

Each course is identified by a six character alpha numeric code. The first three characters identify the subject code, the next three or four digits identify the catalog number. The department code indicates division or department sponsorship of the course. See column to the right for a listing of the department codes. The catalog number indicates the level of the course. Courses described in this section are listed in alphabetical order.

Read the description of the course carefully before you register for it, noting any prerequisite, corequisite, and the number of class hours. Each description lists the required number of student contact hours per week for a 15 week semester. For example, PHY 101 General Physics 1, 3 lect., 3 lab., 4 cr., meets for three lecture hours and three laboratory hours each week, over a semester of 15 weeks. Four credits are received on successful completion of the course. Consult your faculty advisor if you have any questions about the level or the content of a course.

Due to academic and fiscal considerations, not all courses can be offered each semester of every year. Courses taught only in the fall or spring semesters are so identified; otherwise, courses may be taught both semesters. Therefore, this catalog should not be considered a contractual offer from the college to any prospective student.

### Frequency and Timing of Course Offerings

Unless specific semesters are listed, courses are offered on an occasional basis. The college reserves the right to not offer a course when scheduled, based upon budgetary or staffing needs.

### Course Index

The following course categories, subject codes, and catalog numbers are listed here only as a quick advising guide. There are exceptions. Please refer to the course descriptions for complete information.

<b>Discipline/Department</b>	<b>Dept. Code</b>
Accounting	ACC
Anthropology	ANT
Architecture	ARC
Art	ART
Astronomy	AST
Biology	BIO
Business	BUS
Chemistry	CHM
Chinese	CHN
College and Career Skills	CCS
Communication	COM
Computer Aided Drafting	CAD
Computer Information Technology	CIT
Computer Science	CSC
Criminal Justice	CRJ
Cyber Security	CFR/CSS
Dental Hygiene	DNT
Economics	ECO
Education	EDU
Electrical Technology	EET
Engineering	EGR
English/Reading/Writing	ENG/RDG/WRT
Fire Protection Technology	FIR
Field Studies	FLD
French	FRE
Geography	GEO
Geology	GLG
Green Building Maintenance and Mgmt	GRB
Health	HTL
History	HIS
Honors Seminar	HON
Human Services	HMS
Italian	ITA
Interdisciplinary Studies	IDS
Management	MGT
Marketing	MKT
Mathematics	MAT
Medical Laboratory Technology	MLT
Music	MUS
Nursing	NUR
Occupational Therapy Assistant	OTA
Office Technologies	OFT
Philosophy & Religion	PHL
Physical Education Theory	PED
Physical Education Activity (Majors)	PEM
Physical Education Activity (Non-Majors)	PES
Physical Sciences	PSC
Physical Therapist Assistant	PTA
Physics	PHY
Political Science	POL
Psychology	PSY
Radiologic Technology	RAD
Sociology	SOC
Spanish	SPN
Theater	THE

# Online Learning

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SUNY Orange currently offers several courses online through the internet each year. In addition, students may take courses which are "web-enhanced," "hybrid," or "online" in nature. Students may access these courses from home, on campus, or wherever they can obtain internet access.

## Web-enhanced

A web-enhanced course makes use of web technology and services to support distribution of course materials and student access to resources on the web. These courses still meet for the required time on campus. Some courses may require participation in the web-enhanced portion of the course in determining the final grade. Mandatory web-enhanced courses will be clearly marked in all course listings.

## Hybrid

A hybrid course makes significant use of internet technology to facilitate access to class materials and support communication between faculty and students, among students, and between students and resources. These courses will only meet for one-half of the required class time on campus and will require participation in the online portion of the course in determining the final grade.

## Online

A full online course is one that can be accessed anywhere and anytime, via the internet, with a web browser. It supports all the other services mentioned previously, as well as builds a learning community with the course taking place completely on-line, including live chats, bulletin board discussions and advising. An additional fee of \$50 is required for each online course.

To participate in online learning, students must have access to the World Wide Web (a broadband connection is recommended) and must use Internet Explorer 7 or higher or Firefox 3.0 or higher as their web browser (JavaScript and Cookies must be enabled, and pop-up blockers must be disabled). In addition, students will need a word processing program such as Microsoft Word (other word processing software can be used, but documents must be saved in the .rtf format) and Adobe Acrobat Reader. Students are required to use SUNY Orange-issued email accounts. There are various work stations around campus that students may use to access online courses. In the home, an Internet Service Provider (ISP) will provide access for a monthly fee. The student's ISP will specify the computer requirements for its service.

For more information about online learning at SUNY Orange including courses being offered, FAQs, etc., please visit [www.sunyorange.edu/dl](http://www.sunyorange.edu/dl).

# Accounting

(Business Department)

## ACC 101—Accounting Principles 1

4 cr. (Fall/Spring)

This is an introduction to accounting practice and theory using the model of the sole proprietorship in a service business. The accounting process for recording, summarizing, and reporting financial data is analyzed. Specialized systems in cash controls, payroll, and the use of multipurpose combination journals are examined. Emphasis is placed on identifying and correcting errors and omissions and understanding their impact on financial statements. Course objectives are reinforced through the use of manual and/or computerized practice sets.

Prerequisite: *MAT 020 or placement into MAT 101 or higher*

## ACC 102—Accounting Principles 2

4 cr. (Fall/Spring)

This is a continuation of accounting practice using the model of the sole proprietorship in a merchandising business. Use of special purpose journals and related subsidiary ledgers in support of merchandising operations and an analysis of payables, receivables, and inventory valuation unique to this area are examined. Additional content in the areas of note financing, long-term assets and payroll are included. The topic of corporations and the specific equity issues related to them are discussed. Course objectives are reinforced through the use of manual and/or computerized practice sets.

Prerequisite: *ACC 101*

## ACC 111—Personal Finance

3 cr. (Spring-Day/Fall-Evening)

The course examines important aspects of consumer decision making. Emphasis is on practical consumer finance areas such as: personal financial planning, budgeting, consumer protection, purchasing, taxes, credit and investments. The course provides the skills to develop a life-long financial plan for the individual.

Prerequisite: *MAT 020 or placement into MAT 101 or higher*

## ACC 153—Financial Accounting

4 cr.

This course provides a solid foundation in basic accounting concepts and methodology of financial accounting. This includes the rules and procedures used by financial accountants in preparing external financial reports. Emphasis is placed on the chart of accounts, the accounting environment, the accounting cycle, cash flow, the income statement and the balance sheet. This course provides students with an understanding of financial accounting in a corporate environment, methods used to perform analysis of financial statements, and insights into the financial accounting decision making process.

Prerequisite: *MAT 020 or placement into MAT 101 or higher*

## ACC 154—Managerial Accounting

4 cr. (Fall/Spring)

This course introduces students to managerial accounting as an information system that provides managers with a basis for decision making. Topics include basic C-V-P analysis, estimating costs, job and process costing, break-even analysis, standard costing, short and long term decision making, responsibility accounting, operating budgets, and flexible budgeting. Emphasis is placed on the needs of managers to use internal accounting information to make business decisions.

Prerequisite: *ACC 153 or ACC 101 and ACC 102*

## ACC 201—Intermediate Accounting 1

4 cr. (Fall-Day/Spring-Evening)

Special emphasis is placed on accounting standards and the F.A.S.B. bulletins. Topics include: a review of generally accepted accounting principles; recognition, valuation and disposition issues; cash and receivables; inventory flow procedures; plant and intangible assets; and revenue recognition.

Prerequisite: *ACC 154 and BUS 161 or permission of department*

## ACC 202—Intermediate Accounting 2

4 cr. (Fall-Evening/Spring-Day)

Continued emphasis is placed on accounting standards and the F.A.S.B. bulletins. Topics include: temporary and long-term investments, current liabilities, stockholders equity, bonds and miscellaneous long-term liabilities, pension plans, leases, cash flows, financial statement analysis, earnings per share, and an introduction into the objective characteristics and elements of financial reporting. Use of the Financial Accounting Research System (FARS) will also be introduced.

Prerequisite: *ACC 201*

## ACC 205—Accounting with Microcomputer Applications

3 cr. (Fall-Day/Spring-Evening)

Spreadsheet and time value of money software are introduced and developed as support tools for topics in managerial, financial, and income tax accounting. Topics include capital budgeting, cash budgeting, depreciation, loan/debt/bond amortization, cost/volume/profit analysis, project development, financing, and profit planning, and an introduction into financial planning. Emphasis is placed on both proper application of theory and quality of report presentation.

