

Course Descriptions

Course descriptions appear on the following pages alphabetically by course prefix. The three-letter prefix identifies subject area; the three digits that follow identify the particular course. Generally, courses numbered 100 or lower are academic foundation courses; courses numbered from 101 to 199 are first-year offerings; and 200-level courses are second-year offerings.

Each description specifies the course's credit value, which determines the tuition charge and the extent to which the course contributes toward the credit requirements for a degree.



Throughout the course descriptions, the indicator at left identifies **approved General Education courses**. (See page 130 for details.)

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All courses require college-level competence in reading, writing, and basic mathematics unless otherwise specified. Minimum proficiency is determined by one of the following: college skills placement test; completion of required academic foundations courses in reading, writing, and computation; or evidence of equivalent academic preparation. Specific skill requirements and additional course prerequisites are noted in individual course descriptions.

Prerequisites and Corequisites

Some courses require specific prerequisites or corequisites.

- A **prerequisite** is a course that must be completed before a student is permitted to register for the more advanced course.
- A **corequisite** is a course that a student must take either prior to or while enrolled in the related course.

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General Education Electives

The development of competence in critical thinking, writing, speaking, problem-solving, and information literacy is essential to a student's educational and career success. General Education courses provide students with the opportunity to develop these skills (see MCCC policy, page 24).

The following courses approved for the purposes of General Education at Mercer County Community College are regarded as General Education courses at many, but not all, other colleges and universities in New Jersey and other states. The Statewide Transfer Agreement guarantees transfer of all approved courses that meet General Education requirements for graduates from A.A. and A.S. programs transferring to New Jersey's four-year public colleges and universities. Non-graduates may determine whether particular courses will meet requirements at other New Jersey colleges or universities via NJ Transfer (www.njtransfer.org). Students interested in transferring to out-of-state colleges and universities should consult the catalogs, websites, and staff of those institutions.

Students are advised to review the specific General Education requirements in their respective MCCC programs of study.

Written and Oral Communication in English

CMN 111	Speech: Human Communication
CMN 112	Public Speaking
ENG 101	English Composition I
ENG 102	English Composition II
ENG 112	English Composition II with Speech (A.A.S. programs only)

Mathematics

MAT 115	Algebra and Trigonometry I
MAT 116	Algebra and Trigonometry II
MAT 120	Mathematics for Liberal Arts
MAT 125	Elementary Statistics I
MAT 126	Elementary Statistics II
MAT 135	Intermediate Algebra with Applications
MAT 140	Applied College Algebra
MAT 146	Pre-calculus
MAT 149	Calculus
MAT 151	Calculus I
MAT 152	Calculus II
MAT 200	Statistics for Social and Health Sciences I
MAT 201	Probability and Statistics for Science and Engineering
MAT 205	Statistics for Social and Health Sciences II
MAT 208	Linear Algebra
MAT 251	Calculus III
MAT 252	Differential Equations

Science

BIO 101	General Biology I
BIO 102	General Biology II
BIO 103	Anatomy and Physiology I
BIO 104	Anatomy and Physiology II
BIO 106	Human Anatomy
BIO 113	Biological Science Concepts
* BIO 114	Environmental Science Concepts
* BIO 115	Microbiological Science Concepts
BIO 201	Microbiology
BIO 203	Entomology
BIO 204	Ecology
BIO 208	Genetics
* BIO 215	Principles of Microbiology
CHE 101	General Chemistry I
CHE 102	General Chemistry II
CHE 106	Chemical Science Concepts
CHE 107	General and Physiological Chemistry
CHE 201	Organic Chemistry I
CHE 202	Organic Chemistry II



Look for this indicator of approved General Education courses throughout the course descriptions on pages 132-186.

- * does not satisfy Laboratory Science general education requirement
- course is also a Diversity and Global Perspective general education elective

OHT 101	Plant Science
OHT 108	Soil and Plant Nutrition
PHY 101	College Physics I
PHY 102	College Physics II
PHY 109	Fundamentals of Physics
PHY 111	Physical Science Concepts
PHY 115	University Physics I
PHY 215	University Physics II
PHY 225	University Physics III

Technology

COS 101	Introduction to Computer Science
COS 102	Computer Science I – Algorithms and Programming
DMA 144	Internet Tools and Techniques
IST 101	Computer Concepts with Applications
IST 102	Computer Concepts with Programming
IST 109	Introduction to Programming
IST 140	The Internet and Computer Technology

Social Science

• ANT 101	Anthropology
ECO 103	Basic Economics
ECO 111	Macroeconomics
ECO 112	Microeconomics
• GEO 101	Geography
• GEO 102	Cultural Geography
POL 101	The American Political System
POL 102	State and Local Government
POL 201	International Relations
PSY 101	Introduction to Psychology
PSY 206	Child Development
PSY 207	Developmental Psychology: Across the Life Span
SOC 101	Introduction to Sociology
SOC 107	Social Problems
SOC 201	Marriage and the Family

Humanities**Literature**

- ENG 201 Introduction to Literature: Drama
 ENG 202 Introduction to Literature: Novel
 • ENG 203 World Literature I
 • ENG 204 World Literature II
 ENG 205 American Literature I
 ENG 206 American Literature II
 ENG 208 Modern American Novel
 ENG 211 Shakespeare
 ENG 212 Introduction to Literature: Poetry
 • ENG 213 African American Literature
 ENG 216 Literature Into Film
 • ENG 221 Women in Literature
 ENG 227 English Literature I
 ENG 228 English Literature II
 ENG 238 American History and Literature

Aesthetic Appreciation

- ART 101 Art and Culture
 ART 121 History of Art I
 ART 122 History of Art II
 ART 123 History of Modern Art
 • ART 124 History of Non-Western Art
 ART 125 Topics in Contemporary Art
 CMN 107 Cinema
 • DAN 101 Introduction to Dance and Culture
 MUS 103 Introduction to Music
 • MUS 155 History of Jazz and Blues
 • MUS 156 History of American Pop Music
 MUS 224 Music History and Literature I
 MUS 225 Music History and Literature II
 PHO 110 History of Photography
 THR 101 Introduction to Theatre
 THR 210 Theatre History – Classical to Elizabethan
 • THR 212 Central Voices in World Drama

Philosophy

- PHI 102 Introduction to Philosophy
 PHI 112 Critical Thinking
 PHI 113 Logic
 PHI 204 Ethics
 PHI 205 Moral Choices
 • PHI 210 Eastern Philosophy

Religious Studies

- REL 101 Introduction to Religious Studies
 • REL 102 Living World Religions

World Language

- ASL all American Sign Language courses
 ARB all Arabic courses
 CHI all Chinese courses
 FRE all French courses
 GER all German courses
 ITA all Italian courses
 JPN all Japanese courses
 LAT all Latin courses
 SPA all Spanish courses

Misc. Humanities

- SPA 110 Hispanic Culture

History

All courses in the Historical Perspective list additionally qualify as Humanities general education.

Historical Perspective

- HIS 101 History of Western Civilization to 1648
 HIS 102 History of Western Civilization Since 1648
 HIS 105 United States History to 1865
 HIS 106 United States History Since 1865
 • HIS 109 African American History
 • HIS 112 World History to 1500
 • HIS 113 World History Since 1500
 • HIS 213 Twentieth-Century World History
 HIS 214 The United States Since 1945
 • HIS 218 History of Latin America
 • HIS 221 History of American Women
 • HIS 231 Women in Antiquity

Diversity and Global Perspective

- ANT 101 Anthropology
 ARC 141 Architecture and Culture: International
 ART 124 History of Non-Western Art
 ART 126 African American Art
 BUS 230 Global Environment of Business
 CMN 214 Issues in Intercultural Communication in the United States
 CMN 215 Gender and Communication
 DAN 101 Introduction to Dance and Culture
 ENG 203 World Literature I
 ENG 204 World Literature II
 ENG 213 African American Literature
 ENG 221 Women in Literature
 ENG 222 Children's Literature
 ENG 232 Post-Colonial Women Writers
 GEO 101 Geography
 GEO 102 Cultural Geography
 HIS 109 African American History
 HIS 112 World History to 1500
 HIS 113 World History Since 1500
 HIS 213 Twentieth-Century World History
 HIS 215 The Holocaust and Other Genocides
 HIS 218 History of Latin America
 HIS 221 History of American Women
 HIS 231 Women in Antiquity
 HIS 232 Women in Europe Since 1500
 HOS 115 Food and Culture
 MUS 155 History of Jazz and Blues
 MUS 156 History of American Pop Music
 PHI 210 Eastern Philosophy
 POL 201 International Relations
 PSY 215 Human Sexuality
 PSY 221 The Psychology of Women
 REL 102 Living World Religions
 SOC 132 Introduction to Women's and Gender Studies
 SOC 201 Marriage and the Family
 SOC 209 Racial, Ethnic, and Minority Groups
 SPA 110 Hispanic Culture
 THR 212 Central Voices in World Drama
 WGS 132 Introduction to Women's and Gender Studies
 WGS 221 Seminar in Women's and Gender Studies

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 108 Hospitality Accounting 3 credits

Introductory accounting course integrating the special accounting requirements of the hospitality industry with generally accepted accounting principles. 3 lecture hours

ACC 109 Food, Beverage, and Labor Cost Control 3 credits

Prerequisite: ACC 108 with a minimum C grade
Principles and theories underlying cost control as it applies to the hospitality industry. Problem-solving using spreadsheet software is integral component of instruction. 3 lecture hours

ACC 111 Principles of Financial Accounting 4 credits

Prerequisite: MAT 037 (or MAT 037A and 037B) 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 205 Office Accounting II 3 credits

Prerequisite: ACC 106 with a minimum C grade
Continuation of ACC 106. Topics include receivables and payables; merchandise inventory; plant and equipment; corporations; partnerships; and internal control. 3 lecture hours

ACC 207 Computerized Accounting 3 credits

Prerequisite: 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 105 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

Prerequisites: ADV 101, DMA 105 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 202 Advertising Design III: Portfolio 3 credits

Prerequisites: ADV 101, ADV 201, DMA 105 or divisional permission
Exploration and survey of a variety of methods for presenting art, design, and photography in a professional manner. Using traditional tools and the Macintosh computer, students prepare individual portfolios suitable for presentation to a client or for a job interview. [Spring offering] 1 lecture/4 studio hours

ADV 210 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 and ART 104

with a minimum C grade 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

ADV 222 Illustration II: Digital Drawing 3 credits

Prerequisites: ART 102, ART 104, DMA 105

Interdisciplinary course combining illustration with other fine art and advertising design skills to create a professional commercial art portfolio.

1 lecture/4 studio hours

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 231 Introduction to Computer Numerical Controlled (CNC) Machines 3 credits

Prerequisites: MET 123, MET 124

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*

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*

ANT 222 The Anthropology of Myths, Magic and Witchcraft 3 credits

Prerequisite: ENG 101 or college-level eligibility

Examines the supernatural belief systems and practices of various cultures. Myths, rituals, animism, witchcraft, magic, shamanism, and syncretic religions are critically analyzed to understand the integrative effects of the sacred world. From that foundation, study progresses with a cross-cultural, anthropological comparison of religion and the supernatural.

