through rehearsal and performance. Repertoire is selected from standards of the swing era, to be-bop, to contemporary funk and fusion with an emphasis on proper articulation, groove, and dynamics specific to each style. *3 class hours*

MUS 151 **Jazz Improvisation I** **2 credits**
Prerequisites: ability to play an instrument and to read musical notation
(MUS 151 and MUS 152 need not be taken in sequence.)
Introductory-level course emphasizing use of the Mixolydian mode and the blues scale as applied to the dominant 7th family chords. Explores the twelve-bar blues and related forms as vehicles for improvisation with an emphasis on swing and funk rhythms. *1 lecture / 2 laboratory hours*

MUS 152 **Jazz Improvisation II – Modal** **2 credits**
Prerequisites: ability to play an instrument and to read musical notation
(MUS 152 may be taken before MUS 151.)
Introductory-level course presenting the conceptual and practical rudiments of the jazz language by focusing on two modes, Ionian and Dorian, as they apply to the major and minor families of chords, respectively. Emphasizes Latino idioms and rhythms. *1 lecture / 2 laboratory hours*

MUS 223 **Jazz Keyboard Harmony and Improvisation** **1 credit**
Prerequisite: MUS 221
Introductory course presenting the fundamentals of jazz harmony, chord progressions, scales, and tools for improvisation at the keyboard. *2 laboratory hours*

Music Production and Business

MUS 123 **Music Business** **3 credits**
Overview of the music industry including copyright law, publishing, contracts, management, licensing, and merchandising. Students gain an overall understanding of the people, technologies, and laws that affect all aspects of the music business, culminating in a discussion of career opportunities. *3 lecture hours*

MUS 235 **Music Composition in the Virtual Studio** **3 credits**
Prerequisites: CMN 253, MUS 127
Strategies for writing, recording, and producing music in the context of an integrated MIDI/digital audio production environment. Topics include MIDI data entry, recording live sound sources, editing, plug-ins, mixing, mastering, digital music production, and generating .wav and .mp3 files. Assignments include creative projects and listening/discussion of relevant "popular" and "art" music. *2 lecture / 2 laboratory hours*

NET — NETWORKING TECHNOLOGY

Note: Students should consult their academic advisor and the college or university to which they intend to transfer regarding networking technology course requirements. The receiving institution always makes the final decision concerning transferability of credits.

NET 102 **Introduction to PC Hardware and Software** **3 credits**
Students learn to install, configure, diagnose, and troubleshoot microcomputer hardware components and various operating systems. Includes an introduction to local area networks, the identification and installation of memory, preventative maintenance, plus coverage of terminology and concepts that will assist students preparing for the A+ Certification exams. *2 lecture / 3 laboratory hours*

NET 103 **IT Essentials** **3 credits**
Prerequisite: basic computer literacy
A continuation of NET 102. Students learn advanced concepts regarding the installation, configuration, diagnosis, and troubleshooting of microcomputer hardware components and operating systems. Includes coverage of terminology and concepts that will assist students preparing for the Server+ Certification exam. *2 lecture / 3 laboratory hours*

NET 104 **Fundamentals of Computer Networks** **3 credits**
Prerequisite: basic computer literacy
Fundamentals of data communications theory, network management, connectivity, the OSI model, and internetworking protocols and standards. Covers topologies, architectures, operating systems, security, LAN/WAN components, modem implementation, LAN troubleshooting and support resources, fault tolerance, network adapters, and client-server environments. Assists students preparing for the Network+ Certification exam. *2 lecture / 2 laboratory hours*

NET 120 Windows Desktop Operating System Administration 3 credits

Prerequisite: basic computer literacy

Students learn to install the Windows desktop OS; create users/groups; administer file/print resources; manage hardware; optimize performance and reliability; configure desktops using control panel, registry, system policies; and configure network protocols and services. Covers resource auditing, data storage management, network monitoring, and security, plus introduction to DNS and Active Directory. Hands-on exercises reinforce Microsoft certification exam objectives. *2 lecture / 2 laboratory hours*

NET 122 Windows Server Operating System Administration 3 credits

Prerequisites: NET 102 or A+ Certification; NET 120 or permission of program coordinator

Students learn to install and configure the Windows server network OS, including overall administration, advanced file system concerns, and active directory services. Covers routing, remote access, network security, fault tolerance, and server and network resource optimization. Introduces application servers and troubleshooting in a network environment. Hands-on exercises reinforce Microsoft certification exam objectives. *2 lecture / 2 laboratory hours*

NET 124 Network Infrastructure Administration 3 credits

Prerequisite: NET 122

Windows-based focus includes implementing TCP/IP for cross-platform and Internet connectivity, WINS and DNS to resolve hosts on local and remote networks, DHCP to manage address configuration, RAS including dial-up connectivity and virtual private networks, and Internet connection sharing with NAT. Covers securing network communications with certificates, IP security, authentication, and encryption. Hands-on exercises reinforce Microsoft certification exam objectives. *2 lecture / 2 laboratory hours*

NET 126 Network Directory Services Administration 3 credits

Prerequisite: NET 122

Students plan, configure, and administer a directory services infrastructure. Includes DNS configuration, administering user environments with group policy, remote OS deployment using RIS, and centrally managing users, groups, shared folders, and network resources. Covers implementing and troubleshooting security as well as monitoring and optimizing directory services performance. Hands-on exercises reinforce Microsoft certification exam objectives. *2 lecture / 2 laboratory hours*

NET 130 Routing and Switching Essentials 3 credits

Prerequisite: NET 104 or Network+ Certification

Study of the concepts and commands required to configure switches and routers in multiprotocol internetworks. Identifies solutions for small to medium-sized businesses, with procedures to configure multirouter, multigroup internetworks using LAN/WAN interfaces for common routed protocols. Also covers installation, configuration, and troubleshooting essentials required by technicians to install and maintain these devices. Hands-on exercises reinforce Cisco certification exam objectives. *2 lecture / 2 laboratory hours*

NET 212 Linux 3 credits

Prerequisites: NET 102 or A+ Certification; NET 104 or Network+ Certification

Study of current hardware and software components of two operating system environments: Linux and AS/400. Major concentration is on Linux with an introduction to AS/400. Hands-on lab projects reinforce selected Linux lecture topics. *2 lecture / 2 laboratory hours*

NET 230 Scaling Networks 3 credits

Prerequisite: NET 130

Study of the concepts and commands required to use routing and switching technologies together, including recommended campus network design methodologies. Topics include Layer 2 switching technologies including Spanning Tree, VLAN, frame tagging, and protocols; and Layer 3 routing services including inter-VLAN routing, multilayer switching, Hot Standby Routing Protocol (HSRP), and IP multicast. Hands-on exercises reinforce Cisco certification exam objectives. *2 lecture / 2 laboratory hours*

NET 240 Network Security 3 credits

Prerequisite or Corequisite: NET 130; NET 244 recommended

Explores security design considerations for enterprise networks through the evaluation of existing and planned technical environments, including identifying security risks and defining security baselines. Topics include controlling resource access using various security techniques. Hands-on exercises reinforce certification exam objectives. *2 lecture / 2 laboratory hours*

NET 241 **Cyber Security Analytics** **3 credits**
Prerequisites: NET 104, NET 120
Determine, analyze, and plan for threats to and vulnerabilities of computer information technology software and hardware systems. Emphasis includes risk mitigation, compliance and assessment involving proactive threat intelligence to manage organizational security, monitoring for indicators of compromise, and incident response applying basic digital forensics techniques. Hands-on exercises reinforce certification exam objectives. *2 lecture / 2 laboratory hours*

NET 242 **Directory Services Infrastructure Design** **3 credits**
Prerequisites: NET 124, NET 126
Analyzes requirements related to the design of a directory services infrastructure, including connectivity and access, security, performance, and end user support. Topics include assessment of the impact on existing systems and processes, creating a forest model and schema modification plan, and defining and naming domains. Hands-on exercises reinforce Microsoft certification exam objectives. *2 lecture / 2 laboratory hours*