Prerequisite: *ACC 102 and BUS 161 or ACC 153 and BUS 161*

## ACC 211—Federal Income Tax Procedures

3 cr. (Fall-late day)

Course emphasis is placed on the current status of Federal income Taxes as they relate to individuals. The history of Federal Income taxation as well as the Federal taxation of business income is also covered. After completion of the course, the student will be

able to prepare an individual Federal Income Tax return. The course materials include valuable reference tools.

Prerequisites: *ACC 101*

### **ACC 214—Accounting Practice**

4 cr. (Spring-Late Day)

Topics include software issues related to new company configuration, security controls, and troubleshooting. Accounting applications are in the areas of bank reconciliation, payroll programming and reporting, sales and excise tax reporting, and management of payables, receivables, and cash. Emphasis is placed on the skills and attitudes needed to assume a “full-charge” office bookkeeping position. QuickBooks Accounting software will be used in this course.

Prerequisites: *ACC 102 and BUS 161 or ACC 153 and BUS 161*

### **ACC 220—Accounting Internship**

3 cr. (Spring)

Students enrolled in this course will intern at organizations appropriate to learning about accounting and accounting-related fields. Students will integrate classroom theory in a monitored and supervised work experience. Periodic meetings with a faculty advisor and written assignments are required. Evaluations by workplace supervisors are also required. The student intern is required to work a minimum of 90 hours during the semester.

Prerequisites: *Permission of instructor or ACC 102 or ACC 153; ACC 214, ACC 205; and BUS 203. A minimum CumGPA of 2.5 is also required.*

## Anthropology

(Behavioral Sciences Department)

### **ANT 101—Cultural and Social Anthropology**

3 cr. (Fall/Spring)

A cross-cultural approach to the nature of culture as humanity’s means of existence, focusing on such topics as the method of scientific research in cultural anthropology, the basis of language, a comparative study of events of the human life cycle, family and kinship, religion and ritual, and theories of social change and development. *Fulfills category C. (GE 3)*

### **ANT 102—Human Evolution**

3 cr. (Fall)

This course applies Darwinian evolutionary theory to an examination of the position of the human species within the animal kingdom, the characteristics of primates, the evolutionary origins of human behavioral patterns, the fossil record of human evolution, the study of race, and continuing human evolution. *Fulfills category C. (GE 3)*

### **ANT 103—Archaeology and Prehistory**

3 cr. (Spring)

This course investigates the contribution made by archaeological science to an understanding of the process by which human society evolved from earliest forms to the emergence of complex civilizations in various parts of the world prior to historical times. *Fulfills category C. (GE 3)*

### **ANT 104— Archaeological Field Experience**

1 lect., 6 lab., 3 cr.

This course is designed to provide students with experience conducting archaeological research. Students will participate in all aspects of the field process including laying out a grid, excavating test pits, mapping, photographing, documenting the archaeological record and recovering artifacts and features. Instructor led lecture and discussion will begin each field day so that students are able to understand the larger context of the work they are doing. In addition, select field trips and guest speakers will provide additional context for the specific site to be investigated. Length of time in the field will be a minimum of 90 hours over four weeks.

### **ANT 220—Indians of North America**

3cr. (Spring)

This course is an analysis of Native American cultures north of Mexico from early times to the modern era. Ecological, historic and ethnographic data are utilized to review the various cultural areas. The southwest, plains, northwest, southeast and northeast cultures

# Architectural Technology

(Science, Engineering and Architecture Dept.)

## ARC 101—Architectural Graphics

2 lect., 3 lab., 3 cr.

An introduction to architectural graphics standards. Topics include general drafting terminology, using mechanical drafting equipment, the communicative role of lineweights and scales, and the roles of plans, sections and elevations. Laboratory work using instruments and specialized software provides hands-on experience. Drawings will be discussed and demonstrated in lecture and applied in lab assignments and projects. Emphasis is on drafting and line quality and successful communication through architectural drawings. Lab assignments will include both two-dimensional and three-dimensional drawings along with an introduction to shade and shadows.

Corequisite: *concurrent enrollment in or completed WRT 040*

## ARC 102—Advanced Architectural Graphics

2 lect., 3 lab., 3 cr.

An advanced course in architectural graphics with an emphasis on mixed media. Topics include coordination of two and three dimensional drawings, the use of color and fonts, composition of presentation boards, the role of freehand sketching in presentations, and Adobe software applications. Emphasis is on composition and successful communication through architectural drawings.

Prerequisite: *ARC 101*

## ARC 105—Building Materials and Methods 1

2 lect., 2 cr.

The description and analysis of building materials and their use in construction: foundations, structural elements, and floor, roof, and wall systems. This course primarily focuses on building component and structural terminology, identification and variations of building materials, and methods of wood construction. Steel, concrete and masonry construction will be introduced.

Corequisite: *concurrent enrollment in or completed WRT 040*

## ARC 106—Building Materials and Methods 2

2 lect., 4 lab., 4 cr.

The description and analysis of building materials and methods and their use in masonry, steel and reinforced concrete construction. Sustainable building principles will be introduced. Methods are clarified through the development of drawings such as wall sections, window details, plan details, etc.

Prerequisites: *ARC 101, ARC 105, CAD 101*

## ARC 111—Architectural Design 1

2 lect., 3 lab., 3 cr.

An introduction to the basic elements of architectural design -scale, proportion, rhythm, mass, textural effects, contrast, unity, sequential spatial experience. Execution of two and three dimensional design projects. An exploration of nature of art and architecture.

Corequisite: *concurrent enrollment in or completed WRT 040*

## ARC 112—Architectural Design 2

1 lect., 4 lab., 3 cr.

The place of function, structure, and expression of ideas in architecture will be explored through the lecture and lab component of this course. In lecture, case studies will be presented. In lab, the execution and criticism of architectural design problems will take place. Presentation techniques will be in various media, with a concentration on model building.

Prerequisites: *ARC 101, ARC 111*

## ARC 201—Digital Portfolio

3 lab., 1 cr.

A structured environment in which students prepare and orally present a portfolio that demonstrates the body of their work produced in courses in the Architectural Technology Program. Students also produce a cover letter, resume and personal essay on architecture.

Prerequisites: *CAD 102, ARC 102, ARC 112*

## ARC 205—Working Drawings 1

2 lect., 3 lab., 3 cr.

This course is an introduction to architectural working drawings. Basic principles of preparing and organizing necessary components of a working drawings set will be covered. Students will prepare a set of drawings for a small wood structure using Autocad software. Correctness of construction techniques and CAD draftsmanship will be emphasized. Quantifying building materials from the students' prepared sets will be introduced.

Prerequisites: *ARC 106, CAD 102*

## ARC 206—Working Drawings 2

1 lect., 6 lab., 4 cr.

This is the capstone course of the building materials and methods sequence of the A.A.S. Arch. Tech. Program. Advanced working drawings of a building of steel construction will be produced. Emphasis is placed on draftsmanship, coordination, and accuracy plus development of building construction details. Autocad is used as the drafting medium. The complex relationships between owner, architect and contractor as well as the role of specifications will be introduced.

Prerequisite: *ARC 205*

## Architectural Technology - Art

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### ARC 211—Architectural Design 3

1 lect., 4 lab., 3 cr.

A continuation of the design course sequence in which students explore programmatic requirements, precedents and architectural form. In lecture, case studies will be presented. In lab, the execution and criticism of architectural design problems will take place. Presentation techniques will be in various media and oral presentation is required.

Prerequisites: *ARC 102, ARC 112, CAD 102*

### ARC 212—Architectural Design 4

2 lect., 4 lab., 4 cr.

This is the capstone course to the design sequence of the A.A.S. Architectural Technology Program. The scope of design is expanded beyond building to outdoor spaces and land planning. A survey of town planning through out history with emphasis on 19th and 20th century. Execution of several design projects involving outdoor spaces, site, town and subdivision layouts, and a building in context on an actual site in the community.

Prerequisites: *ARC 211, ARC 201*

### ARC 215— Architecture to the 18th Century

3 lect., 3 cr.

A survey of the development of Western architecture through the 18th century. Physical characteristics, form, interior spaces, construction materials, and structural systems from ancient Egypt through the eighteenth century will be covered. The relationship between built form and a society's institutions and culture, level of technology, and environment will be considered.