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

The first in a sequence of courses designed for students with little or no prior knowledge of Arabic. Spoken communication in Arabic is both the end goal and the means of instruction. Emphasizes the four communicative skills in a culturally authentic context. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar skills are also introduced. *3 lecture hours*

**GenEd Humanities*

ARB 102 Beginning Arabic II 3 credits

Prerequisite: ARB 101 with a minimum C grade, placement by exam, or permission of instructor

The second in a sequence of courses designed for students with little or no prior knowledge of Arabic. Spoken communication in Arabic is both the end goal and the means of instruction. Emphasizes the four communicative skills in a culturally authentic context. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar skills are also introduced.

3 lecture hours

**GenEd Humanities*

ARB 201 Intermediate Arabic I 3 credits

Prerequisite: ARB 102 with a minimum C grade, placement by exam, or permission of instructor

The first in a sequence of courses designed for students with a mid to high novice level of competency in Arabic. Spoken communication in Arabic continues to be the end goal and the means of instruction. The four communicative skills of reading, writing, listening and speaking are applied to discussions and debates involving Arab culture, politics, and history. Fundamental grammar points are reviewed. *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

Prerequisite: 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 121 Architecture Basic Design I 5 credits

Corequisite: ARC 102 or or divisional permission

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

Prerequisite: ARC 121 with a minimum C grade

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 125 Architecture and the Environment 3 credits

Introductory course exploring the various relationships between the man-made world and the natural world. Human perceptions of the physical environment are studied relative to their effects on architectural design and human behavior. Analysis of the urban environment reveals the impact of architecture on quality of life. *3 lecture hours*

ARC 134 Building Construction Systems 3 credits

Corequisites: ARC 227, sophomore standing in Architecture or divisional 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 and steel structures. *3 lecture hours*

ARC 140 Field Studies in Architecture and Urban Planning: America 3 credits

Prerequisite: ENG 101 and approval of instructor

Investigation of architectural characteristics and urban planning patterns in select regions. Extended travel in groups creates an "immersion experience." Students study/draw buildings, analyze physical characteristics of different environments, and consider the built environment's impact on quality of life. [occasional offering]

✚ GenEd Diversity and Global Perspective

ARC 141 Architecture and Culture: International 3 credits

Prerequisite: ENG 101 and approval of instructor

Exploration of the history, culture, technology, and quality of life as revealed and understood through the architecture and town planning in selected regions overseas. Travel to the selected region is a major component of the course, providing the student with the opportunity to experience the subjects introduced in the lectures prior to the trip. [occasional offering] *24 lecture/21 lab (overseas) hours*

ARC 227 Architecture Design I 5 credits

Prerequisite: ARC 123 with a minimum C grade

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. [Fall offering] *1 lecture/8 studio hours*

ARC 228 Architecture Design II 5 credits

Prerequisite: ARC 227 with a minimum C grade

Corequisite: ARC 124

Builds on the foundation of ARC 227. More advanced design challenges help the student to sharpen design skills and to continue expanding an architectural vocabulary. [Spring offering] *1 lecture/8 studio hours*

ARC 285 Special Studies in Architecture Design 3 credits

Prerequisites: ARC 228 with a minimum C grade and 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

Focus on the aesthetic and historical evaluation of artists, styles, and cultures from the prehistoric period through Gothic art. Color slides are analyzed and discussed. *3 lecture hours*

★GenEd Humanities

ART 122 History of Art II 3 credits

Survey of artists, styles, and cultures from the Renaissance through mid-19th century European and American art. Investigates the aesthetics of various movements. Color slides are analyzed and discussed. *3 lecture hours*

★GenEd Humanities

ART 123 History of Modern Art 3 credits

Comprehensive survey of the modern period in art beginning with Manet and continuing through the varied styles, schools, and movements of the 20th century. Color slides are analyzed and discussed. *3 lecture hours*

★GenEd Humanities / Diversity and Global Perspective

ART 124 History of Non-Western 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 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

Introduction to modeling the human figure. Develops basic understanding of vocabulary of form while mastering technical skills, plus acquaintance with several media and with organizing form and space. *1 lecture/4 studio hours*

ART 145 Beginning Ceramics: Handbuilding 3 credits

Introduction to basic clay experience, devoted to the hand-building 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 233 Watercolor Painting 3 credits

Prerequisite: ART 102 with a minimum C grade or permission of instructor

Combining technical knowledge with practice, introduces the beginning watercolor painter to the materials and techniques of the past and present. The student studies various approaches to painting with watercolor, tempera, and wash and acquires a basic understanding of the proper selection of paper, brushes, paints and equipment. *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 with a minimum C grade

Continuation of ART 141 with refinement of presentation or where, when, and how the object is viewed. Concentration on a complete statement of form and space. Further exploration of several media, including clay figure and portrait modeling. *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 281 Special Studies in Art History 3 credits*Prerequisites:* completion of 15 credits of art/architecture history with minimum 3.0 GPA, sophomore status and divisional permission

Special course in museum/gallery work for art history students who have completed regular course offerings and desire a supervised apprenticeship. Individual students and faculty develop a project contract that sets forth objectives, standards of quality, evaluation guidelines, and deadlines. [occasional offering]

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*Prerequisite:* MAT 033 or MAT 041*Corequisite:* AUT 111

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*Corequisite:* AUT 110

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 with a minimum C grade

Examines automotive and light truck fuel systems in use today. Coverage includes fuel basics, alternative fuels, electronic fuel injection system applications and on-board diagnostics (OBD II) with focus on theory of operation, drivability diagnostic procedures, and use of computerized diagnostic equipment. *2 lecture/2 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 with a minimum C grade

How electrical/electronic principles are used in current automotive systems. Subjects include vehicle module communications, starting and charging systems, wiring diagrams, chassis wiring service, occupant restraint systems, and other automotive accessories. Major emphasis is on diagnostic skills, testing procedures, and proper service and repair of components. *2 lecture/2 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*Prerequisites:* AUT 110, AUT 111 with a minimum C grade*Corequisites:* AUT 211, AUT 212**AUT 123 Internship in Automotive Technology II 1 credit***Corequisites:* AUT 114, AUT 115**AUT 221 Internship in Automotive Technology III 1 credit***Corequisites:* AUT 213, AUT 224**AUT 222 Internship in Automotive Technology IV 1 credit***Corequisite:* AUT 225

Application of knowledge acquired from lecture and laboratory instruction to gain relevant on-the-job experience in repairing customer vehicles in an actual automotive service facility. The apprentice is supervised by an experienced service employee who works with the program coordinator in developing goals and evaluating performance.

*300 work experience hours***AUT 211 Automotive Emissions and Driveability 3 credits***Prerequisite:* AUT 112 with a minimum C grade

Examines the relationship of automotive emissions with engine driveability concerns. Utilizing information presented in AUT 111 and AUT 112, proper diagnosis of driveability concerns and recommended repair procedures are explored to achieve the best performance and reduced emissions. Emission control devices are examined with an emphasis on operation and emission standards. *2 lecture/2 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 with a minimum C grade

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 four-cycle engines. Involves extensive use of special tools and equipment. *2 lecture/4 laboratory hours*

AUT 223 Internship in Automotive Technology – Independent Study 1 credit*Prerequisites:* AUT 114, AUT 115, AUT 122,

AUT 123, AUT 211, AUT 212, AUT 213,

AUT 221, AUT 222, AUT 224, AUT 225

Application of knowledge acquired from lecture and lab 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 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***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

Study of transportation systems and the aviation industry as they exist today, including applicable government organizations, controls, and regulations as well as career opportunities in aerospace. *3 lecture hours*

AVI 105 Aviation Weather 3 credits

Study of the structure of the atmosphere and weather patterns. Examines weather hazards encountered by commercial pilots, including thunderstorms, turbulence, wind shear, visibility restrictions, icing, and hydroplaning. Coded weather reports, forecasts, weather charts and prognostic charts are utilized in class for flight planning and in-flight decision-making. *3 lecture hours*

AVI 111 Flight Concepts 2 credits

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 113 Flight I 2 credits***Prerequisites:* FAA medical,

proof of U.S. citizenship or TSA approval

Corequisite: AVI 131

Flight training required to complete the private pilot program by acquiring the aeronautical skills necessary to meet the requirements for the private pilot certificate. Consists of approximately 50 hours of flight training. Special fee required.

1 lecture/3 laboratory hours

AVI 114 Flight II 2 credits

Prerequisites: AVI 113 with a minimum C grade, proof of 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 Flight I. Special fee required.

1 lecture/3 laboratory hours

AVI 131 Commercial Pilot I 3 credits

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, successful grade on FAA private pilot computer exam – airplanes

Corequisite: AVI 113 or 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

Explores basic components and systems of the aircraft including air frames, power plants, wings and empennage, plus elementary concepts of engine operating theory and construction.

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 213 Flight III 3 credits

Prerequisite: AVI 114 with a minimum C grade

Corequisite: AVI 231 or MAT 115

Continuation of flight training to obtain the commercial flight certificate, and beginning of instrument flight training. Student completes the solo cross-country requirements and develops a high degree of proficiency in commercial and primary maneuvers. Special fee required.

1 lecture/4 laboratory hours

AVI 214 Flight IV 3 credits

Prerequisite: AVI 213 with a minimum C grade

Students develop a high degree of proficiency in single-engine commercial maneuvers and instrument flying. All flight requirements for the single-engine commercial and instrument rating are completed, and performance meets or exceeds the current FAA instrument and commercial Practical Test Standards. Special fee required.

1 lecture/4 laboratory hours

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: Helicopter Commercial Certificate with Instrument Rating; FAA-approved Medical; proof of U.S. citizenship or TSA approval

Students are expected to acquire the aeronautical skill necessary to meet requirements for the Single Engine Land and Commercial Certificate with Instrument Rating. Consists of 70 hours of flight training or the time needed to meet FAA Practical Test Standards and Airman Certification Standards. Be advised additional time may be needed to meet the minimum standards. Fee required.

1 lecture/3 laboratory hours

AVI 217 Flight VI 1 credit

Prerequisites: Single Engine Land Commercial Pilot Instrument Rating; FAA-approved Medical; proof of U.S. citizenship or TSA approval

An independent study course involving self-study, ground instruction, simulation, and flight training. Students develop the proficiency, knowledge, and skills to complete the required practical examination to add a multi-engine class instrument rating to their single-engine commercial certificate and instrument rating. This training and assessment consists of 12.5 hours in a multi-engine aircraft.

1 lecture/1 laboratory hour

AVI 231 Commercial Pilot III 3 credits

Prerequisite: AVI 132

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 233 Flight Instructor / Airplane 3 credits

Prerequisites: must have passed the FAA Commercial Pilot and Instrument Rating written tests and possess FAA Private Pilot Certificate, or permission of instructor

Corequisite: AVI 214

Prepares students to pass the Federal Aviation Administration FOI (Fundamentals of Instruction) and FIA (Flight Instructor / Airplane) computer examinations. Includes basic theory of learning and human behavior pertaining to flight instruction, flight instructor's responsibilities, flight training maneuvers, plus review of FARs flight planning and performance.

3 lecture hours

AVI 250 Airline Transport Pilot (ATP) Prep I 6 credits

Prerequisite: AVI 216

An independent study course involving self-study, ground instruction, use of simulation devices, and flight training. 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 consists of 112.5 hours in single-engine aircrafts. Fee required.