NET 244 **Network Defense and Countermeasures** **3 credits**
Prerequisite: NET 104 or Network+ Certification
Examines current risks and threats combined with structured safeguarding of an organization's critical electronic assets. Provides a foundation for those new to information security as well as those responsible for protecting network services, devices, traffic, and data. Broad-based, in-depth coverage prepares students for further study in other specialized security fields. Hands-on activities reinforce certification exam objectives. *2 lecture / 2 laboratory hours*

NET 245 **Ethical Hacking** **3 credits**
Prerequisites: NET 102, NET 104
Combines an ethical hacking methodology with the hands-on application of security tools to better help students secure their systems. Students are introduced to common countermeasures that effectively reduce and/or mitigate attacks, including penetration testing, reconnaissance/open source intelligence gathering, scanning, enumeration, exploitation, and post-exploitation. Hands-on activities reinforce certification exam objectives. *2 lecture / 2 laboratory hours*

NET 256 **Cloud Foundations** **3 credits**
Prerequisite: IST 101 or IST 102
Introduces students to cloud computing foundations, including a detailed overview of cloud concepts, AWS core services, security, architecture, pricing, and support. Designed for students majoring in Computer Information Systems or obtaining a Network Engineering Technology certificate. *2 lecture / 2 laboratory hours*

NRS — NURSING

NRS 105 **Professional Nursing** **1 credit**
Corequisite: NRS 115
Introduces the learner to non-clinical professional nursing concepts. Focus on understanding foundational concepts in nursing includes such topics as nursing theory, advocacy, ethics, and evidence-based practice. *1 lecture hour*

NRS 115 **Concepts of Nursing Practice I** **6 credits**
Prerequisites: BIO 104, CHE 107, ENG 102, MAT 125, PSY 207
Corequisite: NRS 105
Introduces the fundamental concepts of nursing practice and their application across the lifespan, with a focus on uncomplicated chronic and mild acute alteration in health. The application of knowledge and skills occurs in the nursing laboratories and a variety of clinical settings. *3 lecture / 3 college laboratory / 6 clinical hours*

NRS 125 **Concepts of Nursing Practice II** **8 credits**
Prerequisites: BIO 104 with a minimum C+ grade, NRS 111, NRS 112
Builds on the first semester courses to further refine the concepts of nursing practice with application to the care of diverse clients with uncomplicated acute and chronic conditions across the lifespan. Application of knowledge and skills occurs in the nursing laboratories and a variety of clinical settings.
3 lecture / 3 college laboratory / 12 clinical hours

NRS 150 **Concepts of Nursing Practice II** **6 credits**
Prerequisite: NRS 115
Builds on first semester nursing coursework to advance the understanding of concepts of nursing practice. Study applies to care of diverse clients with uncomplicated acute and chronic conditions across the lifespan, including the client with mental health disorders. The application of knowledge and skills occurs in the nursing laboratories and a variety of clinical settings. *3 lecture / 3 college laboratory / 8 clinical hours*

NRS 225 **Concepts of Nursing Practice III** **8 credits**
Prerequisites: BIO 201 with a minimum C+ grade, NRS 125
Builds on the previous nursing courses to further refine and apply the concepts of nursing practice in the care of diverse clients with complicated acute and chronic conditions across the lifespan. Application of knowledge and skills occurs in the nursing laboratories and a variety of clinical settings.
3 lecture / 3 college laboratory / 12 clinical hours

NRS 235 **Concepts of Nursing Practice IV** **8 credits**
Prerequisite: NRS 225
Builds on all previous nursing courses to further refine and apply the concepts of nursing practice in the care of diverse client populations with acute and chronic complex conditions across the lifespan. Application of knowledge and skills occurs in the nursing laboratories and a variety of clinical settings.
3 lecture / 3 college laboratory / 12 clinical hours

NRS 245 **Concepts of Nursing Practice III** **6 credits**
Prerequisite: NRS 150
Builds on the previous nursing coursework to further advance the understanding and application of concepts of nursing practice. Study applies to care of diverse clients with complicated acute and chronic conditions across the lifespan, including the reproducing family. The application of knowledge and skills occurs in the nursing laboratories and a variety of clinical settings. *3 lecture / 3 college laboratory / 8 clinical hours*

NRS 250 **Concepts of Nursing Practice IV** **6 credits**
Prerequisite: NRS 245
Corequisite: NRS 275
Builds on all previous nursing coursework to further advance the understanding and application of concepts of nursing practice to care of diverse clients with complicated, critically acute conditions across the lifespan. The application of knowledge and skills occurs in the nursing laboratories and a variety of clinical settings.
3 lecture / 3 college laboratory / 8 clinical hours

NRS 275 **Transition to Nursing Practice** **1 credit**
Prerequisite: NRS 245
Corequisite: NRS 250
Prepares the new graduate nurse to transition into practice. Students complete a professional development plan and explore nursing careers in different healthcare settings. Additional course content addresses advocacy and ethics in healthcare, evaluation of evidence, promotion of quality and safety, and leadership. Clinical observation hours are included. *1 lecture / 16 clinical hours*

NSG — NURSING: COOPERATIVE PROGRAM

All NSG courses are based with and taught at St. Francis Medical Center School of Nursing.

NSG 131 **Concepts of Nursing I** **6 credits**
Corequisites: BIO 103, PSY 101
Introduction to concepts and procedures of nursing practice. Fundamental skills are developed and applied within the framework of the nursing process to meet the physiological, social, and psychological needs of clients. Clinical experiences focus on alterations in health of the adult client with acute and chronic medical-surgical conditions. *4 lecture / 120 clinical hours*

NSG 133 **Concepts of Nursing III** **3 credits**
Prerequisites: BIO 104, NSG 134, NSG 135, PSY 207
Assists students in the use of the nursing process when caring for the client experiencing mental health problems. Emphasizes client care during all phases of mental health disorders, from prevention through rehabilitation. Explores concepts of groups. Provides experiences in a variety of mental health settings. *2 lecture / 60 clinical hours*

NSG 135 **Concepts of Nursing II** **7 credits**
Prerequisite: NSG 131 with a minimum C grade
Corequisite: BIO 104 or NSG 134
Prepares students to use the nursing process in caring for clients experiencing common physiological alterations. Introduces concepts of leadership and management. Builds on previous learning to develop additional skills. Provides clinical experience in a variety of settings. *4 lecture / 180 clinical hours*

NSG 136 **LPN Transition: Nursing Through the Life Span** **9 credits**
Prerequisites: BIO 103, BIO 104, ENG 101, PSY 101, PSY 207, NSG 137, NUR 151
Corequisite: BIO 201
Designed to assist in the transition from licensed practical nurse to registered nurse. Building on previous learning while introducing new knowledge and skills that pertain to the registered nurse role, prepares for the final two nursing courses in the curriculum. Emphasizes use of the nursing process in meeting the self-care deficits of clients and families through the life span. *5 lecture / 180 clinical hours*

NSG 137 **Physical Assessment** **3 credits**
Prerequisite: formal admission into the Nursing program
Corequisites: BIO 103, PSY 101
Provides the knowledge and skills necessary to perform a comprehensive adult health assessment. Through discussion as well as laboratory and individual practice, all body systems are assessed. Emphasizes interviewing, obtaining a complete health history, performing a physical assessment, and systematic documentation of findings. *2 laboratory hours*

NSG 232 **Concepts of Nursing V** **9 credits**
Prerequisites: BIO 201, ENG 101, NSG 133, PSY 207
Develops knowledge and skills to care for clients – individuals and groups – with multiple needs requiring complex interventions. Explores complex client problems, resulting in alteration of homeostatic mechanisms. Expands leadership and management skills. Clinical learning experiences are provided in a variety of settings including critical care areas. *6 lecture / 180 clinical hours*