### ARC 216—Architecture from the 19th Century

3 lect., 3 cr.

A survey of modern architecture. Form and space, aesthetic philosophy, material usage, and structural systems of architecture from 1850 to the present will be explored. The influence of technology, society, and the environment on architectural form will be explored.

### ARC 220—Mechanical and Electrical Equipment for Buildings

3 lect., 3 cr.

Description, analysis, and basic design of heating, ventilating, plumbing, and electrical systems and equipment, fire protection, vertical transportation and acoustics in buildings.

### ARC 221—Strength of Materials

3 lect., 3 cr.

An introduction to statics and strength of materials, forces, resistance to forces, and the appropriate amount and shape of material to resist those forces. An exploration of why buildings stand up.

Prerequisites: *PHY 111, MAT 107*

## Art

(Arts & Communication Department)

### ART 101—Introduction to Art

3 cr. (Fall/Spring/Summer)

A beginner's course for those interested in learning how to look at, appreciate and enjoy the visual arts. Weekly lectures introduce theoretical concepts that are reaffirmed with discussion and corresponding studio assignments. Students will explore basic concepts of line, shape, mass, color, balance, texture and composition by way of in-class critiques and hands-on projects. A museum trip may be included in this course. (GE 8)

### ART 103—Drawing 1

1 lect., 2 lab., 2 cr. (Fall/Spring/Summer)

Drawing exercises and projects emphasizing development of perceptual, manual and conceptual abilities. Objective drawing in line and tone lead the beginning student to understand structure imaging, and execution. Studies introduce basic perspective methods Various drawing media and materials are used. (GE 8)

### ART 104—Drawing 2

1 lect., 2 lab., 2 cr. (Fall/Spring/Summer)

Drawings as finished art are developed from preliminary works. Study of media-image, form-content relationships. Develop more complex and subjective drawings. (GE 8)

Prerequisite: *ART 103*

### ART 107—Design 1

2 lect., 2 lab., 3 cr. (Fall)

An introduction to the vocabulary and elements of two dimensional design including line, shape, texture, color and typography. Students learn basic design elements and media and master manual dexterity and "craft" through hands-on practice completing drawing, painting, and multimedia projects. Students work with a variety of media in a studio setting, employing fundamental design principles to create successful two-dimensional designs as well as participating in collective and individual critiques and working cooperatively on group design projects. (GE 8)

### ART 108—Design 2

2 lect., 2 lab., 3 cr. (Spring)

Continuing study of design concepts and development of complex studio projects in various media. Studio methods and processes are discussed and demonstrated. (GE 8)

Prerequisite: *ART 107*

### ART 111—Color

1 lect., 2 lab., 2 cr. (Fall/Spring)

This studio course has students assess psychological as well as physical effects of light and color relationships. Additionally, students will examine color content and its use in art, architecture and personal effects. Weekly lectures introduce theoretical concepts that are reaffirmed with corresponding studio projects. A museum trip may be included in this course. (GE 8)

**ART 113—Painting 1**

1 lect., 4 lab., 3 cr. (Fall/Spring/Summer)

Fundamentals of painting techniques and materials are learned while student composes from still life setups reflecting various modes and historical perspectives. (GE 8)

**ART 114—Painting 2**

1 lect., 4 lab., 3 cr. (Spring)

Continuing work in still life painting using more complex formal and contextual means of organizing the pictorial surface and space. (GE 8)

Prerequisite: *ART 113*

**ART 117—Figure Drawing 1**

2 lect., 4 lab., 4 cr. (Fall)

Drawing from the model—proportion, gesture, form and structure. Work in anatomy and rendering. Various media are employed. (GE 8)

Prerequisite: *Permission of instructor*

**ART 118—Figure Drawing 2**

1 lect., 4 lab., 3 cr. (Spring)

Drawing from the model—extended studies, the draped figure, light and shade as structure and content. Lectures and demonstrations of various media and papers. (GE 8)

Prerequisite: *ART 117*

**ART 119—Photography 1\***

1 lect., 3 lab., 3 cr. (Fall/Spring/Summer)

A workshop course for the novice photographer covering camera basics, negative development, enlargement, and contrast control. Considerable darkroom work with criticism as well as discussion of the history of photography are emphasized. (GE 8)

**ART 120—Photography 2\***

1 lect., 3 lab., 3 cr. (Spring)

A workshop course consisting of considerable darkroom work as a basis for learning more advanced print control techniques which include bleaching, spotting, and mounting prints. Emphasis is placed on individual creativity through personalized assignments and critiques. Studies in the history of photography are continued. (GE 8)

Prerequisite: *ART 119*

*\*Students are required to have a 35 mm or larger camera. Lab space, enlargers, and chemicals for paper treatment provided. Students should expect to spend approximately \$200 for film and film development supplies and materials.*

**ART 121—Digital Photography 1**

2 lect., 2 lab., 3 cr.

This course provides the student with an introduction to the techniques used to create and manipulate photographs in a digital darkroom, using image manipulation software. The convergence of photography and digital media is explored through projects, readings and critiques. Topics covered include basic digital camera functions, scanning, manipulation of photographs, composition, color correction and printing.

Students are required to have their own digital camera of at least 5 megapixels.

Prerequisite: *MAT 010 or placement into MAT 020 or higher*

**ART 122—Digital Photography 2**

2 lect., 2 lab., 3 cr.

Students will continue to explore creative areas while building on more specific technical skills required for professional production of printed work. Projects will extend students' perceptions of digital imaging in both creative and applied areas. Students are required to have their own digital camera of at least 5 megapixels.

Prerequisite: *ART 121 or permission of instructor*

**ART 123—Visual Communications & Graphic Design 1**

2 lect., 2 lab., 3 cr. (Fall/Spring/Summer)

Explore the idea that memorable visual messages with text have the greatest power to inform, educate, and persuade an individual. Learn about current Visual Communications theories, graphic design principles, elements, typography, influential persons, and contemporary digital media, including page layout software (Quark Xpress and Adobe InDesign) as well as Adobe Photoshop. (GE 8)

**ART 124—Visual Communications & Graphic Design 2**

2 lect., 2 lab., 3 cr. (Spring/Summer)

The Viscom 2 student will learn the fundamentals of visual communications and graphic design through Viscom problem solving, graphic design projects, and exploration into the graphic communications industry today. Digital media skills will be acquired through projects and exercised utilizing page layout (Quark XPress and Adobe InDesign), digital imaging (Adobe Photoshop), and vector drawing software. (GE 8)

Prerequisite: *ART 123 or permission of instructor and department chair*

**ART 125 – Sequential Art: Comics Illustration**

2 lect., 2 lab., 3 cr. (Fall/Spring)

Sequential Art: Comics Illustration offers instruction in the creation of comic books and comic strips as well as topical discussion on the operation of the comic book industry. Students learn about the pitfalls of working in comics, their rights as creators, and how to approach publishers. Course material includes the design of comic book characters, comics illustration and storytelling, self-publishing, submitting work to editors, comic book Creator's Rights, webcomics, and strong emphasis on comic book inking. (GE 8)

Prerequisite: *ART 103 or Permission of Instructor.*

**ART 127—History of Art 1**

3 cr. (Fall)

A survey course covering the major movements of art from prehistoric times through the beginning of the early Italian Renaissance. Architecture, painting, decorative arts, sculpture and textiles will be studied within social, political and religious context. Special attention will be paid to evolution of style, technique and medium. A museum trip may be included in this course. (GE 7)

**ART 128—History of Art 2**

3 cr. (Spring)

A survey course that addresses the major movements of art from the early Italian Renaissance to Post-Modernism of the late twentieth century. Architecture, painting, sculpture and photography will be studied within social, political and

## Art

religious context. Special attention will be paid to evolution of style, technique and medium. A museum trip may be included in this course. (GE 7)

### **ART 131—History of Animation**

1 cr. (Fall/Spring)

A five-week survey of the history of animation traced from early twentieth century origins based in photography. The seminar will culminate with an examination of computer-generated animation. Special attention will be paid to traditional methodology of classic cartoon production, full-length features as well as non-traditional animators and avant-garde animation techniques.