2 lecture/6 laboratory hours

AVI 251 Airline Transport Pilot (ATP) Prep II 3 credits

Prerequisite: AVI 250

An independent study course involving self-study, ground instruction, use of simulation devices, and flight training. Students develop the proficiency, knowledge, and skills to complete the required day and night, VFR and IFR, cross-country hours for graduation of the Airline Transport Pilot certificate program. This training and assessment consists of 72 hours in single- and multi-engine aircrafts. Fee required.

1 lecture/3 laboratory hours

BCT — Building Construction Technology

BCT 101 Construction Graphics 3 credits

Corequisite: BCT 110 or divisional permission

Introduction to the interpretation of construction drawings for residential and light commercial projects, cultivating an understanding of how plans, elevations, sections, and details relate to each other. Students render basic architectural drawings by hand as well as with CAD software, and consistently practice and apply informal sketching techniques.

2 lecture/2 laboratory hours

BCT 104 Codes for Construction and Design 3 credits

Prerequisites: BCT 110, BCT 120

An overview of regulations for design and/or construction of residences and small buildings, including their applicability and intent subject to the interpretations imposed by the State of New Jersey.

2 lecture/2 laboratory hours

BCT 110 Building Construction Materials and Methods I 3 credits

A survey of materials and methods in building construction, emphasizing common construction systems primarily on low-rise light wood and steel structures. Addresses the fundamental processes, organization, and constraints of the construction industry. The building envelope, enclosure systems for thermal insulation, vapor retarders, air barriers, and moisture control are explored with an introduction to the general concepts of sustainable design.

3 lecture hours

BCT 112 Building Construction Materials and Methods II 3 credits

Prerequisites: BCT 110, BCT 120

Continued study of materials and methods in building construction with emphasis on concrete and steel frame structures and masonry load-bearing walls. Exterior wall cladding and curtain wall systems are examined relative to concepts of sustainable design.

3 lecture hours

BCT 232 Construction Estimating 3 credits

Prerequisites: BCT 104, BCT 110, BCT 120, ENG 101 or divisional permission

Examination of the role of construction documents for producing construction job estimates, as well as the roles and responsibilities of the construction cost estimator for both residential and light commercial applications. Along with contracts and various bid types, computer estimating software applications are introduced.

3 lecture hours

BCT 234 Construction Contracts and Specifications 3 credits

Prerequisites: BCT 104, BCT 110, BCT 120, ENG 101 with a minimum C grade, or divisional permission

A detailed examination of construction documents along with methods for producing general, special, and technical sections of construction specifications. Case studies and class discussions contribute toward analysis of construction contracts and practices with regard to business law and liability, as well as contractor, architect, and engineer responsibilities. Students prepare several technical sections for a small commercial building.

3 lecture hours

BCT 236 Construction Project Administration and Management 3 credits

Prerequisites: BCT 232, BCT 234, or divisional permission

Introduction to the design/construction process, contract documents, organization of the construction firm, subcontractor relationships, records and reports, construction safety, and quality control. Bar chart and critical path method scheduling are introduced along with several commonly used computer applications for construction administration and management.

3 lecture 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; high school chemistry or CHE 100; MAT 135 or equivalent
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

BCT 101

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BIO 104

COURSES

***GenEd Science**

BIO 106 Human Anatomy 4 credits

Prerequisite: MAT 037 (or MAT 037A and 037B)

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 037A and 037B)

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 115 Microbiological Science Concepts 3 credits

Prerequisite: ENG 101 or permission of instructor

Based on the *Unseen Life on Earth* series developed in conjunction with the American Society of Microbiology. Topics include microbial cell biology, biotechnological uses of microbes, and microbial evolution and ecosystems. Also explores the control of microorganisms and relationships between microbes and higher organisms. [Meets science and technology general education requirement.] *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 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

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 103, 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 105 Business Writing 3 credits

Intense coverage of grammar, punctuation, and word usage skills. Emphasizes realistic application of current usage and style in today's work world.

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 Business Law II 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 135 or MAT 140 with a minimum C grade
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 218 Principles of Financial Management 3 credits

Prerequisites: ACC 111; ECO 103 or ECO 111; BUS 205 or divisional permission

Principles of financial management as applied to the firm, including the role of the finance manager; analysis of financial statements and the firm's performance; raising capital in the financial markets; the financing mix; valuation of financial assets; long term capital budgeting; working capital management; and international business finance.

[occasional offering] 3 lecture hours

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 how to design teams to function optimally with a focus on skills for effective team participation.

3 lecture hours

BUS 101

BUS 225

COURSES

★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:* 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 135*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 037A and 037B) or proficiency in basic algebra *Corequisite:* ENG 101

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 recommended; MAT 037 (or MAT 037A and 037B) 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**

The first in a sequence of courses designed for students with little or no prior knowledge of Mandarin Chinese. Spoken communication in Chinese is both the end goal and the means of instruction. Emphasizes the four communicative skills in a culturally authentic context. Reading and writing in both Pinyin and Chinese characters are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar skills are also introduced. *3 lecture hours*

(*)GenEd Humanities**CHI 102 Beginning Chinese II 3 credits**

Prerequisite: CHI 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 Mandarin Chinese. Spoken communication in Chinese is both the end goal and the means of instruction. Emphasizes the four communicative skills in a culturally authentic context. Reading and writing in both Pinyin and Chinese characters are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar skills are also introduced. *3 lecture hours*

(*)GenEd Humanities**CHI 201 Intermediate Chinese I 3 credits**

Prerequisite: CHI 102 with a minimum C grade or permission of instructor

The first in a sequence of courses designed for students with a mid to high novice level of competency in Mandarin Chinese. Spoken communication in Chinese continues to be the end goal and the means of instruction. The four communicative skills of reading, writing, listening and speaking are applied to discussions and debates involving Chinese culture, politics, and history. Fundamental grammar points are reviewed. *3 lecture hours*

(*)GenEd Humanities**CHI 202 Intermediate Chinese II 3 credits**

Prerequisite: CHI 201 with a minimum C grade, placement by exam, or permission of instructor

The second in a sequence of courses designed for students with a mid to high novice level of competency in Chinese. Spoken communication in Chinese continues to be the end goal and the means of instruction. The four communicative skills of reading, writing, listening and speaking are applied to discussions and debates involving Chinese culture, politics, and history. Fundamental grammar points are reviewed. *3 lecture hours*

CIS — Computer Information Systems

CIS 112 Introduction to PC Business Applications 3 credits

Prerequisite: OST 111 or equivalent 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: 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 182 PC Applications: Presentations 3 credits

Prerequisite: IST 101 or equivalent proficiency

Students use Microsoft PowerPoint software to create and customize presentations, including insertion of tables, flowcharts and organization charts. Students work with objects, lines, fills and colors, text manipulation, drawing techniques, animation and slide show effects. *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: MAT 115 or divisional permission; ENT 116 or prior drafting experience; DRA 190

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 104 Applied Mechanics****3 credits**

Prerequisite: MAT 115 or divisional permission

Introduction to the basic principles of engineering mechanics for study of applied technology. Topics include terminology, types of force systems, determination of the resultant force of force systems, analysis of coplanar force systems in equilibrium, centroids, and moments of inertia and friction. [Spring offering]

*3 lecture hours***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 224 Soil Mechanics****3 credits**

Prerequisite: MAT 115

Study of the characteristics and performance of soils: volumetry and gravimetry, moisture-density relations, consistency, identification and classification, ground water, capillary action, permeability, frost action, shear strength, stress distribution, earth pressure, and soil sampling and exploration. Individual and group reports are required for lab tests.

*2 lecture/2 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

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***CIV 237 Mechanics of Materials Fundamentals****4 credits**

Prerequisite: CIV 104 with a minimum C grade

Study of the fundamental concepts of stress and strain of elastic bodies when subjected to axial or bending loads. Analyzes shear and bending moment diagrams, considers compression members, and introduces principles of torsion. The lab introduces various testing procedures to determine the physical properties of such materials as steel, aluminum, brass, cast iron, and wood. [Fall offering]

*3 lecture/3 laboratory hours***CIV 281 Cooperative Education I – Civil Engineering Technology****2 credits**

Relevant experiences to complement classroom instruction with practical on-the-job application of engineering practices in local industry for construction/civil engineering students. Additional expenses for travel, clothing, and equipment may be incurred.

*1 lecture/90 work experience hours***CIV 282 Cooperative Education II – Civil Engineering Technology****1 credit**

Continuation of CIV 281. Students may also enroll in CIV 281 concurrently.

*90 work experience 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*

★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 TV 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 Intermediate TV Production 3 credits*Prerequisite:* CMN 141 with a minimum C grade

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 143 Graphics and Effects for Video 3 credits*Prerequisite:* CMN 141 with a minimum C grade*Corequisite:* CMN 142

Techniques for using graphics and visual effects to enhance video productions through the use of digital imaging and compositing software. A variety of multimedia production projects reinforces proper file management and image compression techniques. *2 lecture/2 laboratory 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 145 Acting/Directing for the Camera 3 credits*Corequisite:* ENG 101

Focuses on the application of acting and directing actors for single-camera film production. This hands-on course addresses the aesthetics, theory and practice of camera placement, shot execution, and the many aspects of directing the actor. *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 151 Introduction to Radio 3 credits

Orientation to commercial radio in the United States. Topics include historical development, ownership, management, programming, music, sales, promotion, radio journalism, commercial copy writing, audience measurement, the ethics of broadcasting, and government regulation. Students learn the hands-on technical skills necessary to operate both analog and digital consoles and audio editing software. Production projects include newscasts, commercials, and music programs. *2 lecture/2 studio hours*

CMN 153 Digital Audio Production I 3 credits*Prerequisite:* CMN 151 with a minimum C grade

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 161 Writing for Media 3 credits

Prerequisite: ENG 101

Overview of written formats commonly used in radio and television. Writing assignments include 30- and 60-second radio and television commercials, broadcast news copy, interviews, public service announcements, and dramatic teleplays. *3 lecture 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 news writing (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 for Video 3 credits

Prerequisites: CMN 141, CMN 142, CMN 143 with a minimum C grade

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 141, CMN 142, CMN 143, CMN 241

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 steady-cam camera technique, camera lens systems, cinema lighting techniques, and hi-definition image acquisition. *2 lecture/2 studio hours*

CMN 250 Announcing for Radio and Electronic Media 3 credits

Prerequisite: CMN 151 with a minimum C grade or permission of course coordinator

Students explore, practice and develop announcing techniques used in broadcasting and other commercial applications. Practical assignments provide training for a variety of professional roles such as radio disc jockeys, broadcast journalists, voice-over announcers, and voice actors. Students produce commercials, public service announcements, interview programs, and corporate/industrial voice-overs and simulate the on-air sound of various radio station formats. *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 multi-layered recordings using live talent in a studio environment. *2 lecture/2 laboratory hours*

CMN 254 Live Sound Reinforcement 3 credits

Prerequisite: ETT 102 or permission of coordinator

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 260 Convergence Newsroom 3 credits*Prerequisite:* CMN 131

A multimedia capstone course in convergence media. Students complete all elements of online and print news including writing a variety of journalistic articles, taking photographs, making and editing video footage, designing info graphics, learning the fundamentals of marketing and preparing all content for both online and print formats.