NSG 234 **Concepts of Nursing IV** **9 credits**
Prerequisites: ENG 101, NSG 133, PSY 207
Corequisite: BIO 201
Prepares the student to use the nursing process in caring for clients across the life span. Emphasizes health promotion, illness prevention, and rehabilitation. Further explores the concept of leadership and management. Offers learning experiences in a variety of settings including pediatric facilities. *6 lecture / 180 clinical hours*

NUR — NURSING

NUR 151 **Pharmacology in Nursing** **3 credits**
Prerequisite: Nursing program first year completion, or permission of instructor
Theoretical approach to pharmacology, expanding basic concepts of drug knowledge required to administer medication safely. Emphasizes pharmacology as an integrated science requiring up-to-date information consistent with current nursing responsibilities, technology, and practice. Drug therapies affecting body systems are a major consideration. *3 lecture hours*

OHT — ORNAMENTAL HORTICULTURE

GenEd *Science*

OHT 101 **Plant Science** **3 credits**

Introduction to the field of plant science. Topics include basic botany and plant physiology; plant growth; leaves, roots, fruits, stems, and flowers; cells; plant reproduction; genetics; and the plant kingdoms. [Fall offering] *2 lecture / 2 laboratory hours*

OHT 102 **Ornamental Horticulture** **3 credits**

Examines plant propagation, plant pests, landscape establishment and maintenance, greenhouse management, principles of landscape design, and fruit and vegetable production. [May be taken independently of OHT 101.] [Spring offering] *2 lecture / 2 laboratory hours*

GenEd *Science*

OHT 108 **Soil and Plant Nutrition** **4 credits**

Prerequisite: CHE 100 or equivalent with a minimum C grade or permission of program coordinator

Explores the origins, composition, and properties of soils. Addresses physical and chemical properties including ion exchange and pH effects, soil organic matter, soil-water relationships, the nature of and reasons for soil nutrient deficiencies, composition, and the use of fertilizers and other soil adjuvants. Lab work involves representative New Jersey soils to illustrate basic soil behavior. [Spring offering] *3 lecture / 3 laboratory hours*

OHT 121 **Herbaceous Plants** **3 credits**

Prerequisite: BIO 101 or OHT 101 with a minimum C grade or permission of program coordinator

Study of cultivated, ornamental herbaceous plant species including annuals, perennials, bulbs, herbs, and grasses. Emphasizes identification, use, color, height, and season of bloom. Special topics include planning a herbaceous garden, insect pests, diseases, and propagation. [Fall offering] *2 lecture / 2 laboratory hours*

OHT 201 **Basic Landscaping and Planning I** **3 credits**

Principles and technology of landscape design. Covers the practical and aesthetic aspects of planning the residential landscape, involving both materials and methods. Emphasizes design and graphics skills. [Fall offering] *2 lecture / 3 laboratory hours*

OHT 202 **Basic Landscaping and Planning II** **3 credits**

Prerequisite: OHT 201 with a minimum C grade

Continuation of OHT 201. Emphasizes practical projects for residential areas and public common spaces. [Spring offering] *2 lecture / 3 laboratory hours*

OHT 204 **Plant Diseases** **3 credits**

Prerequisite: OHT 101 or permission of program coordinator

Introduction to the history, economic importance, symptoms, causal agents and management of plant diseases. Lab exercises include the isolation, culture, and identification of plant pathogens. [Fall offering] *2 lecture / 2 laboratory hours*

OHT 207 **Floral Design I** **3 credits**

Basic principles and elements of design as applied to floral arranging. Emphasizes the primary types of arrangements, flower and greens identification, history of floral design, and an introduction to the floral industry. [Fall offering] *2 lecture / 2 laboratory hours*

OHT 212 **Landscape Construction** **3 credits**

Prerequisite: OHT 102 or permission of program coordinator

Introduces students to the implementation and maintenance of landscape projects. Dominant areas of study include bidding and estimating; hardscape installation and maintenance; and advanced landscaping skills and techniques. Advanced skills covered include lighting, drainage, irrigation, planting and pruning. *2 lecture / 2 laboratory hours*

OHT 214 **Floral Design II** **3 credits**
Prerequisite: OHT 207 or permission of program coordinator
Emphasis on the commercial rate of production and pricing for corsage, funeral, and bridal work. Includes complete study of floral decorations for formal and informal occasions; advanced color theory and use of textures in designs; creative thinking with designs and containers; and further exploration of the floral industry. [Spring offering] *2 lecture / 2 laboratory hours*

OHT 219 **Plant Propagation** **3 credits**
Prerequisite: OHT 101 or permission of program coordinator
Principles and techniques involved in the selection, propagation, and growth of garden flowers, greenhouse crops, woody plants, turfgrass, and plants for interior landscape. [Fall offering] *2 lecture / 2 laboratory hours*

OHT 223 **Topics in Horticulture: Gardening** **1 credit**
Explores topics in gardening, including triumphs and pitfalls of growing annuals, perennials, bulbs, fruits, vegetables and woody plants. Involves fieldwork. [Summer offering] *2 laboratory hours*

OHT 224 **Topics in Horticulture: Landscaping** **1 credit**
Prerequisite: OHT 201
Application of computer programs to enhance design presentation skills. [occasional offering]
2 laboratory hours

OHT 226 **Interior Landscape Design** **3 credits**
Prerequisite: OHT 101 or OHT 102 or permission of program coordinator
Emphasizes the key ornamental aspects, cultural requirements, and uses of each species covered. Specific topics include indoor landscaping, propagation, terrariums, and environmental requirements. Involves both taxonomic and common nomenclature. [Spring offering] *2 lecture / 2 laboratory hours*

OHT 231 **Turfgrass Management I** **3 credits**
Prerequisite: OHT 101 or OHT 102 or permission of program coordinator
How to establish and maintain turfgrass for residential and commercial applications. Includes identification and use of cultivars, seeding and sodding, insects and pests, fertilization, and irrigation methods. [Spring offering]
2 lecture / 2 laboratory hours

OHT 232 **Nursery Management I** **3 credits**
Prerequisite: OHT 101 or OHT 102 or permission of program coordinator
Examines nursery operations and mechanics. Topics include planting and transplanting trees and shrubs, fertilization, pest control, irrigation, pruning, propagation techniques, business operations, and employee management. Lab exercises and a field study of local businesses reinforce material. [Spring offering]
2 lecture / 2 laboratory hours

OHT 241 **Equipment and Integrated Pest Management** **3 credits**
Prerequisite: OHT 102 or permission of program coordinator
Review of the equipment and procedures used in horticultural settings with an emphasis on pest management. Topics include theories of and strategies for integrated pest management, pest identification, application of pesticides, calibration of equipment, and equipment operation. [Spring offering] *2 lecture / 2 laboratory hours*

OHT 291 **Ornamental Horticulture Cooperative Education I** **3 credits**
Required capstone experience for Ornamental Horticulture degree and certificate candidates. In approved positions related to their specializations, students work for cooperating employers. Includes performance reviews by faculty observers, employer evaluations of proficiencies, periodic seminars, and a final assessment. [Spring, Summer, Fall offering] *175 work experience hours*

OHT 292 **Ornamental Horticulture Cooperative Education II** **1 credit**
Prerequisite: OHT 291
Continuation of OHT 291. [Spring, Summer, Fall offering] *85 work experience hours*

OST — OFFICE SYSTEMS TECHNOLOGY

OST 111 **Computer Keyboarding with Word Processing Applications** **3 credits**
Develops basic keyboarding skills. Students learn the keyboard and basics of word processing including proper formatting procedures for letters, memos, reports, and tables. Skill goal is 30 to 45 words per minute for three minutes with three or fewer errors. *2 lecture / 2 laboratory hours*

OST 219 **Word Processing Concepts and Applications** **3 credits**
Prerequisite: OST 109 with a minimum C grade or equivalent keyboarding proficiency
Students develop proficiency in a wide range of word processing functions using Microsoft Word software. Covers generic concepts pertinent to all word processing software, as well as correct document formatting.
2 lecture / 2 laboratory hours