### **ART 201—American Art 1700 to 1945**

3 cr. (Spring)

A survey course examining the development of American painting, sculpture, architecture, folk art and decorative arts begins with the tribal art of Native Americans, encompasses the artistic adaptations of early American settlers and concludes with Modern American art of the 1940s. Special attention will be paid to evolution of style, technique and medium over the course of American history. A museum trip may be included in this course. (GE 7)

### **ART 203—Modern Art: The 20th Century**

3 cr. (Fall/Summer)

An in depth, chronological examination of the art movements of the twentieth century as shaped by the age of technology and information. Subject matter will be presented decade by decade with attention paid not only to developing technology but also to social and cultural issues. Specific examples of architecture, painting, graphic art, sculpture and photography will be set in perspective to the world events that have helped shape modern artist's approach to art and creativity in the twentieth century. A museum trip may be included in this course. (GE 7)

### **ART 205—Women in Art History**

3 cr. (Spring)

This survey of women artists throughout history begins by examining images of females of antiquity as represented in art and then examines the social, economic and political context of women artists in art history concluding with working women artists of the twenty-first century. Works of painting, sculpture, textile, decorative arts, and photography and installation art created by women with careful consideration of the political, social, economic and religious constraints women artists have faced. Special attention will be paid to evolution of style, technique and medium. A museum trip may be included in this course. (GE 7)

### **ART 207—Non-Western Art**

3 cr. (Fall/Spring/Summer)

This survey course focuses on the history, development and current influences of non-western art. Particular emphasis is on objects, images and architecture from South East Asia, China, Korea, Japan, the Islamic world, Native North and South America, African and the Pacific Basin as well as contemporary Latin art. A museum trip may be included in this course. (GE 7)

### **ART 223—Visual Communications and Graphic Design 3**

2 lect., 2 lab., 3 cr. (Fall)

The Viscom 3 student will develop a personal approach to visual communication in this experiential problem solving course. More advanced technical skills will be achieved using a flatbed scanner, Adobe Photoshop, Adobe Illustrator, and Quark XPress, presentation and page layout software. (GE 8)

Prerequisite: *ART 124 or permission of instructor and department chair*

### **ART 224—Visual Communications and Graphic Design 4**

1 lect., 2 lab., 2 cr. (Spring)

The Viscom 4 student will produce a professional portfolio for entry level employment in visual communications or for further education. The student will complete one semester-long multi-disciplinary group project and will hone personal style in visual communication and refine technical skills in using page layout, vector-based and image manipulation graphics software. (GE 8)

Prerequisite: *ART 223 or permission of instructor and department chair*

### **ART 225—Web Design 1**

2 lect., 2 lab., 3 cr. (Fall/Spring)

Students master the key design strategies of the best professional web designs and design and build fully functional web pages and web sites using Adobe Dreamweaver. Course covers both design concepts and practical, technical abilities, including psychology of perception, color theory and human vision, typography, interface design, technology and new trends in this fastest-moving of all media. Class projects include surfing the web, finding great examples of both good and bad web pages, and learning what works—and what doesn't work—in the real world.

### **ART 226—Web Design 2**

2 lect., 2 lab., 2 cr.

Students design, create and build interactive web sites incorporating moving graphics, sound and video using Adobe Flash and Dreamweaver. Emphasis is placed on merging the creative process and design skills with the technical aspects of producing Web sites. Course includes both drawing vector art and writing ActionScript code to make interactive banner ads and games.

Prerequisite: *ART 225*

### **ART 230—Arts and Communication Practicum**

1 lect., 3 lab., 2 cr. (Fall/Spring)

Students develop and complete individual projects/internships in music, art, graphic design, communication, media and theatre. Projects may be performed on campus or by arrangement in community facilities. The course includes a lecture component which involves portfolio building, presentation, and marketing. (GE 8)

Students may repeat this course for a total of four credits.

Prerequisite: *permission of instructor or department chair*



## Astronomy

(Science, Engineering & Architecture Dept.)

### AST 120—Astronomy

2 lect., 3 lab., 3 cr.

The relationship of physical laws to the structure and size of the universe is the means by which the methods of observational astronomy are studied. The role of gravity in the formation of stars, galaxies, and clusters is emphasized. Current study of cosmology is placed in the historical context. Besides observing sessions, the laboratory emphasizes the methods of observational astronomy. (GE 2)

Prerequisite: *tested into MAT 101 or completed MAT 020 or permission of instructor*

## Biology

(Biology Department)

Biological Science majors must take BIO 101 and BIO 102. Then select from BIO 201, BIO 202, BIO 204 or BIO 205. Students should consult with a biology department advisor.

### BIO 101—General Biology 1

3 lect., 3 lab., 4 cr. (Fall/Summer)

Topics include a study of the nature and scope of science in general and biological science in particular: the chemical and physical basis of life; the structures and functions of the cell with an emphasis on photosynthesis, respiration, functions of DNA, and the processes of mitosis and meiosis. The course concludes with the genetic and evolutionary consequences of meiosis and reproduction. (GE 2)

### BIO 102—General Biology 2

3 lect., 3 lab., 4 cr. (Spring)

A study of the plant and animal organism with an emphasis on the vertebrate animal and the flowering plant. Comparative systems are studied. The relationships between organisms and the environment are also covered. (GE 2)

Prerequisite: *BIO 101*

### BIO 110—Introduction to Biology

2 lect., 3 lab., 3 cr. (Fall/Spring/Summer)

A introductory course covering the scientific method, basic chemistry, cell biology, structure and function of the vertebrate body, biochemical pathways, cellular division, genetics, diversity and biological systems. (GE 2)

Prerequisite: *The course is designed for students with little or no academic background in biological sciences and want to pursue a career in the health professions or biology.*

### BIO 111—Anatomy and Physiology 1

3 lect., 3 lab., 4 cr. (Fall/Spring/Summer)

An introduction to the structure and function of human systems. Study begins with the organization of the body from the molecular to the organ/organ system level of function and continues through the Integumentary, Skeletal, Muscle, Nervous and Endocrine systems. Laboratory work includes cellular structure and function, histology, and gross anatomical analysis of the skeletal, muscular, and nervous systems. The laboratory experience includes use of human bones and dissection of the cat, sheep eye and brain as well as use of human anatomical models of organs and structures related to the above systems.

Prerequisite: *AP Biology, BIO 110 or BIO 101 and BIO 102*

# Biology

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## **BIO 112—Anatomy and Physiology 2**

3 lect., 3 lab., 4 cr. (Fall/Spring/Summer)

Continues the study of the structure and function of human systems begun in BIO 111 (Anatomy and Physiology 1). Included are the Circulatory, Lymphatic, Immune, Respiratory, Digestive, Urinary and Reproductive systems. Acid-base, fluid and electrolyte balance are also discussed, and functional inter-relationships and homeostasis are stressed throughout. Laboratory work includes analysis of the structure and function of the above systems at the histological, gross anatomical and organ system levels. The laboratory experience includes dissection of the cat and beef and sheep hearts as well as prepared histological specimens, human anatomical models and computer/video presentations related to the above systems. Laboratory experiments also expose students to related clinical techniques/ topics such as blood typing, ECG, blood pressures, pulse determination, heart and lung sounds, spirometry, and urinalysis.

Prerequisite: *BIO 111*

## **BIO 113—Neurobiology**

2 lect., 2 lab., 3 cr. (Fall)

This course is designed for students of Massage Therapy, Physical Therapist Assistants, Occupational Therapy Assistants, and other Health Sciences. It will provide the student with a foundation for understanding neurological dysfunction. Integration, rather than segregation, between structure and function are emphasized. This course will enable the student to be conversant in the structure and function of the nervous system, with emphasis on sensorimotor integration and neuromuscular physiology. The organizing theme is the regulation of body function, how the nervous system is influenced during development, learning, and by disease, or trauma. This is illustrated in a multidisciplinary fashion: morphology, physiology, biochemistry and clinical manifestations. Examples of pathological, occupational and environmental causes of neurological disease are highlighted through lectures and student presentations. The different approaches used in diagnosis and understanding physical impairment are stressed as essential components of devising effective therapy.

Prerequisite: *BIO 112*

## **BIO 115—Human Biology**

3 lect., 3 lab., 4 cr. (Fall)

Human anatomy, physiology and pathology are discussed in lectures. Laboratory work includes microscopic study of tissues and a dissection of the cat. The anatomy of the cat is correlated with human anatomy.