*2 lecture/2 laboratory hours***CMN 274 Radio/TV Management 3 credits***Prerequisites:* CMN 101, CMN 141, CMN 151 with a minimum C grade

Study of the functions of middle and upper managers of radio, television, and cable operations. As individuals and as members of a management team, students solve case studies of typical problems faced by general managers, program directors, news directors, promotions directors, and sales managers in broadcast and cable companies. [Spring offering]

*3 lecture hours***CMN 285 Special Studies in Television Production 3 credits***Prerequisites:* CMN 242, 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 161, CMN 252, 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 107, IST 108, IST 109, or IST 123
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. [Spring offering]

*4 lecture hours***COS 210 Computer Science II – Data Structures 4 credits***Prerequisite:* COS 102

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. [Spring offering]

*3 lecture/2 laboratory hours***COS 231 Fundamentals of Computer Architecture 4 credits***Prerequisite:* COS 102 or equivalent

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*

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 Jazz Dance I **2 credits**
Fundamentals of jazz dance techniques with emphasis on syncopated rhythms and isolations of the body. [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 Jazz Dance II **2 credits**
Prerequisite: DAN 105 or permission of instructor
Study of jazz dance techniques on an intermediate level, with emphasis on syncopated rhythms and isolations of the body. [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 105 Introduction to Computer Art 3 credits

Introduction to the use of the computer as an art and design tool. Emphasizes fundamental color computer graphics skills through practical experience with two-dimensional drawing, timeline, image editing, and 3D spatial programs currently used by art and design professionals. Hardware used includes Macintosh or PC computers, scanners, and black-and-white and color printers. *1 lecture/4 studio hours*

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 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 125 Pre-Production Design 3 credits

Prerequisites: ART 102, ART 105, and DMA 105 with minimum C grades or divisional permission

Corequisite or Prerequisite: ART 104

Pre-production planning and design for animation and interactive media. Without use of computers, students learn to apply creative thinking, design principles and production processes essential to the creation of successful animations and multimedia programs. Practical experience in concept generation, concept drawing, storyboarding, and project organization. *1 lecture/4 studio hours*

DMA 135 Digital Narrative 3 credits

Prerequisite: DMA 105

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*

DMA 140 Interactive Web Animation 3 credits

Prerequisite: DMA 144 or DMA 145

Introduction to two-dimensional animation using the professional software application Flash to create short animations for the Web or television and simple Web games and interfaces. Specific instruction includes how to draw and animate vector graphics, import audio, create buttons and symbols, and use Actions scripting to create nonlinear interactivity and animation. *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

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 220 3-D Modeling II 3 credits

Prerequisite: DMA 120 with a minimum C grade or divisional permission

Covers advanced concepts and materials of 3-D modeling and virtual scene creation for those who wish to explore 3-D modeling and illustration in depth. Topics include environment creation, 3-D paint, modeling for games, character models, modeling with nurbs/patches and compositing. [Fall offering] *1 lecture/4 studio hours*

DMA 224 Rigging for Animation and Games 3 credits

Prerequisite: DMA 120 with a minimum C grade

Corequisite: DMA 225

Character rigging and design techniques for gaming, broadcast and feature film industries. Topics include node-based hierarchies, forward and inverse kinematics, constraints, user interfaces, skinning, and melscripting. Utilizing both PC and Mac computers with professional digital content creation software, students design and construct armatures for different object types. *1 lecture/4 studio hours*

DMA 225 Computer Animation I 3 credits

Prerequisites: DMA 120 and 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 Computer Animation II 3 credits

Prerequisite: DMA 225 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 or divisional permission

Intermediate skills in Web design using a professional software application. Focuses on principles of organization, interface design and usability. Students learn how to create a site map, design navigational systems, integrate Flash and video content, batch process images, create templates, insert forms, design pages using XHTML cascading style sheets, and add advanced interactivity using JavaScript. *1 lecture/4 studio hours*

DMA 105

DMA 245

COURSES

DMA 246 Web Design III: Advanced Project 3 credits*Prerequisites:* DMA 110 and DMA 245

with a minimum C grade or divisional permission

Develops practical skills and knowledge of Web design while executing a project for a community client in a professional atmosphere. Visual design, information architecture, and Web production are all based on client goals, messages, and deadlines outlined during the project definition phase. Advanced Web design techniques are implemented utilizing professional-level software and applications. [Spring offering]

*1 lecture/4 studio hours***DMA 247 Web Application Development 3 credits***Prerequisite:* DMA 245

Builds upon previous Web development knowledge by introducing concepts of server-side programming and database integration. Emphasizes use of server space and client-side processing to enhance the collation and delivery of information to the viewer. Programming languages covered include PHP, MySQL and JavaScript (jQuery library).

*1 lecture/4 studio hours***DMA 250 Digital Portfolio Seminar 3 credits**

Prerequisite: DMA 245 or DMA 211 or DMA 225 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***Prerequisites:* ART 105, DMA 105

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 285 Special Studies in Digital Media Arts 3 credits***Prerequisites:* DMA 226 or DMA 245 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 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 217 Structural Steel Design and Drafting 3 credits***Prerequisites:* ABT 120, DRA 190*Corequisite:* CIV 237

Examines the problems common to structural design of steel and similar materials relative to the architectural frame of a structure. Relies heavily on the principles of mechanics and mechanics of materials fundamentals. Requires familiarity with general steel design codes and the preparation of structural drawings.

*2 lecture/3 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 135 or MAT 140 with a minimum C grade

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 135 or MAT 140 with a minimum C grade

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***2018 - 2019**

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 135
Focuses on direct current (DC) devices and circuits. Progresses from the fundamentals of electricity, Ohm's Law, Kirchhoff'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 semi-conductors. 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 141 Electrical Wiring and Cabling 3 credits

Prerequisite: EET 130
Focus on electrical wiring techniques starting with 120/240 volts. Instruction for adding connectors to and installing coax, CAT5/6, and fiber optic cables emphasizes the codes and standards to be followed along with the correct tools to be used. Class time allots equally between lectures reinforced by hands-on practice. 2 lecture/2 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 215 Fiber Optics 4 credits

Prerequisite: EET 130 or EET 138 or MAT 135 or equivalent
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. 3 lecture/2 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 (see page 8). 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
Intended to help students become better readers and thinkers who take ownership of their learning. Students read, analyze, discuss, and write on the material presented in the course. Introduction to intermediate college-level readings (both fiction and non-fiction) builds comprehension and study skills to succeed in college-level courses. 4 lecture hours

ENG 034 Introduction to College Reading II 4 credits*Prerequisite:* ENG 033 or placement test

Intended to help students become better readers and thinkers who take ownership of their learning. Exposed to the beginning principles of critical reading and thinking, students analyze text to identify facts, fallacies, claims, premises, and arguments. Students are expected to take notes, improve vocabulary, and independently interpret text. *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. *3 lecture hours*

*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

A survey of literary works by writers of the African Diaspora produced in the Americas from the 18th century to the present. Proceeds chronologically, starting with African-born producers of the literature, oral and written, continuing with the folk tradition, moving through the slave narratives, the Harlem Renaissance, the Black Arts Movement and ending with contemporary works and the immigrant experiences. [Spring offering] *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*

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
 Critical evaluation of the various genres of literature written for children. Examines ancient folk tales like Aesop's Fables, modern picture books such as those by Maurice Sendak, and classic fiction such as the masterpieces of Lewis Carroll and Mark Twain. [Fall and Spring offering] *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 English literature from the Middle English period through the Neoclassical period. Particular attention to the works of Chaucer, Shakespeare, Milton, Donne, Dryden and Pope. [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 231 Literature of AIDS: Confronting Catastrophe **3 credits**
Prerequisite: minimum C grade in ENG 102 or divisional permission
 Close readings of the stories and poems emerging from AIDS-affected writers, with widely representative writing emphasizing the work of gay authors. Examines divergent responses to the widespread societal denial of AIDS. [occasional offering] *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 Humanities
ENG 238 American History and Literature **3 credits**
Prerequisite: minimum C grade in ENG 102 or divisional permission
 [also offered as HIS 238] An interdisciplinary examination of American literature and society with special emphasis on contemporary perspectives and the historical context in which texts were written. Focuses on American history and literature since 1865, covering such topics as gender, race, ethnicity and immigration, social class, the West, war, and popular culture. [occasional offering] *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 (see page 8).

ESL 041 ESL Foundation in Speech Concepts 4 credits

Prerequisite: score of 60 or lower on ESL Accuplacer Listening Test

Corequisites: ESL 042, ESL 043

Students begin to use basic speaking and listening strategies in English as a foreign language. Activities involve markers, syllables, high-frequency words, recognition of question words, intonation, stress, pronunciation, and dialogue. Listening to audio CDs improves aural comprehension and creates discussion points for stimulating conversation and language practice. Global topics initiate speaking and listening lessons.

4 lecture hours

ESL 042 ESL Foundation in Reading Concepts 4 credits

Prerequisite: score of 60 or lower on ESL Accuplacer Reading Test

Corequisites: ESL 041, ESL 043

Introduces a foundational understanding of language form and meaning through the study of vocabulary and reading content-based text. Reading lessons are initiated with global topics.

4 lecture hours

ESL 043 ESL Foundation in Grammar Concepts 4 credits

Prerequisite: score of 60 or lower on ESL Accuplacer Language Test

Corequisites: ESL 041, ESL 042

Introduces students to basic grammar connected in an American cultural context. Provides learners with useful and meaningful skills to apply beginning grammar necessary to communicate verbally and in writing.

4 lecture hours

ESL 051 ESL Speech Concepts I 4 credits

Prerequisite: score of 61-75 on ESL Accuplacer

Listening Test or successful completion of ESL 041

Develops speaking and listening skills for high-beginner students. Emphasis on expanding vocabulary, accent reduction, and gaining fluency and confidence using English spontaneously. Idioms, grammatical forms, morphology, phonology and etymology stressed.

4 lecture hours

ESL 052 ESL Reading and Critical Thinking I 4 credits

Prerequisite: score of 61-75 on ESL Accuplacer

Reading Test or successful completion of ESL 042

Emphasis on increasing reading fluency and comprehension, improving vocabulary, and relying on context clues to understand texts.

4 lecture hours

ESL 053 ESL Writing Concepts I 4 credits

Prerequisite: score of 61-75 on ESL Accuplacer

Language Test or successful completion of ESL 043

Emphasis on orienting students to basic sentence patterns and types, writing topical paragraphs, and organizing one-page essays. Critical reading and application of grammar stressed.

4 lecture hours

ESL 061 ESL Speech Concepts II 4 credits

Prerequisite: score of 76-88 on ESL Accuplacer

Listening Test or successful completion of ESL 051

Spontaneous oral English for intermediate-level students. Reinforces ability to speak and listen effectively in a second language with stress on building fluency and vocabulary, accent reduction, word syntax, idioms, grammatical forms, morphology, phonology, and etymology.

4 lecture hours

ESL 062 ESL Reading and Critical Thinking II 4 credits

Prerequisite: score of 76-88 on ESL Accuplacer

Reading Test or successful completion of ESL 052

Emphasis on developing and using academic and idiomatic vocabulary through reading narrative, expository and argumentative essays as well as longer readings. Exposure to critical analysis and interpretation of English texts.