PBH — PUBLIC HEALTH

PBH 101 **Principles of Public Health** **3 credits**
Prerequisite: placement in college-level English
A broad overview of public health including historical perspectives, communicable disease, epidemiology, health policy, environmental health, emergency preparedness, as well as social, cultural, and behavioral aspects of health across the life span. Additional topics present an introduction to public health infrastructure, delivery of local, state and national services, and core competencies for public health professionals.
3 lecture hours

PBH 102 **Foundations of Community Health Worker Practice** **3 credits**
Prerequisite: PBH 101
This course will provide an introduction to outreach methods and strategies for healthcare workers engaging individuals and groups in diverse settings. Responsibilities in care coordination, systems navigation, health education, and comprehensive documentation as part of the healthcare team are examined. Emphasis will be placed on cultural humility, boundary maintenance, legal and ethical decision making in the healthcare field, as well as the importance of self-care. *3 lecture hours*

PBH 201 **Disparities in Individual and Community Well-Being** **3 credits**
Prerequisite: ENG 101
The course examines well-being as influenced by community-based factors such as bias, discrimination, structural violence, and inequities in access to resources like education, housing, and healthcare.
3 lecture hours

PBT — PHLEBOTOMY

PBT 101 **Phlebotomy for Healthcare Professionals** **4 credits**
Prerequisite: high school diploma/GED
Provides theory and skill development for healthcare professionals in the performance of blood collection using proper techniques and infection precautions. Student are provided with hands-on training to perform venipunctures and capillary skin puncture. The student is instructed in the anatomy and physiology of the circulatory system, specimen collection, specimen processing and handling, safety, and quality control. Upon successful completion, the student will be able to perform phlebotomy in a clinical setting.
3 lecture / 3 laboratory hours

PBT 102 **Phlebotomy Practicum** **2 credits**
Corequisite: PBT 101
Supervised experience in the performance of venipuncture and microcollection techniques in a clinical facility. Emphasis on patient interaction and application of universal precautions, proper collection techniques, special procedures, specimen handling, and data management. Upon completion, students should be able to safely perform procedures necessary for specimen collections on patients in various health care settings.
100 studio hours

PHI — PHILOSOPHY

GenEd *Humanities*

PHI 102 **Introduction to Philosophy** **3 credits**

A study of the basic problems and methods of philosophical inquiry. Topics include theories about knowledge, reality, human nature, ethics, religion and science, with consideration of the thought of such major thinkers as Plato, Aristotle, Descartes, Hume, Kant, Nietzsche, and Sartre. *3 lecture hours*

GenEd *Humanities*

PHI 112 **Critical Thinking** **3 credits**

Theory and practice of critical thinking through examples drawn from science, business, politics, media, literature, and art. Students apply logical techniques and attitudes of analysis and communication for constructive assessment, ethical reasoning and creative problem-solving by evaluating definitions, facts, arguments, causes, rhetoric, differences, and plans while avoiding common errors and biases. *3 lecture hours*

GenEd *Humanities*

PHI 113 **Logic** **3 credits**

An introduction to the principles and methods of correct reasoning. A problem-solving approach to the nature and scope of different kinds of logic, identifying and evaluating arguments and fallacies, and crafting well-formed arguments. *3 lecture hours*

GenEd *Humanities*

PHI 204 **Ethics** **3 credits**

Prerequisite: ENG 101

An examination of the basic methods and problems of ethics. Consideration of the nature of moral terms, reasoning and action; conceptions of the good life and of right and wrong; free will; and major ethical approaches, including the theories of Aristotle, Kant, Mill, and others. *3 lecture hours*

GenEd *Humanities*

PHI 205 **Moral Choices** **3 credits**

Prerequisite: ENG 101

Examines contemporary moral issues such as abortion, euthanasia, capital punishment, affirmative action, pornography, hate speech, gay rights, corporate responsibility, world hunger, global consumption, war, and terrorism. Stresses the critical application of moral theory, principles, and methods. *3 lecture hours*

PHI 209 **Business Ethics** **3 credits**

Ethical concepts applied to business and government. Case studies and analysis of selected moral issues include the ethics of the marketplace, consumerism, the environment, advertising, job discrimination, distributive justice and world poverty. [occasional offering] *3 lecture hours*

GenEd *Humanities / Diversity and Global Perspective*

PHI 210 **Eastern Philosophy** **3 credits**

Prerequisite: ENG 101 or permission of instructor

Introduction to the major philosophical traditions of India, China and other non-Western traditions. Concentrating on the core issues of epistemology, metaphysics and ethics, study involves such major thinkers as Shankara, Ramanuja, Laozi and Confucius. Topics include indigenous and colonial influences as well as critical comparison with Western philosophies. *3 lecture hours*

GenEd *Humanities*

PHI 220 **Philosophy of Politics** **3 credits**

Prerequisite: ENG 102 with a minimum C grade or permission of instructor

Exploration of the ideas which explain how politics works and how it should work. Surveys contrasting views on liberty and order, fairness and obligation, stability and change, pluralism and equality, liberalism and the state, law and anarchy, capitalism and socialism, and challenges of globalization. *3 lecture hours*

PHO — PHOTOGRAPHY

PHO 101 **Black & White Film Photography I** **3 credits**

Foundation course in photography emphasizes basic techniques for the still film camera and darkroom. The development of creative visual expression is strongly encouraged. Students use a manually-controlled film camera and other appropriate materials. *1 lecture / 4 studio hours*

PHO 103 **Digital Photography I** **3 credits**

Introductory course for students having basic computer knowledge and interested in gaining knowledge of digital imaging tools and techniques, and improving their creativity. Topics include Photoshop, digital retouching, digital cameras, inkjet printing, and resolution through lab activities as well as classroom lecture. *2 lecture / 3 laboratory hours*

GenEd *Humanities*

PHO 110 **History of Photography** **3 credits**

Historical survey of the growth of photographic art and technique from camera obscura to the present, emphasizing aesthetics, applications, and social impact. Includes the relationship of photography to the other arts and the effects of changing technology on the photographic image. [Spring offering]
3 lecture hours

PHO 202 **Studio Photography** **3 credits**

Prerequisite or Corequisite: PHO 103 or PHO 203 with a minimum C grade

Use digital or film cameras of any format to create portraits, still-life, and product shots. Topics include lighting, composition, technique, and studio equipment. *1 lecture / 4 studio hours*

PHO 203 **Photography II** **3 credits**

Prerequisite: PHO 101 or PHO 103 with a minimum C grade

Intermediate-level course in film and digital still photography. Covers medium- and large-format film cameras, full-frame DSLR cameras, archival printing methods in both film and digital labs, photo retouching software, film-scanning, and exploring concepts through images during lab activities as well as classroom lecture.
1 lecture / 4 laboratory hours

PHO 251 **Documentary Photography** **3 credits**

Prerequisite or Corequisite: PHO 103 or PHO 203 with a minimum C grade

Emphasizes techniques and issues of long- and short-term location assignment shooting. Students are afforded opportunities to gain practical experience covering news, features and sports events for *The College Voice* and to work with journalism students. A photographic essay is developed throughout the semester.
1 lecture / 4 studio hours

PHO 285 **Special Studies in Photography** **3 credits**

Advanced topics in both traditional and digital photography. Course material is tailored to satisfy special requests by students and to share the specialized talents of the college faculty. [occasional offering]
1 lecture / 4 studio hours

PHO 290 **Photography Internship** **3 credits**

Prerequisite: coordinator approval

Work experience from participating photographic studios, labs, and galleries. *1 lecture / 180 laboratory hours*