Prerequisite: *BIO 110 or BIO 101*

## **BIO 120—Biology for Today**

3 lect., 0 lab., 3 cr. (Spring)

The biological aspects of contemporary problems and issues will be explored. Selected topics will be chosen from the areas of Medicine and the Environment. Students will participate in discussions and class activities that will assess decision-making criteria relative to the issues being presented.

## **BIO 120 DL—Biology for Today**

3 lect., 0 lab., 3 cr. (Spring)

The biological aspects of contemporary issues will be explored. Selected topics will be chosen from areas of the environment, human anatomy and physiology, inheritance, evolution, and genetic engineering. Proctored exams will be administered at an SUNY Orange campus or an approved site arranged by the student.

## **BIO 123—Prehistoric Life**

3 cr. (Fall/Spring/Summer)

A survey of the diversity of prehistoric life including the dinosaurs, mammals, birds, reptiles, amphibians, fish, invertebrates and plants of the past. An overview of other relevant topics such as fossilization, evolution, extinction, vertebrate anatomy and ecosystem structure will be presented. The course will include a trip to the Museum of Natural History. Students are responsible for their own transportation. The course does not include a laboratory component.

## **BIO 123 DL—Prehistoric Life**

3 lect., 0 lab., 3 cr. (Fall/Spring/Summer)

A survey of the diversity of prehistoric life including dinosaurs, mammals, birds, reptiles, amphibians, fish, invertebrates, and plants of the past. An overview of other relevant topics such as fossilization, evolution, extinction, and vertebrate anatomy will be presented. The course will include a trip to the Museum of Natural History. Students are responsible for their own transportation. The course does not include a laboratory component. Proctored exams will be administered at an SUNY Orange campus or an approved site arranged by the student.

## **BIO 125—Nutrition**

3 cr. (Fall/Spring/Summer)

Students study carbohydrate, fat, protein, mineral and vitamin requirements; an overview of the chemical and biological body functions, nutrient metabolism and deficiencies, food safety legislation, functions of the Food and Drug Administration and the USDA. Students conduct a caloric self-study.

## **BIO 141—The Diversity of Life**

2 lect., 3 lab., 3 cr. (Fall/Spring)

This course offers the non-science major an opportunity to study representatives of the major groups of bacteria, protists, plants, fungi, and animals in both lecture and lab. Emphasis will be

placed on the major characteristics of each group. The inter-relationships among these organisms will be studied both through discussion and through field trips to local sites. The global loss of biodiversity and its significance will be discussed. Students are responsible for their own transportation on field trips. (GE 2)

**BIO 143—Field Biology** 2 lect., 3 lab., 3 cr. (Fall)

This course will acquaint students with the plants and animals of the Orange County area, with emphasis on ecological relationships between them and their environment. Weekly field trips within the area will identify organisms found and conduct outdoor studies to better understand interactions among them. Real data will be collected and analyzed to answer scientific questions concerning the natural history of the county's biodiversity. Students are responsible for their own transportation. (GE 2)

**BIO 146—Avian Biology**

2 lect., 3 lab., 3 cr. (Spring-alternate years)

A study of the birds of the Mid-Hudson Region, emphasizing field identification, migration, flight and ecological adaptations, voice and behavior, distribution and classification. Lectures and weekly field trips to diverse habitats are included. Students are responsible for their own transportation.

**BIO 148—Environmental Conservation**

2 lect., 3 lab., 3 cr. (Spring)

This course will explore local, regional, national, and global issues of water quality and usage, such as types and sources of pollutants and their effects on humans and wildlife, surface and ground water overuse, and conservation of water resources. The expanding human population and its creation of resource conflicts and their resolutions are presented and discussed. Lab experiences will focus on monitoring the quality of nearby waterbodies, with the collection of real data that will be used by Orange County in their formulation of a watershed management plan. Students are responsible for their own transportation to off-campus sites. (GE 2)

**BIO 201—Genetics** 3 lect., 3 lab., 4 cr. (Fall)

This is a survey course which introduces students to the various fields of modern genetics. Topics include the diverse forms of inheritance, the structure of chromosomes, the nature of function of genes, the regulation of gene activity, mutation, biotechnology, and evolution. Special reference is made to human genetic disorders and cancer. Lab work includes observing the inheritance traits in fruit flies and plants, mapping genes to regions of chromosomes, transformation, conjugation, plasmid DNA isolation, DNA gel electrophoresis, and protein gel electrophoresis. Students will learn techniques for the handling of bacteria and bacteriophage. (GE 2)

*Prerequisite: one year of biological science including BIO 101*

**BIO 202—Comparative Vertebrate Anatomy**

3 lect., 3 lab., 4 cr. (Spring)

The morphology, physiology, evolutionary development, and adaptations of major organ systems in vertebrate animals are studied. Laboratory work includes histology and dissection of vertebrate animals.

*Prerequisite: one year of biological science, including BIO 101*

**BIO 204—General Botany**

3 lect., 3 lab., 4 cr. (Spring)

This is a general botany course that will study plant morphology and physiology of herbaceous and woody plant divisions within the plant kingdom as well as other related plant-like organisms. Topics covered include plant structure and function, plant growth, transpiration, photosynthesis, evolution, and reproductive cycles. The course concludes with the diversity of flowers and plant life. Laboratory work includes: microscopic examination of cells and tissues of typical plants, set up and monitoring of a hydroponics experiment that will utilize the scientific method and allow for continual plant growth observations. Students will also be assigned seeds from differing plant families to germinate and tend to until plant maturity. The course will also require a plant collection prepared by each student. (GE 2)

*Prerequisite: one year of biological science, including BIO 101*

**BIO 205—General Ecology**

3 lect., 3 lab., 4 cr. (Fall)

Ecology is the branch of science studying interactions and relationships between organisms and their environment. Topics include a study of individual, population, community and ecosystem ecology. Applications of ecology and the influence of humans on the biosphere will also be addressed. (GE 2)

*Prerequisite: one year of college-level biological science including BIO 101 or permission of the instructor*

**BIO 210—Study of Biological Habitats**

2 lect., 2 lab., 3 cr.  
(Intersession-Spring Break/Summer)

A 10 to 15 day field experience in a marine, fresh water or terrestrial habitat at an off campus location. The ecological interactions of flora and fauna, with their habitats, are examined in detail. The Catskills, Maine, the Southwest Desert Biome, and Tropics are among the habitats studied. Fee charged for transportation and living expenses. (GE 2)

*Prerequisite: One year of college biological science or permission of the instructor*

## Business

### (Business Department)

#### **BUS 101—Business Mathematics**

3 cr. (Fall/Spring)

This course is required by various A.A.S. degrees in business and can be used as an elective in others. This course will emphasize the use of business terminology and the solving of business problems using decimals and percentages. Topics that are covered in this course include, but are not limited to, the following: gross and net payroll calculations; markup and markdown; trade discounts and cash discounts; simple interest, compound interest, and ordinary annuities.

*Note: This course cannot be used to fulfill the Math/Science requirement for any degree.*

Prerequisite: *MAT 020 and RDG 080*

#### **BUS 103—Introduction to Business**

3 cr. (Fall/Spring)

In this analysis of current business practices, the following topics are examined: impact of technology on businesses, economic systems, forms of ownership, social responsibility, management and organization, finance, marketing, human resources, information management and international business. Topical issues and cases are used to reinforce terminology and concepts. It is strongly advised that students take this course in their first semester.

#### **BUS 105—Business and Society**

3 cr. (Fall/Spring)

Emphasis is placed on current business economic policy issues as applied to the roles of government and the consumer. The course is structured to help both enlighten and sharpen the student's awareness of current economic problems and business issues in today's dynamic environment. Major emphasis is placed on inflation, unemployment, social security, health care, deficits, debt, global trade, and monetary and fiscal policy.

#### **BUS 111—E-Business Principles**

3 cr. (Fall/Spring)

Electronic business provides a foundation for conducting business on the Internet worldwide. Electronic business involves the use of Internet technology to transform key business processes in order to maximize customer value and facilitate the exchange of goods and services between buyers and sellers. Topics include: business to business (B2B) and business to customer (B2C) electronic commerce; advertising, market research, privacy and security issues on the Internet. Emphasis is placed on real-world application and Internet exercises. Each student will complete an Internet project.