4 lecture hours

ESL 063 ESL Writing Concepts II 4 credits

Prerequisite: score of 76-88 on ESL Accuplacer

Language Test or successful completion of ESL 053

Sentence patterns, sentence sequences, and the development of a paragraph are emphasized. The student learns to correct errors in grammar and punctuation to produce standard English sentences which support a topic. Outstanding performance in this course may qualify the student to enroll in ENG 101, English Composition I.

4 lecture hours

ESL 071 ESL Speech Concepts III 4 credits

Prerequisite: score of 89-108 on ESL Accuplacer

Listening Test or successful completion of ESL 061

Advanced speaking and listening. Themes of intercultural communication and global issues provide centerpiece of conversations and interactions. Developing higher skills in verbal and non-verbal communication, colloquial and idiomatic expressions and fluency, students present formal speeches, critiques, and feedback.

4 lecture hours

ESL 072 ESL Reading and Critical Thinking III 4 credits

Prerequisite: score of 89-108 on ESL Accuplacer

Reading Test or successful completion of ESL 062

Further reinforces and refines reading skills, comprehension, vocabulary expansion and enhancing oral presentation and interpretation techniques as well as analytical thinking skills.

4 lecture hours

ESL 073 ESL Writing Concepts III 4 credits

Prerequisite: score of 89-108 on ESL Accuplacer

Language Test or successful completion of ESL 063

Stresses spontaneous, fluent, and idiomatic writing. Includes practice in various forms of writing, from personal to more formal, using various source materials ranging from magazines to works of fiction. Students who successfully complete this course qualify to enroll in ENG 101, English Composition I.

4 lecture hours

ENT 116

ESL 073

COURSES

ESL 080 ESL TOEFL iBT Prep Course 3 credits

Prerequisite: minimum score of 60 on TOEFL test or a minimum intermediate level of English to be determined by the ESL program coordinator
Corequisites: 06 and 07 level ESL courses at MCCC

Online course prepares ESL students for TOEFL iBT (Internet-based test). Material covered offers many opportunities to practice in the Reading, Listening, Speaking, and Writing sections of the exam. Students may repeat this course up to three times to achieve desired TOEFL iBT score. Grade of "credit" / "no credit" based on time spent online.

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 Design I 3 credits

Corequisite: FAS 130

Coordinated with Introduction to Fashion Drawing, emphasizes development of color stories, concepts and fabrications. Study includes exploration of visual sensitivity, mastering fashion terminology, developing original design concepts, as well as storyboard compiling and design research. *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 Computerized Fashion Drawing 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 Merchandising 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 Buying 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 Design II: 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***FAS 265 Fashion Internship 3 credits***Prerequisite:* coordinator approval

Provides students with the unique opportunity to gain industry experience while earning college credit. Students complete a predetermined number of hours at an approved host location offering experience not found in the traditional classroom.

*180 work experience 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 107 Fire Prevention and Code Enforcement I 5 credits**

History, theory, and practice of fire prevention and code enforcement. Covers relevant codes, recognition of fire hazards, and implementation of an inspection program. Meets 90-hour requirement to sit for the Fire Inspector Prevention I examination leading to certification as a Fire Inspector in New Jersey.

*4 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

The first in a sequence of courses designed for students with little or no prior knowledge of French. Spoken communication in French is both the end goal and the means of instruction. Emphasizes the four communicative skills in a culturally authentic context. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar skills are also introduced.

3 lecture hours

*GenEd Humanities

FRE 102 Beginning French II 3 credits

Prerequisite: FRE 101 with a minimum C grade, placement by exam, or permission of instructor

The second in a sequence of courses designed for students with little or no prior knowledge of French. Spoken communication in French is both the end goal and the means of instruction. Emphasizes the four communicative skills in a culturally authentic context. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar skills are also introduced.

3 lecture hours

*GenEd Humanities

FRE 201 Intermediate French I 3 credits

Prerequisite: FRE 102 with a minimum C grade, placement by exam, or permission of instructor

The first in a sequence of courses designed for students with a mid to high novice level of competency in French. Spoken communication in French continues to be the end goal and the means of instruction. The four communicative skills of reading, writing, listening and speaking are applied to discussions and debates involving Francophone culture, politics, and history. Fundamental grammar points are reviewed.

3 lecture hours

*GenEd Humanities

FRE 202 Intermediate French II 3 credits

Prerequisite: FRE 201 with a minimum C grade, placement by exam, or permission of instructor

The second in a sequence of courses designed for students with a mid to high novice level of competency in French. Spoken communication in French continues to be the end goal and the means of instruction. The four communicative skills of reading, writing, listening and speaking are applied to discussions and debates involving Francophone culture, politics, and history. Fundamental grammar points are reviewed.

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 (16-20 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 224 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 16-20 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 224 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*Prerequisites:* COS 101, DMA 120, DMA 135, ENG 101, GAM 120, or permission of instructor

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:* COS 101*Corequisite:* 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:* GAM 140

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 260 Game Development 3 credits*Prerequisite:* GAM 240

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

GEO — Geography**GenEd Social Science / Diversity and Global Perspective***GEO 101 Geography 3 credits**

Surveys the main concepts of geography, including types of climate, topography, transportation and mapping. The current issues of environmental protection and city planning are studied with emphasis on the United States and political and economic factors.

3 lecture hours

GenEd Social Science / Diversity and Global Perspective*GEO 102 Cultural Geography 3 credits**

Surveys the cultural geography of people living in significant regions such as India, China, Japan, Europe, Canada, Africa, and Latin America. A study of the geography, history, art, and way of life of people in various nations leads to an appreciation of their cultural heritage and achievements.

3 lecture 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**

The first in a sequence of courses designed for students with little or no prior knowledge of German. Spoken communication in German is both the end goal and the means of instruction. Emphasizes the four communicative skills in a culturally authentic context. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar skills are also introduced.

3 lecture hours

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

Prerequisite: GER 101 with a minimum C grade, placement by exam, or permission of instructor

The second in a sequence of courses designed for students with little or no prior knowledge of German. Spoken communication in German is both the end goal and the means of instruction. Emphasizes the four communicative skills in a culturally authentic context. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar skills are also introduced.

3 lecture hours

***GenEd Humanities**
GER 201 Intermediate German I 3 credits
Prerequisite: GER 102 with a minimum C grade, placement by exam, or permission of instructor
 The first in a sequence of courses designed for students with a mid to high novice level of competency in German. Spoken communication in German continues to be the end goal and the means of instruction. The four communicative skills of reading, writing, listening and speaking are applied to discussions and debates involving German culture, politics, and history. Fundamental grammar points are reviewed.
3 lecture hours

***GenEd Humanities**
GER 202 Intermediate German II 3 credits
Prerequisite: GER 201 with a minimum C grade, placement by exam, or permission of instructor
 The second in a sequence of courses designed for students with a mid to high novice level of competency in German. Spoken communication in German continues to be the end goal and the means of instruction. The four communicative skills of reading, writing, listening and speaking are applied to discussions and debates involving German culture, politics, and history. Fundamental grammar points are reviewed.
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

HIS 207 American Constitutional History 3 credits
 Study of the Constitution's place in American history with emphasis on presidential authority, judicial interpretation, constitutional crises, the evolution of Federalism, and the status of civil liberty, past and present.
3 lecture hours

HIS 210 History of American Popular Culture 3 credits
 Explores social, economic, and political contexts through examination of the films, sports, television, music, print media, literature, and fads that shape, influence, and respond to cultural trends.
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 225 History of England 3 credits

Survey from the earliest period to the present with emphasis on significant aspects of the Celtic, Roman, and Anglo-Saxon heritage, medieval and renaissance England, and English achievements in recent centuries in government, social reform, and culture. [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

HIS 230 Special Topics in History 3 credits

Prerequisite: ENG 101 or permission of instructor

In-depth and specialized variable studies of some of the major individuals and cultural forces in U.S. and world history. Content may vary each time the course is offered. [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 238 American History and Literature 3 credits

Prerequisite: ENG 102 with a minimum C grade

[also offered as ENG 238] An interdisciplinary examination of American literature and society with special emphasis on contemporary perspectives and the historical context in which texts were written. Focuses on American history and literature since 1865, covering such topics as gender, race, ethnicity and immigration, social class, the West, war, and popular culture.

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

Corequisite: HOS 111

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 103 Protocol for International Travel 3 credits
Develops awareness of other cultures as needed for international travel. Covers itinerary preparation, currency exchange, passports and visas, health and safety hazards, plus proper use of English and cultural interpretations of gestures.
3 lecture 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, HOS 217
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 037A and 037B)
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 123 Introduction to Travel and Tourism 3 credits
Develops skills in constructing itineraries; domestic and international ticketing; handling hotel, motel, and resort reservations; arranging cruises, tours, and car rentals; addressing customer and immigration issues. Emphasizes the responsibilities, professional behavior and ethics required for success.
3 lecture hours

HOS 124 Computerized Reservations 3 credits
Prerequisite: computer literacy
Provides an understanding of the various facets of travel/tourism reservations with an emphasis on developing skills in utilizing automated reservation systems. Students work with simulated system software widely used in the industry.
3 lecture hours

HOS 185 Table Service 2 credits
Corequisite: 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
Prerequisite: HOS 111
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 205 Menu Planning/Costing and Design 2 credits
Prerequisite: HOS 111
Applicable to a wide variety of food service operations, covers pricing strategies and support systems, ordering, conversion of recipes from small to large quantities, physical types of menus, marketing strategies, and food preferences of the public. Special emphasis on the planning of nutritional menus.
2 lecture hours

HOS 207 Grilling, Barbecuing, and Smoking 3 credits
Introduction to the principles, techniques and skills necessary to prepare outdoor meals. Students prepare a wide variety of foods using grilling, barbecuing, and smoking cooking techniques.
1 lecture/4 laboratory 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 209 Garde Manger 3 credits

Prerequisites: HOS 101 and HOS 118 with a minimum C grade
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/4 laboratory hours*

HOS 210 Applied Kitchen Skills – Cafe 3 credits

Prerequisites: HOS 102, HOS 217

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 037A and 037B)

Corequisite: HOS 111

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

Prerequisites: 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, MAT 120

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: HOS 101, 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

Prerequisites: HOS 102, 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 239 Restaurant Desserts 2 credits

Prerequisite: 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 240 Classical Cuisine / Advanced International 2 credits

Prerequisites: HOS 102, HOS 115

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

Prerequisites: HOS 218, HOS 219

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

Prerequisites: HOS 218, HOS 219

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 249 Advanced Pastry 2 credits

Prerequisite: HOS 218

How to produce, plate up, and merchandise restaurant-style desserts. Along with an emphasis on dessert menu planning, production techniques are practiced involving plate-up and garnish, focusing on international presentation styles and flavor profiles. *1 lecture/3 laboratory hours*

HOS 250 Pastry Arts Practicum 2 credits

Prerequisites: HOS 247, HOS 248

Corequisite: HOS 111

Focus on practical skill sets – including those related to presentation, sanitation, and overall quality – required for pastry arts involving breads, quick breads, sweet dough, cookies, cake decorating, puff pastry, and pie production. Guidelines applied for the final exam match those of the nationally recognized Skills USA competition. *1 lecture/2 laboratory hours*

HOS 251 Culinary Arts Practicum 2 credits

Prerequisites: HOS 210; HOS 235 or HOS 240

Encompasses hot and cold food preparation and presentation utilizing a market basket format. Students demonstrate knowledge and skills through production of a four-course menu in a practical exam. Guidelines applied for this practicum course match those of the nationally recognized Skills USA competition. *1 lecture/2 laboratory hours*