PHY — PHYSICS

GenEd *Science*

PHY 101 **College Physics I** **4 credits**

Corequisite: MAT 115

The first of a two-semester non-calculus sequence intended for engineering technology and related majors. Topics include mechanics, heat, sound, and properties of matter. [Students who have not taken high school physics may wish to take PHY 111 as a preparatory course.] *3 lecture / 3 laboratory hours*

GenEd *Science*

PHY 102 **College Physics II** **4 credits**

Prerequisites: PHY 101 and MAT 115 with a minimum C grade or approved equivalent

The second of a two-semester non-calculus sequence. Topics include electricity and magnetism, optics, atomic physics, and nuclear physics. *3 lecture / 3 laboratory hours*

GenEd *Science*

PHY 109 **Fundamentals of Physics** **3 credits**

Prerequisite: MAT 037 or MAT 042

An introduction to the fundamental principles – underlying science and technology – of physics. Intended for the health fields, life sciences, and other areas requiring basic physics literacy. Topics of emphasis include Newtonian mechanics, work and energy, electricity and magnetism, electromagnetic waves, optics, as well as atomic and nuclear physics. *2 lecture / 2 laboratory hours*

GenEd *Science*

PHY 111 **Physical Science Concepts** **3 credits**

Prerequisite: proficiency in basic algebra

Survey of fundamental concepts in the physical sciences for students not majoring in science or engineering. Covers a broad range of topics in the fields of chemistry, physics, and astronomy such as measurement, motion, forces (gravitational, electromagnetic, nuclear), light, sound, atomic structure, molecular structure, crystal structure, nuclear structure, and various technological applications. Lab exercises support and supplement the lecture topics. *2 lecture / 2 laboratory hours*

GenEd *Science*

PHY 115 **University Physics I** **4 credits**

Prerequisites: MAT 146 with a minimum C grade; one semester of high school or college physics

Corequisite: MAT 151

The first course in a calculus-based physics sequence intended for students majoring in physics, engineering science, computer science, mathematics, and other technical areas. Topics include kinematics, dynamics, statics, energy, momentum, oscillations, gravity, as well as solid and liquid materials. The laws of physics are investigated and applied to problem solving. *3 lecture / 3 laboratory hours*

PHY 121 **The Universe** **3 credits**

Prerequisite: MAT 038 or MAT 044

Introduces students to the world beyond Earth with a survey of modern astrophysics. Study encompasses three dominant sections: stellar astronomy, planets and life, and galaxies and cosmology. Laboratory data analysis requires algebra. Offered at off-site locations only. *2 lecture / 2 laboratory hours*

GenEd *Science*

PHY 215 **University Physics II** **4 credits**

Prerequisites: PHY 115 and MAT 151 with a minimum C grade

The second course in a calculus-based physics sequence intended for students majoring in physics, engineering science, computer science, mathematics, and other technical areas. Topics include electricity, magnetism, circuits, electromagnetic fields, as well as electromagnetic waves. The laws of physics are investigated and applied to problem solving. *3 lecture / 3 laboratory hours*

PHY 293 **Honors Research in Physics I** **2 credits**
Prerequisites: PHY 101 or PHY 115; divisional permission
PHY 294 **Honors Research in Physics II** **2 credits**
PHY 295 **Honors Research in Physics III** **2 credits**
PHY 296 **Honors Research in Physics IV** **2 credits**
Under the guidance of an area sponsor in an industrial or academic environment, students participate in a physics research project. Requires a written report and oral presentation to students and faculty at the conclusion of the project period. [May be applied toward fulfilling Science elective requirements in the Physics program or other program upon program coordinator's approval.] *5 laboratory hours per week*

POL — POLITICAL SCIENCE

GenEd *Social Science*
POL 101 **The American Political System** **3 credits**
Introduction to the basic structures of the United States national government and political processes with a view toward helping the student better understand current issues and policies. Topics include the Constitution, national-state relations and powers, the legislative and judicial processes, elections, and the activities of interest groups. *3 lecture hours*

GenEd *Social Science*
POL 102 **State and Local Government** **3 credits**
Analysis of the structure and processes of state and local groups, parties and candidates. Examination of current events and trends in modern politics further enhances awareness of the nature, strengths and weaknesses of government. *3 lecture hours*

GenEd *Social Science / Diversity and Global Perspective*
POL 201 **International Relations** **3 credits**
A broad-based survey of international relations using a variety of theoretical perspectives that allow students to better understand and analyze current and past international behavior. Concepts include balance of power, economic interaction, diplomacy, the role of international organizations, leadership styles, and public policymaking in the international context. *3 lecture hours*

POL 205 **Constitutional Law** **3 credits**
Introduces the principles of U.S. constitutional law including the constitutional basis for the federal system: powers of national government; the rights against national and state government; and the process of judicial review and the role of constitutional interpretation. *3 lecture hours*

PSY — PSYCHOLOGY

GenEd *Social Science*
PSY 101 **Introduction to Psychology** **3 credits**
The scientific study of human nature – facts, principles, and theories concerning the mental, emotional, neurological, and social dimensions of human experience. Topics include consciousness, learning, thinking, memory, brain structure and function, motivation and emotion, development, personality, mental illness and its treatment, relationships, and social influence. *3 lecture hours*

PSY 204 **Social Psychology** **3 credits**
Prerequisite: PSY 101 with a minimum C grade
Studies the behavior and development of the individual in society, the function of social attitudes, and the emergence of social awareness. Topics include socialization and identity, person perception, attraction, attribution, theory, conformity and obedience, and attitudes and prejudices. *3 lecture hours*

GenEd *Social Science*

PSY 206 **Child Development** **3 credits**

Prerequisite: PSY 101 with a minimum C grade

Studies the physical, mental, emotional, and social development of the individual from conception through adolescence. Topics include motor and language development, attachment, temperament, gender and identity development, intelligence, prosocial and aggressive behavior, play, and family influences on development. *3 lecture hours*

GenEd *Social Science*

PSY 207 **Developmental Psychology: Across the Life Span** **3 credits**

Prerequisite: PSY 101 with a minimum C grade

Studies the physical, mental, emotional and social development of the individual throughout the life span. Students learn to evaluate major theories and methods of study in developmental psychology, to identify the opportunities and dangers inherent at each phase of life, and to understand the factors that influence developmental processes. *3 lecture hours*

PSY 208 **Theories of Personality** **3 credits**

Prerequisite: PSY 101 with a minimum C grade

Defines and assesses human personality within the context of current scientific advances as well as seminal historical perspectives. Examines the impact of individual psychological differences in predicting various life outcomes. *3 lecture hours*

PSY 210 **Abnormal Psychology** **3 credits**

Prerequisite: PSY 101 with a minimum C grade

Discusses the question: What is abnormal behavior and when does this behavior become a diagnosable disorder? History of psychological disorders and early treatments are examined along with the current classifications of psychological disorders as defined by the American Psychological Association. Theories of causation, prevalence, and treatments are also explored. *3 lecture hours*

GenEd *Diversity and Global Perspective*

PSY 215 **Human Sexuality** **3 credits**

Prerequisite: PSY 101 with a minimum C grade

Describes the anatomy and physiology of the human reproductive system and the physiology of human sexual functioning. Emphasizes human sexuality as reflecting the psychological makeup of the individual. Stresses the importance of cultural influences on an individual's behavior, along with interpersonal relationship factors. *3 lecture hours*

PTA — PHYSICAL THERAPIST ASSISTANT

Except as noted, enrollment in PTA courses is limited to students who have completed all basic skill requirements and who have received full acceptance into the program. PTA majors are required to earn a minimum grade of C+ in PTA courses.

Note: PTA 206 and 217 COURSES ARE INTERRUPTED for five weeks for a Clinical Education course as indicated within the semester. Class times have been adjusted accordingly.