#### **BUS 161—Computer Applications for Business**

3 lect., 3 cr. (Fall/Spring)

(Formerly CIT 101 Microcomputer Applications) This course focuses on how communication, decision-making and critical thinking can be facilitated by the use of Microsoft Office Software. Students learn to use the computer as a tool using Microsoft Office applications—Word, PowerPoint, Excel and Access. Concentration is on Excel and Word. The Internet is used as a research and communication tool. Students create and use a variety of spreadsheets, word processing documents, mail merge documents, databases, electronic presentations and reports as part of a simulated business environment. This course supports the concepts needed in other required business courses. This course requires computer use outside the classroom.

Prerequisite: *MAT020 or placement into MAT101 or higher*

#### **BUS 201—Business Law 1**

3 cr. (Fall/Spring)

Emphasis is placed on the principles and the language of the law governing business transactions. Topics include the background of law, the law of contracts, the law of agency and the law of sales.

#### **BUS 202—Business Law 2**

3 cr. (Fall/Spring)

This course deals with negotiable instruments, partnerships and corporations, and real and personal property, bailments and carriers.

Prerequisite: *BUS 201*

#### **BUS 203—Business Communications**

3 cr. (Fall/Spring)

This course provides a managerial approach toward practice in solving business and professional communication problems, in making decisions involving selection and organization of content and in choosing an appropriate method for presentation of information. The use of technology and collaboration to enhance the effectiveness of business communications is explored. An oral presentation, written business report or proposal, and numerous letters are required.

#### **BUS 205—Business Statistics**

3 cr. (Fall/Spring)

This course is required for various AS degrees in business. The course concentrates on three major sections using business world applications. Part one is descriptive statistics which studies measures of central tendency and measures of dispersion. The second part includes probability theory, binomial probability distribution, and the normal curve. The third concentration is in inferential statistics which includes determining the sample size for a given sample, creating a confidence interval for the universe mean and universe proportion, and the testing of hypotheses. Regression and correlation analysis are also examined.

Prerequisite: *Two years of college preparatory math or MAT 101*

**BUS 207—Introduction to International Business**

3 cr. (Fall/Spring)

This course will introduce students to the challenges and problems involved in conducting business in global markets. Initial emphasis will be on concepts and theories of international trade, foreign investment and economic development. After an overview of international agencies and the international monetary system, students will consider the effects of financial economic, socio cultural, legal and political forces on the foreign business environment. Course concludes with an examination of international management practices in various areas, including marketing and labor relations.

Prerequisite: *MAT 020 or placement into MAT 101 or higher*

**Chemistry****(Science, Engineering & Architecture Dept.)****(see also: Physical Science, Physics)****CHM 103—Applied Chemistry 1**

2 lect., 3 lab., 3 cr. (Fall)

A study of the fundamental concepts of inorganic chemistry and techniques to be used in clinical laboratories. Topics include the nature of matter, the mole concept nomenclature, redox reactions, solutions, chemical equilibrium, acids and bases, and the gas laws. Laboratory work stresses skills and techniques useful to the laboratory technician. This course is closed to students who have completed or are currently enrolled in CHM 105, 106, 201 or 202. (GE 2)

Corequisite: *MAT 101 or Math Placement test into MAT 102 or higher*

**CHM 104—Applied Chemistry 2**

2 lect., 3 lab., 3 cr. (Spring)

Continuation of CHM 103. Topics include acid base chemistry, nuclear chemistry, organic chemistry with an emphasis on nomenclature, simple chemical reactions, boiling points/ solubility in water, and organic functional families. Laboratory work emphasizes quantitative techniques. The use of periodicals is required. (GE 2)

Prerequisite: *CHM 103 or permission of department chair*

**CHM 105—General Chemistry 1**3 lect., 3 lab., 4 cr.  
(Fall/Spring/Summer I)

A study of the fundamental principles of chemistry. Topics include: stoichiometry, gases, atomic structure, periodic properties, ionic and covalent bonding, Lewis structures, liquids and solids. Laboratory work is the application of these principles with emphasis on quantitative relationships. The keeping of a laboratory notebook is required. (GE 2)

Prerequisite: *MAT 102 or Math Placement test into MAT 121*

**CHM 106—General Chemistry 2**

3 lect., 3 labs., 4 cr. (Fall/Spring/Summer II)

Topics include: Chemical equilibrium, acid-base theories, solubility equilibria, thermochemistry, thermodynamics, chemical kinetics, nuclear reactions, electrochemistry, an introduction to organic chemistry and some representative biomolecules. Laboratory work includes the above topics, plus qualitative analysis of select cations, and chromatography. The keeping of a laboratory notebook and the writing of formal reports is emphasized. (GE 2)

Prerequisite: *CHM 105 or permission of department chair*

### CHM 110—General and Biological Chemistry

3 cr. (Fall)

Fundamental concepts of inorganic, organic, and biological chemistry essential for a thorough understanding of principles and techniques in clinical dental hygiene and nutritional counseling.

Prerequisite: *either high school Regents Chemistry, CHM 120, or permission of department chair*

### CHM 120—Elements of Chemistry and Physics

2 lect., 2 lab., 3 cr.  
(Fall/Spring/Summer)

A survey of the fundamental principles of chemistry and related physical laws. Only elementary mathematics is used. Topics include: safety in the laboratory, measurement, atomic structure, the periodic table, chemical equations, solutions, electrolytes, acid-base reactions, pH, the gas laws, main organic functional groups, nuclear physics and radioisotopes, and an introduction to mechanics. Not open to students who have successfully completed CHM105, 106, 201 or 202. (GE 2)

Prerequisite: *tested into MAT 101 or higher or completed MAT 020*

### CHM 201—Organic Chemistry 1

3 lect., 3 lab., 4 cr. (Fall)

An integrated presentation of the chemistry of aliphatic compounds with special emphasis on structure, nomenclature, mechanism and stereochemistry. Spectroscopy will be introduced. Laboratory work includes basic characterization techniques, basic synthesis, and keeping a laboratory notebook. (GE 2)

Prerequisite: *a minimum grade of C- in CHM 106*

### CHM 202—Organic Chemistry 2

3 lect., 3 lab., 4 cr. (Spring)

Continuation of CHM 201. Topics include IR spectroscopy, NMR spectroscopy, and a continuation with the reactions of aliphatic and aromatic compounds, heterocyclic compounds and biologically active compounds. Laboratory work involves use of modern techniques in the synthesis, separation and purification of organic compounds, and keeping a laboratory notebook. (GE 2)

Prerequisite: *CHM 201*

## Chinese

(Global Studies Department)

### CHN 101—Elementary Chinese 1

3 cr. (Fall)

Elementary Chinese 1 is an introductory course in spoken and written Mandarin Chinese that aims to develop the student's vocabulary, pronunciation, and mastery of simple conversations. Using an interactive approach to build student confidence in listening, speaking, reading and writing the Chinese language, the course introduces students to the predominant dialect of Mainland China and at the same time offer students insight into Chinese culture.

### CHN 102—Elementary Chinese 2

3 cr. (Spring)

Elementary Chinese 2 represents the second half of the introductory course in spoken and written Mandarin Chinese. In addition to providing students with knowledge of Chinese culture, the course aims to develop further the students' vocabulary, pronunciation, and mastery of simple conversation. The course will utilize an interactive approach to build student confidence in listening, speaking, reading, and writing the Chinese language.

## College and Career Skills

(Interdepartmental) (Interdisciplinary)

### CCS 100—Career Planning

(Liberal Arts Elective) 1 cr.

This course is designed to improve self-awareness and knowledge of the career decision-making process. Topics include self-exploration, career and career theory study, decision-making skills, information gathering from library and community resources, and the skills required to look for a job. Lectures, films, individual and group exercises, reading and writing assignments, and worksheet activities will be used to provide students with an in-depth career planning experience. For additional information contact Office of Career and Internship Services.

### CCS 101—College Success Seminar

(Liberal Arts Elective) 2 cr.

This is an interdisciplinary course designed to assist the student in making the transition to college, and to promote the development of a successful college experience. Students will define ways in which they are responsible for their own experiences in college. Topics include: setting goals, managing time, identifying cognitive styles, understanding relationships, accessing college and community resources, employing critical thinking, planning careers, appreciating diversity, clarifying values, achieving wellness, and incorporating information resources in the college experience. For additional information contact the Advising and Counseling Center at 341-4070.

### CCS 102—College Life Skills

(General Elective) 1 cr.

This course is designed to bring together strategies and skills to increase the student's probability of success in a wide variety of goals. Based on established theory and practice in many academic disciplines, students will have the opportunity to apply these techniques to the tasks they face in a college setting. This course is not open to students who have completed CCS 101—College Success Seminar.