HOS 267 Event Planning 3 credits

Prerequisite: HOS 204

Corequisite: ACC 108 or ACC 111

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 290 Internship in Hotel, Restaurant, and Institution Management 2 credits

Prerequisites: minimum GPA of 2.0 or permission of program coordinator; eligibility usually limited to students in final semester before graduation
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.
1 lecture/240 internship hours

HOS 291 Culinary Internship 2 credits

Prerequisites: HOS 109 or HOS 219, sophomore status, and permission of program coordinator; eligibility generally limited to students who have completed 30 credits
Consists of two components: a supervised field experience working in various kitchen or pastry positions in a commercial kitchen; and classroom exercises and activities involving development of human relations, teamwork, and leadership skills. Service in the hospitality industry as well as culinary career opportunities are additionally addressed.
1 lecture/400 internship hours

HPE — Health / Physical Education

HPE 091 Introduction to Health Careers 2 credits

Prerequisite: ENG 034
Designed for any student interested in a career in the health professions. Provides an introduction to the educational pathways, roles, and responsibilities of health care providers, and an overview of a variety of health professions, plus opportunities to actually observe additional career options in the health care field.
2 lecture hours

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 lifelong 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 140 Kinesiology for Exercise Science 3 credits

Prerequisite: BIO 103 with a minimum C grade
Open to all students interested in the study of human movement, introduces the concepts of locomotion, forces, levers, and bio-mechanics. Topics include origins, insertions, innervations, and actions of prime movers for the musculoskeletal system.
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 163 Principles of Coaching 2 credits

How to plan, organize, and direct a team sports program. Includes facilities, regulations, legal issues, safety, equipment, staffing, strategy, and public relations. Suitable for volunteers working in youth programs and students contemplating further study in sports and leisure services.
2 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 103, 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***Prerequisites:* BIO 103, BIO 104, ENG 101, HPE 242

Provides essential experiences and networking opportunities in an exercise science setting suitable to student interests. Emphasizes career planning and the application of anatomy and physiology, basic nutrition, exercise measurements and prescription, exercise physiology, program management and promotion, and safety. Upon approval of their supervised setting, each student functions and contributes as a staff member for 225 hours.

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 computer technology course for students who have had little or no exposure to computers. Topics include the basics of Windows, the Internet, word processing, multimedia, and e-mail. Students create a Web-based ePortfolio to showcase their coursework.

1 lecture/2 laboratory hours

*GenEd Technology

IST 101 Computer Concepts with Applications 3 credits*Prerequisite:* ENG 033*Corequisite:* MAT 037 (or MAT 037A and 037B)*Software Requirements:* Office 2016 or Office 365 (free from MCCC), MyITLab, Alice (free from www.alice.org)

Hardware Requirements: latest operating system for PCs, desktops, and Mac computers; Mac users may experience some compatibility issues with MyITLab Grader Projects

Addresses computer literacy involving hardware, software (Microsoft Word, Excel, and PowerPoint as well as programming using object-oriented Alice software), networking, databases, information literacy, and ethical aspects of technology. Students learn to develop APA research papers based on current information technology topics. Lab time includes exposure to popular operating systems, Web searching, and cloud-based software.

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 107 Introduction to C/C++ Programming 3 credits

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

By programming to solve problems in C/C++, students gain an appreciation for the role that computers and programs play in today's society. Topics include programming in a traditional environment, variables, methods, decisions, repetition, arrays, and object-oriented programming. Extensive laboratory exercises reinforce lecture concepts.

1 lecture/4 laboratory hours

IST 108 Introduction to Programming with Mobile Application Development 4 credits

Prerequisite: MAT 037 or 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 123 Programming in Visual Basic.NET 3 credits

Prerequisite: IST 109

Overview of Visual Basic.NET language to create event-driven programming applications to be run in a Windows environment. Develops object-oriented solutions for a variety of problems in personal and business computing.

2 lecture/2 laboratory hours

GenEd Technology

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 6 to create apps on the iOS 8 platform.

3 lecture/2 laboratory hours

IST 222 PL/SQL Programming 3 credits

Prerequisites: IST 123, 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

Prerequisites: IST 108, IST 109, IST 144; or COS 101, COS 102; or 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 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

IST 281 Information Systems Cooperative Education I 1 credit**IST 282 Information Systems Cooperative Education II 1 credit****IST 283 Information Systems Cooperative Education III 1 credit**

Prerequisite: IST 298

Continuation of IST 298. The student earns one credit for a minimum of 90 hours of work experience for each course.

90 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

The first in a sequence of courses designed for students with little or no prior knowledge of Italian. Spoken communication in Italian is both the end goal and the means of instruction. Emphasizes the four communicative skills in a culturally authentic context. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar skills are also introduced.

3 lecture hours

★GenEd Humanities

ITA 102 Beginning Italian II 3 credits

Prerequisite: ITA 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 Italian. Spoken communication in Italian is both the end goal and the means of instruction. Emphasizes the four communicative skills in a culturally authentic context. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar skills are also introduced.

3 lecture hours

★GenEd Humanities

ITA 201 Intermediate Italian I 3 credits

Prerequisite: ITA 102 with a minimum C grade or permission of instructor

The first in a sequence of courses designed for students with a mid to high novice level of competency in Italian. Spoken communication in Italian continues to be the end goal and the means of instruction. The four communicative skills of reading, writing, listening and speaking are applied to discussions and debates involving Italian culture, politics, and history. Fundamental grammar points are reviewed.

3 lecture hours

IST 256

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ITA 201

★GenEd Humanities

ITA 202 Intermediate Italian II 3 credits

Prerequisite: ITA 201 with a minimum C grade or permission of instructor

The second in a sequence of courses designed for students with a mid to high novice level of competency in Italian. Spoken communication in Italian continues to be the end goal and the means of instruction. The four communicative skills of reading, writing, listening and speaking are applied to discussions and debates involving Italian culture, politics, and history. Fundamental grammar points are reviewed.

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

The first in a sequence of courses designed for students with little or no prior knowledge of Japanese. Spoken communication in Japanese is both the end goal and the means of instruction. Emphasizes the four communicative skills in a culturally authentic context. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar skills are also introduced.

3 lecture hours

★GenEd Humanities

JPN 102 Beginning Japanese II 3 credits

Prerequisite: JPN 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 Japanese. Spoken communication in Japanese is both the end goal and the means of instruction. Emphasizes the four communicative skills in a culturally authentic context. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar skills are also introduced.

3 lecture hours

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

The first in a sequence of courses designed 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

★GenEd Humanities

LAT 102 Beginning Latin II 3 credits

Prerequisite: LAT 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 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

★GenEd Humanities

LAT 201 Intermediate Latin I 3 credits

Prerequisite: LAT 102 with a minimum C grade or permission of instructor

Designed for students with a mid to high novice level of reading competency in classical Latin. Reading comprehension of literary and scholarly texts in Latin continues to be the end goal. With Latin being the language of instruction for at least half of class time, some conversation 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 201 Commercial Law 3 credits*Prerequisite:* BUS 107Explores the basics of New Jersey collection practices and the major types of federal bankruptcy filings. *3 lecture hours***LEG 206 New Jersey Real Estate Transactions 3 credits**Examines the mechanics of real estate transactions in New Jersey, including deed and mortgage preparation, closing statements, R.E.S.P.A. forms, plus title policies and searches. [Fall offering] *3 lecture hours***LEG 208 Wills and Probate 3 credits**Survey of basic wills and basic probate practice, including interviewing for and preparation of a will, procedures involved in probate, New Jersey state inheritance tax, and federal estate tax. [Fall offering] *3 lecture hours***LEG 212 Field Experience – Paralegal 3 credits***Prerequisites:* sophomore status and permission of instructor; eligibility generally limited to students in final semester prior to graduationStudents may choose to either work in a New Jersey law office or other approved legal site, supervised by practicing attorneys and graded on ability to apply learning in practical situations, or students may complete a virtual law office internship. Includes seminar meeting one day per week. *1 lecture/210 work experience hours***LEG 232 Civil Litigation III 3 credits***Prerequisite:* LEG 132 with a minimum C gradeAdvanced litigation course stressing the preparation of a wide range of pleadings involved in a civil lawsuit. One-third of class time involves extensive practical litigation exercises and applications in a lab setting. *2 lecture/2 laboratory hours***LIB — Library Technology****LIB 101 The Library / Media Center: an Introduction 3 credits***Corequisite:* ENG 101Explores the range of materials and services available in libraries for lifelong learning along with the operation and organization of libraries and information centers. Provides practical experience in using basic resources and new technologies. *3 lecture hours***LIB 103 Library Skills 1 credit**Survey course on library and information services and resources, both in print and non-print format. Emphasizes research strategies to locate and access information for class discussions, projects, reports, term papers, and lifelong information needs. Topics include the online catalog, reference sources, Web-based and micro-formatted resources, print indexes, and library equipment. *2 lecture/2 laboratory hours (5 weeks)***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 (see page 8). 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 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.] *4 lecture hours***MAT 037 Beginning Algebra 4 credits***Prerequisite:* MAT 033 with a minimum C grade or appropriate placement test scoreFoundation 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 041 Foundation Math I 3 credits**Developmental mathematics course designed for students needing a review of basic arithmetic, including an introduction to algebra. Topics include whole numbers, fractions, decimals, percentages, and integer operations. Students work through the material in self-paced mastery-based modules in a lab setting. [Foundation course does not fulfill mathematics elective requirement.] *6 laboratory hours***MAT 042 Foundation Math II 3 credits***Prerequisite:* MAT 041Developmental mathematics course designed for students needing an introduction to algebra. Topics include inequalities, linear models and graphing, exponents, and polynomials. Students work through the material in mastery-based modules in a lab setting. Those who complete this course may register for MAT 115, MAT 120, MAT 125, or MAT 140. [Foundation course does not fulfill mathematics elective requirement.] *6 laboratory hours***MAT 043 Foundation Math III 1 credit***Prerequisite:* MAT 042Developmental mathematics course designed for students needing additional topics in algebra. Students work through the material – operations on rational and radical expressions, systems of equations, and linear models – in mastery-based modules in a lab setting. Those who complete this course may register for MAT 135 or MAT 140. [Foundation course does not fulfill mathematics elective requirement.] *2 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 037 (or MAT 037A and 037B) or MAT 042 or appropriate placement test score
 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
 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 135 Intermediate Algebra with Applications **4 credits**
Prerequisite: MAT 037 (or MAT 037A and 037B) or MAT 043 with a minimum C grade or appropriate placement test score
 Topics include function notation; linear, quadratic, and absolute value functions and equations; rational expressions and equations; rational exponents and equations; radicals and radical equations; graphing of linear, quadratic, and polynomial functions; and inequalities. [grade of B- or better is strongly recommended to proceed to MAT 146] *4 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 in 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 135 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 135 with a minimum C grade or appropriate College Level Math placement test score or permission of department
 An applied statistics course for the social sciences, nursing, etc. Topics include data production and access, one-variable data analysis, correlation and regression, normal and binomial distributions, sampling distributions, estimation and tests of hypotheses for a single sample. MINITAB statistical software is used to calculate statistics and generate graphs. *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 or permission of department