PTA 105 **Kinesiology** **3 credits**

Prerequisite: BIO 103 with a minimum C grade completed within the past five years

Open to all students interested in physical therapy as a career or in the study of human movement; required for Physical Therapist Assistant majors. Introduces the concepts of locomotion, forces, levers, and biomechanics. Topics include origins, insertions, innervations, and actions of the prime movers of the musculoskeletal system. *3 lecture hours*

PTA 107 **Therapeutic Measurement** **2 credits**
Prerequisites: BIO 104 with a minimum C+ grade completed within the past five years; PTA 105
Corequisite: PTA 222
Addresses bony landmarks, muscle length, measurement of joint range of motion and muscle strength. Medical documentation is introduced. Students develop their skills through practice with each other. Competencies evaluated throughout the course. *1 lecture / 2 laboratory hours*

PTA 112 **Pathology for PTAs** **3 credits**
Prerequisites: BIO 104 with a minimum C+ grade completed within the past five years; PTA 105
Covers the essential nature of diseases, abnormalities of structure, and function characteristic of diseases. *3 lecture hours*

PTA 114 **Applied Kinesiology** **2 credits**
Prerequisites: PTA 105, PTA 222
Learners apply kinesiology concepts to clinical scenarios and exercise design, analyze internal and external forces acting during various movement patterns, understand the biomechanics of common functional movements, and develop palpation skills. *1 lecture / 2 laboratory hours*

PTA 206 **Motor Development** **2 credits**
Prerequisites: PTA 210, PTA 214
Corequisite: PTA 213
Introduces developmental milestones, lifespan motor development, motor control, motor learning, recovery of function, neuroplasticity, reflexes and reactions, adaptive equipment, and various treatment approaches for neurological impairments. *2 lecture hours*

PTA 210 **PTA Techniques** **4 credits**
Prerequisites: PTA 105, PTA 107
Corequisite: PTA 211
Addresses patient care and handling, including patient positioning and bed mobility, vital signs, transfers and gait, aseptic techniques, wound care, pharmacology, edema management, wheelchair use, body mechanics, and cardiac and pulmonary interventions. Students develop their skills through practice with each other. Competencies evaluated throughout the course. *3 lecture / 2 laboratory hours*

PTA 214 **Physical Agents** **3 credits**
Prerequisites: PTA 107; MAT 115 or MAT 140 or PTA program approved MAT equivalent with a minimum C+ grade
Study of biophysical agents and therapeutic modalities in physical therapy practice. Lab and lecture activities develop problem-solving and critical thinking in the use of electrical stimulation, therapeutic heat, cold, traction, and hydrotherapy for therapeutic interventions. Competencies evaluated throughout the course. *2 lecture / 2 laboratory hours*

PTA 217 **PTA Therapy Clinic** **4 credits**
Prerequisites: PTA 210, PTA 214
Corequisite: PTA 205
Therapeutic interventions for conditions arising from cerebral vascular accidents, traumatic brain injury, spinal cord injury, amputations, joint replacement, cardiac disease, and neurologic dysfunction. Emphasizes activities to promote optimal functional outcomes. Lab develops decision-making skills involving assistive devices, orthotics and prosthetics. Competencies evaluated throughout the course. *3 lecture / 3 laboratory hours*

PTA 222 **Clinical Orthopedics** **4 credits**
Prerequisite: PTA 105
Corequisite: PTA 107
A study of orthopedic conditions and their underlying pathology. Emphasis on physical therapy interventions in the rehabilitation of specified conditions. Topics include special tests, stretching, strengthening, joint mobilization, massage, exercise parameters, and progression. Students develop skills through practice with each other using clinical scenarios to promote clinical decision-making. *3 lecture / 3 laboratory hours*

PTA 224 **PTA Clinical Education I** **3 credits**
Prerequisites: PTA 210, PTA 211
Supervised full-time clinical instruction to observe the clinic environment and PT/PTA interactions; develop professional deportment and communication; refine measurement and time management skills; and learn about patient chart information. *40 hours per week for 4 weeks = 160 clinical hours*

PTA 227 **PTA Seminar** **3 credits**
Prerequisite: PTA 105
Corequisite: PTA 107
Overview of the healthcare system and the specific roles of professionals in healthcare fields. Topics include medical terminology, psychosocial aspects of disability, medical documentation, professional growth and development, evidence-based practice, and communication skills. *3 lecture hours*

PTA 232 **PTA Professional Development** **2 credits**
Prerequisite: PTA 227
Explores the professional association, ethics, fraud and abuse of physical therapy services and payment, research, quality assurance, career development, lifelong learning, how to present an in-service to colleagues, and preparation of a cover letter and resume. *2 lecture hours*

PTA 235 **PTA Clinical Education II** **4 credits**
Prerequisites: PTA 213, PTA 224
Supervised full-time clinical experience allows students to apply and practice skills learned in other classes and learn to become an integral part of a physical therapy department.
40 hours per week for 5 weeks = 200 clinical hours

PTA 240 **PTA Clinical Education III** **5 credits**
Prerequisite: PTA 235
Supervised full-time clinical experience allows students to practice all of the techniques and procedures taught in the program, performing all that is normally expected of a physical therapist assistant.
40 hours per week for 6 weeks = 240 clinical hours

RAD — RADIOGRAPHY

Enrollment in radiography courses is limited to students who have completed all basic skill requirements and who have received full acceptance into the program. The minimum passing grade for all RAD courses is C+.

Student learning outcomes in RAD courses support Radiography program goals in accordance with the Joint Review Committee on Education in Radiologic Technology external accreditation Standards.

RAD 102 **Introduction to Radiography and Patient Care** **2 credits**
Prerequisite: formal acceptance into professional phase of Radiography program
Corequisites: RAD 119, RAD 127
An introduction to radiography including accreditation requirements, professional organizations, professional ethics, legal responsibilities, and patient care. *1 lecture / 2 laboratory hours*

RAD 117 **Radiation Protection and Biology** **2 credits**
Prerequisites: RAD 120, RAD 128
Corequisite: RAD 207
Explores principles of radiation biology and radiation protection, including the production of X-rays, the interaction of radiation and matter, radiation units, and methods to protect the radiographer and patient. [Summer offering] *2 lecture hours*

RAD 119 **Principles of Imaging Science I** **2 credits**
Prerequisite: formal acceptance into professional phase of Radiography program
Corequisites: RAD 102, RAD 127
Examines fundamental principles of radiation physics including the atom, electromagnetic radiation, X-ray tube components, and X-ray production. Presents imaging science principles including the primary factors of technique formation and the art of film critique, with clinical application of these principles. [Fall offering]
2 lecture hours

RAD 120 Principles of Imaging Science II 3 credits
Prerequisites: RAD 102, RAD 119, RAD 127
Corequisite: RAD 128
Radiographic principles of image acquisition and evaluation are examined. Imaging physics principles of electricity, magnetism and x-ray circuitry are presented. The laboratory component is designed to demonstrate the application of image acquisition and evaluation. [Spring offering] *2 lecture / 2 laboratory hours*

RAD 127 Radiographic Procedures I 6 credits
Prerequisite: formal acceptance into professional phase of Radiography program
Corequisites: RAD 102, RAD 119
Focuses on standard radiographic positioning and related medical terminology of the chest, abdomen, and upper and lower extremities with laboratory simulation and evaluation. Students acquire correlated clinical experience and begin the clinical competency evaluation process at a clinical affiliate. Radiographic image analysis is assigned. [Fall offering] *3 lecture / 3 laboratory / 210 clinical hours*

RAD 128 Radiographic Procedures II 6 credits
Prerequisites: RAD 102, RAD 119, RAD 127
Corequisite: RAD 120
Focuses on standard radiographic positioning and related medical terminology of the bony thorax, pelvic girdle, upper femora, and vertebral column with laboratory simulation and evaluation. Students acquire correlated clinical experience and continue the clinical competency evaluation process at a clinical affiliate. Radiographic image analysis is assigned. [Spring offering] *2 lecture / 3 laboratory / 225 clinical hours*