## Communication

(Arts & Communication Department)

### COM 101—Foundations of Communication

3 cr. (Fall/Spring/Summer)

This survey course is designed to introduce students to the theoretical and practical aspects of communication. Students examine the basic principles of the communication process including communication theory, perception, using verbal and nonverbal communication, and listening. Emphasis is placed on the application of these principles to interpersonal, small group, public, intercultural, and mass communication contexts. Students will also research and present formal speeches. (GE 10 when combined with ENG 101)

*This course is one of two required to satisfy the Basic Communication General Education category.*

### COM 103—The Speaking Voice

3 cr. (Fall/Spring)

This course includes physical voice production, projection, the phonetic alphabet, regionalism, and articulation/diction. Students emphasize through vocal project modules either broadcast or theater, or general self improvement. (GE 8)

### COM 105—Introduction to Radio & Television

3 cr. (Fall/Spring/Summer)

A survey of American radio and television including historical and technological development and the effects of broadcasting and corresponding technologies on society. Programming concepts and industry structure, ethical considerations in broadcasting, current and future directions in broadcast technology, and the changing nature of this industry are also considered.

### COM 107—Introduction to Video Production

3 cr. (Fall/Spring)

Students will gain experience in television production, including a history of news media from 1960's to today. Specific areas of hands-on concentration include camera operations, digital editing, lighting, audio, scripting, editing for social media, programming and production concepts.

### COM 108—Digital Video Post-Production

3 cr. (Spring)

An advanced, hands-on production course designed to deal with the various elements of television production. In addition to expanding the skills acquired in COM 107, emphasis is placed on developing and producing "ready for air" productions. Topics include an introduction to television graphics, set design, and advanced editing techniques. (GE 8)

Prerequisite: *COM 107*

### COM 111—Digital Radio Production

2 lect., 2 lab, 3 credits (Fall/Spring)

This hands-on course will provide students with an overview of digital audio techniques. Students will learn how to use digital technology to effectively create radio programs that will air over the Internet on the SUNY Orange college radio website. It will explore the

## Communication

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different types of radio production (PSAs, drops, teases, and vo-sots) using current digital audio tools, and will also show students how to cater a program to specific target audiences. Students must be able to work in a group production setting and have time available for on-campus projects.

### **COM 201—Oral Interpretation** 3 cr. (Fall)

This course is an introduction to the art of oral interpretation of literature. The student learns how to select and evaluate literary works for oral presentation, the methods of analyzing different types of literature, and the use of voice and body in the oral communication of literature. Each student presents a final lecture-recital. (GE 8)

Prerequisite: *COM 101*

### **COM 203—Interpersonal Communication** 3 cr. (Fall/Spring)

Interpersonal communication is the basis for all our relationships and affects all aspects of our lives. The goal of this course will be to better understand interpersonal communication both as a concept and as something we experience in our everyday lives. This course is designed to assist students in becoming more thoroughly acquainted with the process of interpersonal communication and its impact on the development and maintenance of human relationships.

Prerequisite: *COM 101*

### **COM 205—Small Group Communication** 3 cr. (Fall/Spring)

Human beings have always been creatures who collaborate. Our social nature results in our participation in groups and teams of all kinds. Communication makes it possible for groups and teams to exist and function. This introductory small group communication course examines the theory and practice in assuming membership and leadership roles in decision-making groups. The course places emphasis on both classic and current theories that focus on "how groups work" and practical information that explores "how to work in groups." Group process is investigated as it relates to the individual's ability to communicate, and thus interact more effectively.

Prerequisite: *COM 101*

### **COM 207—Public Speaking** 3 cr. (Fall/Spring/Summer)

This course is designed to introduce students to the theoretical and practical requirements of different types of public presentations. Students will learn to prepare and deliver informative speeches, persuasive speeches and commemorative speeches. Special consideration will be given to audience analysis, research, message composition, delivery, building credibility, the effective use of language and using evidence and reasoning. In addition to developing their speaking skills, students will also learn how to successfully reduce and manage their speaking apprehension.

Prerequisite: *COM 101*

### **COM 209—Debate** 3 cr. (Spring)

Emphasis is on methods of argumentation and advocacy including proposition analysis, building the case, developing the brief, rebuttal and refutation. Various forms of debate are introduced with directed experience and application. (GE 8)

Prerequisite: *COM 101*

### **COM 211—Intercultural Communication** 3 cr. (Spring)

Students study different cultures and the unique ways in which they communicate verbally and non-verbally. Includes the interdisciplinary study of cross-cultural communication theories, practices, and case study analysis.

Prerequisite: *COM 101*

### **COM 213—Popular Culture and the Media** 3 cr. (Fall/Spring)

While building on a foundational overview of the evolution of popular culture, this course examines the growth and influence of American popular culture through the latter half of the twentieth century to the present. In addition to examining various historical critiques of popular culture, students will explore the different levels of popular culture, the technological forms that deliver and influence its content, the economic and social underpinnings of popular culture, and the groups and sub-groups that create, borrow, and consume popular culture in the United States. Case studies in television, music, film and print will be offered.

Prerequisite: *COM 101*

### **COM 215—Conflict Resolution** 3 cr. (Fall/Spring)

This course assists students in learning ways to resolve conflicts in various settings by examining communication skills in dealing with these conflicts.

Prerequisite: *COM 101*

### **COM 217—Introduction to Communication Disorders** 3 cr. (Fall/Spring)

An introduction to the field of communication disorders. The course includes an overview of normal and disordered speech and language in children and adults, the assessment and treatment of disordered speech, and an examination of career choices.

Prerequisite: *COM 101*



## Computer Aided Drafting (CAD)

(Science, Engineering & Architecture Dept.)

### CAD 101—Introduction to CAD

2 lect., 3 lab., 3 cr.

An introduction to drafting using Autocad software. Emphasis is placed on drafting, annotating and dimensioning two dimensional drawings and composing sheets to be plotted. Emphasis is also placed on training students to follow verbal directions. Achieving appropriate lineweight distinctions when plotting is stressed.

Corequisite: *ARC 101, concurrent enrollment in or completed WRT 040*

Prerequisite: *MAT 020 or placement into MAT 101 or higher*

### CAD 102—CAD 2

1 lect., 2 lab., 2 cr.

This is an intermediate course using Autodesk software. Emphasis is placed on data manipulation and three dimensional drawing, both modeling and surfacing. Students will also use Revit software to produce drawings.

Prerequisite: *CAD 101*

## Computer Information Technology (CIT)

(Applied Technologies Department)

### CIT 100—Computer Literacy

3 lect., 3 cr. (Fall/Spring)

This course is designed to give the student an overview of computer technology, concepts, terminology, and the role of computers in society. There will be discussions of the social and ethical issues related to computers and the Internet. It will provide the student with research and critical thinking skills and introduce the student to relevant emerging technologies. The student will use word-processing, spreadsheets, database and presentation software when presenting their findings.

Prerequisite: *MAT 010 or math placement into MAT 020 or higher*

### CIT 101—Microcomputer Applications

(For Business majors—see BUS 161 Computer Applications for Business)

### CIT 103—Management Information Systems

3 lect., 3 cr. (Fall)

An introductory course in Management Information Systems that includes such topics as organization and dissemination of business information, fundamentals of a computer system, storage and retrieval devices, the systems development life cycle, the Internet, and E-Commerce. Coverage will also include security, privacy and ethical issues as they relate to information systems.

### CIT 105—Data Communications & Introduction to Networking

2 lect., 2 lab., 3 cr. (Fall)

This is an introductory course in data communications and networking. Topics, which are emphasized in this course, include communication mediums, communication equipment, network topologies, protocols, and the OSI model.

Prerequisite: *MAT 020 or placement into MAT 101 or higher*

### CIT 107—Introduction to C++ Programming

2 lect., 2 lab., 3 cr. (Fall)

This course involves classroom lectures and hands-on exposure to programming in C++. Topics includes: Fundamental features of C++. Operators, Arrays and Loops, Pointers, Control Statements, Disk Files and Libraries, Structures for Lists, Sorting and Searching.