Calculus-based course designed for engineers, computer scientists and science majors. Topics include one variable data analysis, sample regression analysis, probability, discrete and continuous distributions, random samples, confidence intervals and hypothesis testing, contingency tables, as well as one factor and factorial experimental design. 4 lecture hours

*GenEd Mathematics

MAT 205 Statistics for Social and Health Sciences II 3 credits

Prerequisites: MAT 200 with a minimum C grade or permission of department

Second-semester course in an academic year sequence for social sciences, humanities, nursing and related fields. Employs statistical software for studies of probability, inference for two parameters, inference for regression and correlation, analysis of variance, analysis of categorical data, and non-parametric statistics. [Spring offering] 3 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

MET — Mechanical Engineering Technology

MET 122 Industrial Measurements 3 credits

Prerequisites: completion of all developmental mathematics and English courses

Introduces measurement and dimensioning concepts used in industrial manufacturing environments. Topics include shop mathematics, shop safety practices, measuring devices, and a basic understanding of shop drawing techniques including geometric dimensioning and tolerancing (GD&T). Corresponding labs reinforce lectures with practical examples which follow NIMS certification requirements. 2 lecture/3 laboratory hours

MET 123 Machine Shop Techniques I 3 credits

Prerequisites: EET 140, MET 122

Introduces the theory and practical concepts of manual machining, primarily focused on using the lathe for turning operations to manufacture cylindrical part assemblies. Topics include shop mathematics, machine tool safety practices, measuring devices, and an understanding of lathe components. Corresponding labs apply practical hands-on examples which follow NIMS certification requirements. 2 lecture/3 laboratory hours

MET 124 Machine Shop Techniques II 3 credits

Prerequisite: MET 123

Introduces the theory and practical concepts of manual machining, primarily focused on using the vertical mill for milling operations to manufacture flat or angled part assemblies. Topics include shop mathematics, machine tool safety practices, measuring devices, and an understanding of vertical mill components. Corresponding labs reinforce lectures with practical hands-on examples which follow NIMS certification requirements. 2 lecture/3 laboratory 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

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***Prerequisites:* BIO 103, CSW 100 (unless waived by program coordinator), ENG 101, MAT 135, PSY 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***Prerequisites:* BIO 103, CSW 100 (unless waived by program coordinator), ENG 101, MAT 135, PSY 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**

Prerequisites: MUS 103 and MUS 105 or equivalent experience
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 the 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 101 Chorus I 2 credits****MUS 102 Chorus II 2 credits****MUS 201 Chorus III 2 credits****MUS 202 Chorus IV 2 credits**

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 111 Chamber Ensemble I 2 credits****MUS 112 Chamber Ensemble II 2 credits****MUS 211 Chamber Ensemble III 2 credits****MUS 212 Chamber Ensemble IV 2 credits**

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 117 Orchestra I 2 credits****MUS 118 Orchestra II 2 credits****MUS 217 Orchestra III 2 credits****MUS 218 Orchestra IV 2 credits***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.

*1 lecture/2 laboratory 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 119 Jazz Band I 2 credits

Prerequisites: ability to play a jazz band instrument and to read music notation

MUS 120 Jazz Band II 2 credits

MUS 219 Jazz Band III 2 credits

Prerequisite: MUS 120 with a minimum C grade

MUS 220 Jazz Band IV 2 credits

Prerequisite: MUS 219 with a minimum C grade

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 – Blues 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*

Advanced Studies

MUS 285 Special Studies in Instrumental Music 3 credits

MUS 286 Special Studies in Choral/Vocal Music 3 credits

Prerequisites: MUS 128 and MUS 204 and/or permission of music faculty

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*

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 214 Mastering Linux 3 credits

Prerequisite: NET 212 or permission of course coordinator

In-depth study of the Linux operating system, designed for anyone who has had an introduction to Linux and desires to expand their knowledge and skills. Includes an introduction to writing shell scripts plus attention to system utilities, text processing, and system administrator responsibilities. *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 239 Connecting Networks 3 credits

Prerequisite: NET 130

Covers the technology and terminology required to use routing and switching technologies together in a wide area network (WAN) infrastructure, including advanced IP addressing techniques, NAT, PAT, DHCP, PPP, ISDN, DDR, frame relay, and an introduction to optical networking. 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 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 288 MS Exchange Server**3 credits***Prerequisites:* NET 124, NET 126

Promotes the skills necessary to administer the Microsoft Exchange Server, involving messaging components, architecture, installation, and management of the Exchange environment. Hands-on exercises reinforce Microsoft certification exam objectives.

*2 lecture/2 laboratory hours***NRS — Nursing****NRS 111 Clinical Reasoning in Nursing Practice****1 credit**

Prerequisite: formal admission into the Nursing program or current NJ Licensed Practical Nurse (LPN) license

Corequisite: NRS 112 or current LPN license

Introduces the skill of clinical reasoning as it applies to nursing practice and clinical decision-making. Clinical reasoning builds on the skills of critical thinking to move the student to engaged, practical reasoning that complements the scientific reasoning represented in the nursing process. This course introduces critical thinking skills and strategies and forms the basis for the clinical reasoning processes applied throughout all nursing courses.

*1 lecture hour***NRS 112 Concepts of Nursing Practice I****6 credits***Prerequisite:* formal admission into the Nursing program*Corequisite:* NRS 111

Introduces the student to the fundamental concepts of nursing practice and the application of the concepts with a focus on wellness and health promotion 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/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 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***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.

*60 theory/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.

*30 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.

*60 theory/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 lecture/2 laboratory hours***NSG 232 Advanced Medical Surgical Nursing****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

NET 288

NSG 232

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.

*5 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*

NUR 215 Precepted Clinical Experience 2 credits*Prerequisites:* Nursing program first year completion, and externship acceptance

Supervised clinical experience in conjunction with externship at an approved local healthcare facility. Designed to strengthen and broaden the competencies of second-year nursing students and enhance their knowledge of the role of the RN. Participants must be accepted into the facility's externship program. Includes periodic on-campus seminars.

*0.5 seminar hours/40 clinical days***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 hourswww.mccc.edu**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 208 Floral Design II 2 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]

*1 lecture/3 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 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***2018 - 2019**

NSG 234

OHT 226

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 111 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

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*

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 purchase a manually-controlled film camera and other appropriate materials. *1 lecture/4 studio hours*

PHO 102 Black & White Film Photography II 3 credits
Prerequisite: PHO 101 with a minimum C grade
 Building upon PHO 101, students learn more advanced black-and-white film processing and darkroom techniques. Medium-format cameras provided for student use. *2 lecture/3 laboratory 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, resolution, and scanning. *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 102 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. *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
Prerequisites: PHO 102 or PHO 203
 with a minimum C grade and coordinator approval
 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 135
 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 135*

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*

GenEd Science*PHY 225 University Physics III****4 credits***Prerequisite: PHY 115 with a minimum C grade*

The third course in a calculus-based physics sequence intended for students majoring in physics, engineering science, computer science, mathematics, and other technical areas. Topics include thermodynamics, gases, optics, as well as modern physics. 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 203 Law and Society**3 credits**

Explains the interaction of American law and society and the influence of legal doctrine and thought on broad trends in society with an emphasis on the role of the Supreme Court in American life. Examines recent major Supreme Court decisions. [occasional offering] *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 201 Educational Psychology**3 credits***Prerequisite: PSY 101 with a minimum C grade*

An in-depth study of fundamental concepts and principles with broad applicability to classroom practice, supporting the preparation and continuing development of educational and human-service professionals. Topics include student development, student diversity, learning, cognitive processes, motivation, and instructional and assessment strategies. *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*

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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*

*GenEd Diversity and Global Perspective

PSY 221 The Psychology of Women 3 credits*Prerequisite:* PSY 101 with a minimum C grade

Exploration of the psychological, biological, and cultural factors influencing the lives of women. Critical analysis of differences and similarities between men and women, gender roles, and the effect of gender on contemporary issues in psychology including physical and emotional health, academic and occupational achievement, relationships, sexual intimacy, violence, and aging. *3 lecture hours*

PSY 230 Special Studies in Psychology 3 credits*Prerequisites:* ENG 102 and PSY 101

with a minimum C grade or permission of instructor

Consists of special courses in psychology which cater to needs expressed by the student and the broader general community. Taking advantage of particular faculty expertise, the course is offered on occasion in response to specific demand. *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: COURSES ARE INTERRUPTED for either four weeks (for PTA 201, 210, 211 and 227) or five weeks (for PTA 213, 216 and 237) for a Clinical Education course as indicated within the semester. Class times have been adjusted accordingly.

PTA 101 Introduction to PTA 1 credit*Prerequisite:* ENG 101

Open to all students interested in physical therapy as a career and required for Physical Therapist Assistant majors. Provides an overview of the health care system and the specific roles of physical medicine and rehabilitation professionals. Topics include medical terminology, documentation, and communication skills. *1 lecture hour*

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 101

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; ENG 102

Required for Physical Therapist Assistant majors. Covers the essential nature of diseases and abnormalities of structure and function characteristic of diseases. *3 lecture hours*

PTA 201 Therapeutic Exercise 2 credits*Prerequisites:* PTA 105, PTA 107

Review and discussion of treatment interventions that correlate with patient therapy goals. Topics include interpreting a physical therapy initial evaluation, range of motion exercises, stretching, strengthening, joint mobilization, aerobic exercise, exercise parameters and exercise progression. Emphasizes activities to promote clinical decision-making using patient scenarios. *1 lecture/2 laboratory hours*

PTA 205 Motor Development 1 credit*Prerequisites:* PTA 101, PTA 105, PTA 112*Corequisite:* PTA 213

Introduces developmental milestones for normal human motor development. Topics include hereditary, congenital, and acquired disorders with special emphasis on abnormalities of structure and function that impact human motor development. *1 lecture hour*

PTA 210 PTA Techniques 4 credits*Prerequisites:* PTA 107, PTA 112

Addresses patient care and handling, including patient positioning and bed mobility, vital signs, transfers, gait, massage, aseptic techniques, wound care, edema management, and cardiac and chest physical therapy. Students develop their skills through practice with each other. Competencies evaluated throughout the course. *3 lecture/2 laboratory hours*

PTA 211 Physical Agents 4 credits*Prerequisites:* PTA 107 and PTA 112;

MAT 115 or MAT 140 or PTA program approved

MAT equivalent with a minimum C grade

Study of physical agents and therapeutic modalities in physical therapy practice. Lab and lecture activities develop problem-solving and critical thinking skills for the use of electrical stimulation, heat, cold, traction, and hydrotherapy for therapeutic interventions. Competencies evaluated throughout the course. *3 lecture/3 laboratory hours*

PTA 213 PTA Therapy Clinic 3 credits*Prerequisites:* PTA 210, PTA 211*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 216 Orthopedics in PTA**2 credits***Prerequisites:* PTA 107, PTA 112, PTA 210

A study of orthopedic conditions and their underlying pathology. Emphasis on physical therapy interventions utilized in the rehabilitation of specified conditions. Optional course for all Physical Therapist Assistant majors. Elective course available to licensed PTs and PTAs. *2 lecture/laboratory hours*

PTA 224 PTA Clinical Education I**3 credits***Prerequisites:* PTA 107, PTA 112*Corequisite:* PTA 227

Supervised 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. Experiences are shared with classmates and faculty in PTA Seminar (PTA 227).