RAD 207 Clinical Experience 2 credits
Prerequisites: RAD 120, RAD 128
Corequisite: RAD 117
Students participate in clinical education at a clinical affiliate, performing radiographic procedures in accordance with the clinical competency evaluation process. Radiographic procedures range from routine to complex and are performed on all populations, pediatric through geriatric. Radiographic image analysis is assigned. [Summer offering] *225 clinical hours*

RAD 217 Advanced Imaging Modalities 3 credits
Prerequisites: RAD 117, RAD 207
Corequisite: RAD 228
Presents an overview of special radiographic procedures and advanced imaging and therapeutic technologies. [Fall offering] *3 lecture hours*

RAD 224 Introduction to Pathology 2 credits
Prerequisites: RAD 217, RAD 228
Corequisites: RAD 232, RAD 240
Survey of the disease process and pathological conditions. Includes an in-depth study of diseases commonly demonstrated radiographically. [Spring offering] *2 lecture hours*

RAD 228 Radiographic Procedures III 7 credits
Prerequisites: RAD 117, RAD 207
Corequisite: RAD 217
Focuses on standard radiographic positioning and related medical terminology of the urinary system, alimentary canal, biliary system and cranium with laboratory simulation and evaluation. Students acquire correlated clinical experience and continue the clinical competency evaluation process at a clinical affiliate. Radiographic image analysis is assigned. [Fall offering] *2 lecture / 3 laboratory / 340 clinical hours*

RAD 232 Imaging Equipment and Radiography Seminar 4 credits
Prerequisites: RAD 117, RAD 207
Corequisites: RAD 224, RAD 240
Evaluation of radiographic equipment in tandem with quality control standards to ensure optimal diagnostic images. Includes discussion of state, federal and non-governmental requirements. The seminar focuses on professional development and helps students prepare for the A.R.R.T. examination. [Spring offering]
3 lecture / 2 laboratory hours

RAD 240 **Advanced Clinical Experience I** **3 credits**
Prerequisites: RAD 217, RAD 228
Corequisites: RAD 224, RAD 232
Offers advanced clinical experience in all aspects of radiologic technology in cooperation with clinical affiliates. Students acquire clinical experiences and proficiencies sufficient to demonstrate competency in a specified number and variety of diagnostic radiographic procedures. Radiographic image analysis is assigned. [Spring offering] *340 clinical hours*

RAD 242 **Advanced Clinical Experience II** **2 credits**
Prerequisites: RAD 224, RAD 232, RAD 240
In cooperation with clinical affiliates, students enhance proficiency in all aspects of radiologic technology by performing diagnostic radiographic examinations on a variety of patients. Competency evaluations and academic assessments test skills expected of entry-level radiographers. [Summer offering] *225 clinical hours*

REL — RELIGIOUS STUDIES

GenEd *Humanities*
REL 101 **Introduction to Religious Studies** **3 credits**
An introduction to the study of religions, focusing on the nature of religious beliefs and practices, such as sacred power, myths, texts, art and rituals, the problem of evil, and the relationship between cultures, ethics and religions. *3 lecture hours*

GenEd *Humanities / Diversity and Global Perspective*
REL 102 **Living World Religions** **3 credits**
A comparative study of the world's major religions, through a critical exploration of the essential teachings and cultural context of Hinduism, Buddhist, Judaism, Christianity, Islam, Daoism, Confucianism among others, including pre- and post-colonial African and American traditions. *3 lecture hours*

SOC — SOCIOLOGY

GenEd *Social Science*
SOC 101 **Introduction to Sociology** **3 credits**
Corequisite: ENG 101 or college-level eligibility
An introduction to the sociological analysis of society and culture, including the origin and design of political, economic, and social institutions such as religion, the family, class and caste, education, values, norms, roles, and sociocultural change. Students learn to analyze, evaluate, and critique social structures.
3 lecture hours

SOC 104 **Sociology of Education** **3 credits**
Corequisite: ENG 101 or college-level eligibility
Overview of the relationship between the school and society. Topics include the school as an agent of social change, the role of teachers, multiculturalism, human development stages, domains of learning, and the socio-historical role of education. *3 lecture hours*

GenEd *Social Science*
SOC 107 **Social Problems** **3 credits**
Corequisite: ENG 101 or college-level eligibility
An introduction to sociological theory and methods, with background on the nature, causes of, and possible solutions to major social problems facing large, complex societies. Possible topics discussed include poverty and inequality, drug addiction, crime, health care, racial and minority group issues, and environmental concerns. *3 lecture hours*

GenEd *Diversity and Global Perspective*

SOC 132 **Introduction to Women's and Gender Studies** **3 credits**

Corequisite: ENG 101 or college-level eligibility

[also offered as WGS 132] An introduction to major theories and ideas developed within feminism and the field of gender studies. Specific topics include theoretical explanations of gender; representations of gender; economic, social, and political implications of gender constructs; and cross-cultural perspectives on gender. Texts, films, and other resources contribute toward an understanding of these issues. *3 lecture hours*

GenEd *Social Science / Diversity and Global Perspective*

SOC 201 **Marriage and the Family** **3 credits**

Prerequisite: SOC 101 or SOC 107 with a minimum C grade

Analyzes and evaluates the family as an institution that reflects cultural values, norms and ideals. Topics include gendering, pre-marital sex norms, mate selection, family roles, child rearing, and family structures. *3 lecture hours*

GenEd *Diversity and Global Perspective*

SOC 209 **Racial, Ethnic and Minority Groups** **3 credits**

Prerequisite: SOC 101 or SOC 107 with a minimum C grade

Explores the sociological dynamics of dominant/minority group relations in contemporary U.S. society. Students examine the social construction of race and ethnicity in America as well as the reasons for immigration; patterns of inter-group contact; and the struggles associated with assimilation, acculturation, and other models of dominant/minority group interactions. *3 lecture hours*

SOC 214 **Sociology of Drug Use and Behavior** **3 credits**

Prerequisite: SOC 101 or SOC 107 with a minimum C grade

Analysis of the political, economic, and cultural ramifications of drugs in American society within a global context. Specific topics include constructing drug use and the user as a social problem and the implications for social policy and social control (legislation, prevention, and treatment). *3 lecture hours*

SPA — SPANISH

Note: Students who have taken two or more years of a foreign language, and have done so in the last two years, should begin that language at the 200 level or switch to a new language. If there is doubt, placement will be determined by testing or consultation with the academic division.

GenEd *Humanities*

SPA 101 **Beginning Spanish I** **3 credits**

Spoken communication in Spanish is the goal and means of instruction. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar and culture are introduced. *3 lecture hours*

GenEd *Humanities*

SPA 102 **Beginning Spanish II** **3 credits**

For students who either completed SPA 101 or have otherwise gained elementary prior knowledge of Spanish. Spoken communication in Spanish is the goal and means of instruction. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar and culture are introduced. *3 lecture hours*

SPA 121 **Spanish for Health Providers I** **3 credits**

For healthcare students and professionals. Spoken communication in Spanish is both the goal and means of instruction. Within the context of providing healthcare, medicine and well-being, reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar is introduced. *3 lecture hours*

SPA 122 **Spanish for Health Providers II** **3 credits**
For healthcare students and professionals. Spoken communication in Spanish is both the goal and means of instruction. Within the context of providing healthcare, medicine and well-being, reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar is introduced. *3 lecture hours*

GenEd *Humanities*
SPA 151 **Intermediate Spanish I** **3 credits**
For students who either completed SPA 102 or have otherwise acquired reading and speaking abilities in Spanish at a high-beginner level. Reading, writing, listening, and speaking are the means and goal of instruction. Vocabulary and grammar practiced on topics of culture, politics, and history. *3 lecture hours*

GenEd *Humanities*
SPA 152 **Intermediate Spanish II** **3 credits**
Continuation of SPA 151; not strictly sequenced. For students who either completed SPA 102 or have otherwise acquired reading and speaking abilities in Spanish at a high-novice level. Reading, writing, listening, and speaking are the means and goal of instruction. Vocabulary and grammar practiced on topics of culture, politics, and history. *3 lecture hours*

GenEd *Humanities*
SPA 251 **Advanced Spanish I** **3 credits**
For students who either completed SPA 152 or have otherwise acquired reading, writing, and speaking abilities in Spanish at mid to high-intermediate level. Conversation course on Hispanic culture through reading and interpreting authentic Hispanic texts. Taught entirely in Spanish. Develops speaking and writing skills, builds vocabulary for debate, conversation, and class discussion. *3 lecture hours*

GenEd *Humanities*
SPA 252 **Advanced Spanish II** **3 credits**
For students who either completed SPA 152 or have otherwise acquired reading, writing, and speaking abilities in Spanish at mid to high-intermediate level. Emphasizes oral practice of grammar with explicit review of grammatical constructions. Taught conversationally in Spanish within topics of Hispanic culture through Hispanic texts. Develops speaking and writing. *3 lecture hours*

STA — STUDY ABROAD

STA 101 **Study Abroad Seminar** **1 credit**
Prerequisite: prior approval to travel abroad
Corequisite: Study Abroad course(s)
A complement to a student's study abroad experience. Students are challenged to reflect on their exposure to culturally diverse people, examine multicultural experiences, and draw connections between study abroad and future endeavors, with the goal of articulating this significance to potential employers and other audiences. Students construct an e-portfolio to catalog their work. *1 lecture hour*

SUS — SUSTAINABILITY

SUS 101 **Introduction to Sustainability** **3 credits**
Prerequisites: ENG 024, ENG 034
Examination of the fundamental concepts and principles supporting long-term preservation and availability of natural resources and ecological balance. Factors of sustainability explored include global population growth and consumption, climate change, energy, ecosystems, and community design. *3 lecture hours*

THR — THEATRE

GenEd *Humanities*

THR 101 **Introduction to Theatre** **3 credits**

Beginning study of the theatre as an art form, examines how a dramatic text is transformed into a stage production. Students read and analyze plays to understand theatre production practices – historical as well as current – and dramatic theory. Requires attending current theatre productions. [Fall and Spring offering] *3 lecture hours*

THR 102 **Stagecraft** **3 credits**

Introduction to the skills and practice of technical theatre. Studies include elementary carpentry and set construction, scene painting, shop procedures, lighting, cost efficiency, and safety. Students work on college theatre productions. [Fall and Spring offering] *2 lecture / 2 laboratory hours*

THR 104 **Fundamentals of Acting** **3 credits**

Introductory course for both actors and non-actors, examines the history and theory of acting with emphasis on Stanislavski and 20th century methods. Students participate in breathing, relaxation, and centering exercises, theatre games, and improvisational work to develop basic acting skills. Study includes the fundamentals of text analysis, group rehearsal dynamics, and verbal evaluation of other acting work. The class concludes with a public performance. [Fall and Spring offering] *2 lecture / 2 laboratory hours*

THR 105 **Acting II: Principles of Characterization** **3 credits**

Prerequisite: THR 104

Continuation of the skills developed in THR 104. Focuses on the actor's movement and voice skills to support character work. Students utilize Michael Chekhov's Acting Technique, mask work, and improvisation to broaden basic acting skills. Attendance at dance, chorus, and theatre productions is required. [Spring offering] *2 lecture / 2 studio hours*

THR 150 **Scenic Techniques for the Entertainment Industry** **3 credits**

Prerequisites: ETT 102, THR 102 with a minimum C grade

Through a variety of projects, students are introduced to fundamental techniques and materials used in scenic art. Explores color theory, various media, proper preparation of surfaces, different painting techniques, Pissaro shapes, cartooning backdrops, trompe l'oile, and teamwork. Examines ways these techniques and materials are used in the theatre and other entertainment industries including film, television, theme parks, and casinos. [occasional offering] *2 lecture / 2 laboratory hours*

THR 152 **Lighting Technology** **3 credits**

Prerequisite: ETT 102

Introduction to stage lighting and to the aesthetics of scenic lighting as a visual art. Involves hanging, alignment, focusing, maintenance, and operation of various types of stage lighting fixtures. Students are required to work as a lighting technician at approved venues. *2 lecture / 2 laboratory hours*

THR 207 **Scene Study I** **3 credits**

Combines literary and theatrical skills. Students analyze scenes from plays, screenplays, and non-dramatic literature to discover how theatre artists use character, setting, circumstance, and dialogue when transforming text into performance. The interaction of writers, actors, and directors in developing and presenting scenes in performance is also observed. The class concludes with a public performance. [Fall offering] *3 lecture hours*

GenEd *Humanities*

THR 210 **Theatre History: Classical to Elizabethan** **3 credits**

A study of the evolution of theatre from classical Greek and Roman traditions through the Elizabethan period. Emphasis on the play in performance reflecting the changing physical theatre, as well as the social, political, and artistic currents of each period. [Spring offering] *3 lecture hours*

GenEd *Humanities / Diversity and Global Perspective*

THR 212 **Central Voices in World Drama** **3 credits**

Prerequisite: ENG 102 or divisional permission

Introduces students to important dramatic texts and examines them beyond the page as blueprints for performance. Emphasizes playwriting conventions, elements, styles, trends, and movements to chart changing dramaturgy and production practices in the world. Some playwrights include Christopher Marlowe, Henry David Hwang, Tennessee Williams, Bertolt Brecht, Amiri Baraka, Arthur Miller, Caryl Churchill, and Wole Soyinka. [Fall offering] *3 lecture hours*

THR 217 **Theatre Workshop** **3 credits**

Prerequisites: THR 104 and THR 105 and/or permission of instructor

A practical study of theatrical production by intensive script study and supervised technical projects which culminates in performances for a live audience. Students apply techniques they have learned in prior acting and technical classes to the research, rehearsal and performance of a role in a fully realized theatrical production. [Spring offering] *1 lecture / 5 laboratory hours*

THR 252 **Lighting Design** **3 credits**

Prerequisites: ETT 102, THR 152 with a minimum C grade

Fundamentals of lighting design. Analysis of a script for lighting and development of a workable design concept. Through this concept and an evaluation of the performers' spatial relationships in the production, students generate light plots and the associated paperwork common to a production. Students are required to work as a lighting designer at approved venues. *2 lecture / 2 laboratory hours*

VPA — VISUAL AND PERFORMING ARTS

VPA 228 **Artistic Collaboration Workshop** **3 credits**

Prerequisite: ENG 101

Open to actors, dancers, musicians, media professionals, and fine artists. Alternates between generating new performance work and examining the history of collaboration among established artists of different disciplines in Modernist and Postmodernist movements. Students work with the materials of their specific craft while taking inspiration from the other artistic movements. Participants must attend all sessions, and all assignments require rehearsals outside of class time. [Fall offering] *2 lecture / 2 laboratory hours*

WGS — WOMEN'S AND GENDER STUDIES

GenEd *Diversity and Global Perspective*

WGS 132 **Introduction to Women's and Gender Studies** **3 credits**

Corequisite: ENG 101 or college-level eligibility

[also offered as SOC 132] An introduction to major theories and ideas developed within feminism and the field of gender studies. Specific topics include theoretical explanations of gender; representations of gender; economic, social, and political implications of gender constructs; and cross-cultural perspectives on gender. Texts, films, and other resources contribute toward an understanding of these issues.
3 lecture hours

GenEd *Diversity and Global Perspective*

WGS 221 **Seminar in Women's and Gender Studies** **3 credits**

Prerequisites: ENG 102 with a minimum C grade; 9 credits of electives as listed in the Women's and Gender Studies guidelines

An in-depth interdisciplinary exploration of the contributions of the social sciences, the behavioral sciences, literature, and the arts to the study of gender in society. Specific topics include feminist theories, feminist methodologies, and women and gender issues in relation to culture, politics, and the economy. Texts, films, and other resources contribute toward an understanding of these issues. *3 lecture hours*