*40 hours per week for 4 weeks = 160 clinical hours***PTA 227 PTA Seminar****3 credits***Prerequisites:* PTA 107, PTA 112, approved Physical Therapist Assistant major*Corequisite:* PTA 224

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 235 PTA Clinical Education II**4 credits***Prerequisites:* PTA 210, PTA 211, PTA 224, PTA 227*Corequisite:* PTA 237

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 237 PTA Professional Development****3 credits***Prerequisite:* PTA 227*Corequisite:* PTA 235

Explores teaching, learning and communication styles, the development of an in-service presentation, and professional tools students will need following graduation. Includes observing the fabrication of prosthetics and witnessing physical therapy in an urban-based rehabilitation setting to be able to teach future patients more effectively. *3 lecture hours*

PTA 240 PTA Clinical Education III**5 credits***Prerequisites:* PTA 213, 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. Students are expected to conduct an "in-service" presentation to colleagues at the clinical site.

*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.

RAD 102 Introduction to Radiography and Patient Care**2 credits***Prerequisites:* MAT 037 (or MAT 037A and 037B), ENG 024, ENG 034*Corequisites:* RAD 119, RAD 127, BIO 103, MAT 135

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***Prerequisites:* MAT 037 (or MAT 037A and 037B), ENG 024, ENG 034*Corequisites:* RAD 102, RAD 127, BIO 103, MAT elective

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*Corequisites:* BIO 104, RAD 128

Examines image production factors that control and contribute to the radiographic image, including density, contrast and recorded detail. Presents the radiation physics principles of electricity, magnetism and X-ray circuitry. The laboratory component demonstrates the clinical application of image production and evaluation. [Spring offering]

*2 lecture/2 laboratory hours***RAD 127 Radiographic Procedures I****6 credits***Prerequisites:* MAT 037 (or MAT 037A and 037B), ENG 024, ENG 034*Corequisites:* RAD 102, RAD 119, BIO 103, MAT elective

Study of standard radiographic positioning and related medical terminology of the chest, abdomen, and upper and lower extremities. Involves laboratory simulation and evaluation. Students acquire clinical experiences at an affiliate hospital sufficient to demonstrate competency in a specified number and variety of radiographic procedures. [Fall offering]

*3 lecture/3 laboratory/24 clinical days***RAD 128 Radiographic Procedures II****6 credits***Prerequisites:* RAD 102, RAD 119, RAD 127*Corequisites:* BIO 104, RAD 120

Continuation of RAD 127, with standard radiographic positioning and related medical terminology of the bony thorax, pelvic girdle, upper femora, and vertebral column. Involves laboratory simulation and evaluation. Students acquire clinical experiences at an affiliate hospital sufficient to demonstrate competency in a specified number and variety of radiographic procedures beyond those demonstrated the previous semester. [Spring offering]

*2 lecture/3 laboratory/28 clinical days***RAD 207 Clinical Experience****2 credits***Prerequisites:* RAD 120, RAD 128*Corequisite:* RAD 117

Students participate in clinical education at an affiliate hospital, 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. Students conduct radiographic image analysis. [Summer offering] *28 clinical days*

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

Continuation of RAD 128. Study of standard radiographic positioning and related medical terminology of the urinary system, alimentary canal, biliary system and cranium. Involves laboratory simulation and evaluation. Students acquire correlated clinical experience and continue the clinical competency evaluation process at an affiliate hospital. [Fall offering] *2 lecture/3 laboratory/42 clinical days*

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 area hospitals. Students acquire clinical experiences and proficiencies sufficient to demonstrate competency in a specified number and variety of diagnostic radiographic procedures. [Spring offering] *42 clinical days*

RAD 242 Advanced Clinical Experience II 2 credits*Prerequisites:* RAD 224, RAD 232, RAD 240

Continuation of RAD 240. In cooperation with area hospitals, students enhance proficiency in all aspects of radiologic technology by performing diagnostic radiographic examinations on a variety of patients. In this final phase of the clinical competency process, remaining competency evaluations test student ability with respect to skills expected of entry-level radiographers. [Summer offering] *28 clinical days*

REL — Religious Studies*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*

*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, Buddhism, 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*

SOC 230 Special Studies in Sociology 3 credits

Prerequisites: SOC 101 or SOC 107 with a minimum C grade; ENG 102 or divisional permission

Consists of special courses in sociology which cater to needs expressed by the student and the broader community. Taking advantage of particular faculty expertise, the course is offered on occasion in response to specific demand. *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

Prerequisite: placement by exam or permission of instructor [not open to students who received a C- or better in high school Spanish] The first in a sequence of courses designed for students with little or no prior knowledge of Spanish. Spoken communication in Spanish is both the end goal and the means of instruction. Emphasizes the four communicative skills in a culturally authentic context. Reading and writing are assigned out of class to facilitate effective listening and speaking practice in class. Basic grammar skills are also introduced. *3 lecture hours*

★GenEd Humanities

SPA 102 Beginning Spanish II 3 credits

Prerequisite: SPA 101 with a minimum C- grade, placement by exam, or permission of instructor [not open to students who have passed two or more years of high school Spanish] The second in a sequence of courses designed for students with little or no prior knowledge of Spanish. Spoken communication in Spanish is both the end goal and the means of instruction. Emphasizes the four communicative skills in an authentic language context. Reading, writing, and grammar study are assigned out of class to facilitate effective listening and speaking practice in class. *3 lecture hours*

★GenEd Humanities / Diversity and Global Perspective

SPA 110 Hispanic Culture 3 credits

A survey course that explores the culture, nation, language, geography, and power within a region or regions of the Spanish-speaking world; topic to be determined by instructor based on expertise or, in the case of study abroad, based on the country or region of travel. Concepts are treated synchronically, diachronically, and politically. [Taught in English; does not fulfill foreign language requirement.] *3 lecture hours*

SPA 121 Spanish for Health Providers I 3 credits

The first in a sequence of courses designed for healthcare students and professionals with little or no prior knowledge of Spanish. Spoken communication in Spanish is both the end goal and the means of instruction. Emphasizes listening, speaking, reading, and writing Spanish 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 also introduced. *3 lecture hours*

SPA 122 Spanish for Health Providers II 3 credits

Prerequisite: SPA 101 or SPA 121

The second in a sequence of courses designed for healthcare students and professionals with little or no prior knowledge of Spanish. Spoken communication in Spanish continues as both the end goal and the means of instruction. Builds on listening, speaking, reading, and writing Spanish 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 also introduced. *3 lecture hours*

★GenEd Humanities

SPA 151 Intermediate Spanish I 3 credits

Prerequisite: SPA 102 with a minimum C grade, placement by exam, or permission of instructor

The first third (five weeks) of the semester is dedicated to a review of beginner-level grammar and vocabulary. The class then transitions to short readings and guided discussions which apply the reviewed language to topics of Hispanic culture, politics, and history. Spanish communication is the means and end goal of instruction. *3 lecture hours*

★GenEd Humanities

SPA 152 Intermediate Spanish II 3 credits

Prerequisite: SPA 151 with a minimum C- grade, placement by exam, or permission of instructor

Continuation of SPA 151. Previously learned grammar is reviewed and applied – typically in the present tense – to discussions and debates of topics in Hispanic culture, politics, and history. Spanish reading, writing, listening and speaking are the means and end goal of instruction. *3 lecture hours*

★GenEd Humanities

SPA 251 Advanced Spanish I 3 credits

Prerequisite: SPA 152 or permission of instructor

A conversation course which covers a variety of topics related to Hispanic culture through the reading and interpretation of texts including examples of authentic Hispanic literature. Taught entirely in Spanish, this course additionally develops speaking and writing skills, builds vocabulary, and stimulates debate, conversation, and class discussion. *3 lecture hours*

★GenEd Humanities

SPA 252 Advanced Spanish II 3 credits

Prerequisite: SPA 152 or permission of instructor

A grammar course taught conversationally in Spanish and within the context of topics related to Hispanic culture and society, including some reading from authentic Hispanic literature. Involves vocabulary building, but mainly emphasizes review and oral practice of grammatical constructions to improve the non-native student's oral and written communication skills. *3 lecture hours*

SST — Security Systems Technology**SST 200 Physical Security Product Technologies 3 credits**

Prerequisites: NET 103 and NET 104 or equivalent experience Addresses the operation and integration of physical security products and technologies including IP-based video surveillance equipment, analytics software, and physical security information management (PSIM), how to satisfy the needs of end user customers by reducing operating costs, and how these technologies keep assets safe around the world. *2 lecture/2 laboratory hours*

SST 210 Security Project Management 3 credits*Prerequisite:* SST 200

Examines the role of the security project manager, including the concepts and tools of professional project management. Topics include managing costs, assuring quality, and controlling all aspects of projects throughout the lifecycle, plus fundamental factors affecting a given project, such as stakeholder influence, cash flow, and risk management.

*2 lecture/2 laboratory hours***SST 220 Systems Integration: A Business Blueprint 3 credits***Prerequisite:* SST 200

Students learn to build a security solution which combines equipment, engineering and service, analyze the attributes of products and services, assess customer needs, align organizational strategy to leverage the most powerful features and strengths of products and services, and create a system to meet a client need or solve a client problem.

*2 lecture/2 laboratory hours***SST 230 Security Sales: The Consultative Approach 3 credits***Prerequisite:* SST 200

An introduction to the sales process, focusing on security solutions. Students learn how to organize the sales effort; assess customer needs and present security solutions; organize constituencies to develop, design, and implement security systems solutions; assess return on security investment; manage the customer experience; and maintain consultative, profitable customer relationships.

*2 lecture/2 laboratory 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***SWK — Social Work****SWK 110 Introduction to Human Services 3 credits***Corequisite:* ENG 101 or college-level eligibility

Overview of human service and social work practice and problem areas, requiring a supervised 45-hour (minimum) volunteer experience within a social service agency and including study of and experience with social development in diverse environments using human service models to understand individual, population, community, and ecosystems organization.

*3 lecture/45 practicum 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 107 Dramatic Writing for Stage and Screen 3 credits***Prerequisite:* ENG 101 or divisional permission

Works of master playwrights and screenwriters are read and discussed. In-class writing exercises, "sense memory" prompts, and strategies for developing dynamic character-based storytelling for the stage are covered during first half of course. Students then adapt and expand this work to create a 20-minute screenplay.

*2 lecture/2 laboratory 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'oeil, 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

UAS — Unmanned Aerial Systems

UAS 101 Introduction to**Unmanned Aerial Systems (UAS)****3 credits**

An overview of unmanned aerial systems (UAS), emphasizing their commercial and military history and growth as well as current and future applications in today's world. In addition, students are trained on the basics of flying a UAS and obtain the necessary ground training to take the required FAA written test for Remote Pilot - UAS. Proof of U.S. citizenship is required.

*3 lecture/1 laboratory hours***UAS 102 Advanced****Unmanned Aerial Systems (UAS)****3 credits***Corequisite: UAS 101*

An in-depth study of unmanned aerial systems (UAS), emphasizing current and future applications including commercial and military. Current Federal Aviation Regulations as they apply to commercial UAS operations are explored, as are UAS design, human factors relating to operation, and the general public's perceptions of UAS operation. Students continue to develop safety skills as well as more advanced UAS flying maneuvers. Proof of U.S. citizenship is required.

3 lecture/1 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