Prerequisite: *MAT 020 or placement into MAT 101 or higher*

### CIT 108—Web Page Programming 1

2 lect., 2 lab., 3 cr. (Spring)

This is a computer based course that introduces the student to client-sided Internet web page programming. The student will cover topics including, general concepts, terminology, XHTML, JavaScript, DHTML, and XML. Assignments provide experience in the use of the scripting/programming languages utilized to create web pages.

Prerequisites: *CIT 111, MAT 020 or placement into MAT 101 or higher*

# Computer Information Technology (CIT)

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## **CIT 111—Internet & HTML**

2 lect., 2 lab., 3 cr. (Fall/Spring)

This is a computer-based course which introduces the student to the Internet and Internet programming. The student will cover topics including, general concepts, terminology, search engines, web page design and Internet languages. Assignments provide experience in the use of the Internet and creating web pages, an introduction to Dreamweaver.

## **CIT 112—Computer Hardware and Software**

3 lect., 3 lab., 4 cr. (Spring)

This course involves classroom lectures and hands-on exposure to advanced microcomputer software and hardware. Topics include: current hardware technology, microcomputer operating systems, fixed disk management, communications, and local area networks.

Prerequisite: *MAT 020 or placement into MAT 101 or higher*

## **CIT 115—Visual Basic**

2 lect., 2 lab., 3 cr.

This is a hands-on computer programming course to introduce the student to the Visual Basic programming language. The student will use important programming tools such as flowcharting, pseudo code, testing data and testing modules and will learn how to use Visual Basic for both stand-alone programs and scripting modules for use on the Internet. Entering students should have a basic knowledge of microcomputers and Windows.

Prerequisite: *MAT 020 or placement into MAT 101 or higher*

## **CIT 116—Networking 1**

3 lect., 3 lab., 4 cr. (Spring)

This course will introduce students to the organization and design of networks. It contains the background information students would need to take the first part of the CCNA certification, however, certification preparation is not included in this course. Topics include networking media, networking topologies, the OSI reference model, TCP/IP protocol suite, subnets, routers, switches, and basic networking concepts. Students will learn industry standards and terminology.

Prerequisite: *CIT 105*

## **CIT 118—Operating Systems**

(3 lect., 3 lab., 4 cr.)

This course is an overview of microcomputer operating systems, which includes installation, configuration, maintenance, and efficiency. Installation and management of peripheral devices such as hard disk, USB flash drives, floppy drives, printers, and monitors will be covered. Customizing the operating system environments, troubleshooting, evaluating system performance, and system utilities of operating systems are also covered. Both client and server operating systems will be discussed including but not limited to Microsoft Windows (Server, XP, and Vista), Linux, and DOS. Students will learn industry standards and terminology.

Prerequisites: *CIT 100—Computer Literacy*

## **CIT 203—Networking 2**

3 lect., 3 lab., 4 cr. (Fall)

This course builds on the foundation developed in CIT 116—Networking 1 and extends the students'

capability to understand and manage data networks. It contains the background information students would need to take the second part of the CCNA certification; however, certification preparation is not included in this course. Topics include LAN and WAN design, VLANs, Frame Relay, ISDN, and network administration. Students will learn industry standards and terminology.

Prerequisites: *CIT 116*

## **CIT 205—Web Page Programming 2**

2 lect., 2 lab., 3 cr. (Fall)

This is a computer based course which introduces the student to server-sided Internet web page programming. The student will cover topics including, general concepts, terminology, IIS, Apache, SQL, ASP, XML, Perl, CGI, and PHP. Assignments provide experience in the use of the scripting/ programming languages utilized to create interactive web pages.

Prerequisite: *CIT 108*

## **CIT 206—Networking Security**

2 lect., 2 lab., 3 cr. (Spring)

This course is an introduction to networking security, which includes securing an organization's critical data and systems from both internal and external threats. It contains the background information students would need to take the CompTIA's Security+ certification; however, certification preparation is not included in this course. Topics include general security concepts, security threats, authentication, attacks, malicious code, remote access, email considerations, and web security. Students will learn industry standards and terminology.

Prerequisites: *CIT 116*

## **CIT 208—Flash Programming**

2 lect., 2 lab., 3 cr. (Spring)

This course introduces the student to Macromedia Flash, which allows the student to add animations, special effects, sound and much more to their Web Pages. The student will learn how to create Flash objects. Assignments will provide experience in the use of Macromedia Flash.

Prerequisites: *CIT 111, MAT 020 or placement into MAT 101 or higher*

## **CIT 211—Systems Analysis**

3 lect., 3 cr. (Fall)

Emphasis is placed on feasibility studies and analysis of new system requirements. A semester-long project is required to be completed by small groups working outside of the classroom. The group is required to present a written and oral presentation at the end of the semester.

Prerequisite: *CIT 103, MAT 020 or placement into MAT 101 or higher; prerequisite or concurrent enrollment in CIT 225*

## **CIT 212—Systems Design**

2 lect., 2 lab., 3 cr. (Spring)

Emphasis is placed on designing a new system; file organization, hardware selection, programming specifications, installation requirements and follow-

up procedures. A Case project is required to be completed by small groups. The Case Project will require a written and oral presentation at the end of the semester.

Prerequisite: *CIT 211 and CIT 225*

### **CIT 215—Web Site Management**

2 lect., 2 lab., 3 cr. (Spring)

This course introduces the student to web site management. The student will learn how to identify a project, build a team, plan the project, and develop a design. Assignments provide experience in management of projects, people, and process.

Prerequisite: *CIT 111, MAT 020 or placement into MAT 101 or higher*

### **CIT 216—Internet Security**

2 lect., 2 lab., 3 cr. (Spring)

This is a computer-based course which introduces the student to security issues as well as programming secure applications for the Internet. The student will cover topics including, general concepts, terminology, Java security, Servlet and JSP security, cryptography, and security for web services. Assignments provide experience in the use of the scripting/programming languages to build secure enterprise infrastructure containing Java-based enterprise applications.

Prerequisite: *CIT 205*

### **CIT 217—Introduction to Unix/Linux**

2 lect., 2 lab., 3 cr. (Fall/Spring)

This is a computer-based course that will introduce the student to the UNIX and LINUX operating system. Assignments will include installation, basic operation, file management, administration, and configuration of LINUX. Various editions of UNIX/LINUX will be discussed. Students may wish to use this course to prepare for the CompTIA Linux+ certification.

Prerequisite: *MAT 020 or placement into MAT 101 or higher*

### **CIT 225—Database Fundamentals & Design**

2 lect., 2 lab., 3 cr. (Fall)

This course presents fundamental concepts of database design. Topics include input/output processing, file organization, relational database requirements, SQL, QBE, switchboard/menu design, applications development, data security, and automating tasks with macros. This course involves a semester-long group project.

Prerequisite: *CIT 103 or placement by department, MAT 020 or placement into MAT 101 or higher*

### **CIT 230—CIT Internship**

3 cr. (Spring)

Students are assigned to a work study experience in an appropriate technology field at an off-campus site or provided with on-campus project work. The particular interests of the student in the field are considered in arranging the field experience. Enrollment by permission of the department chair.

## **Computer Science**

### **(Applied Technologies Department)**

The following courses do not satisfy the laboratory science requirement for the Associate Degrees. These courses will satisfy the math requirement for the A.A. and A.S. degrees.

### **CSC 101—Computer Science 1**

3 lect., 3 lab., 4 cr. (Fall)

An introduction to structured programming using the Java language. Students will be presented with methodologies for developing, testing and communicating plans for computer solutions of practical problems. Topics include top down programming, flow block diagrams, input/output structures, choice and loop structures, functions, strings, streams and stream processing and an introduction to classes. While designed as a first course for Computer Science majors, it would be open to any student who might desire to learn programming techniques.

*This course fulfills the math requirement for the A.S. degree*

Prerequisite: *math placement of MAT 121 or higher*

### **CSC 102—Computer Science 2**

3 lect., 3 lab., 4 cr. (Spring)

A continuation of structured programming using the Java language. Students will design and test algorithms for computer solutions. Topics include user defined data classes, arrays, files, algorithm analysis and software engineering concepts.

*This course fulfills the math requirement for the A.S. degree*

Prerequisite: *CSC 101 or permission of the department chair*

### **CSC 130—Computers and Computing**

2 lect., 2 lab., 3 cr. (Fall/Spring)

Designed for students who desire an introduction to computers and computer programming, with "hands on" lab experience. Object oriented programming (Visual Basic) is taught using microcomputers with applications drawn from such fields as education, mathematics, and science.

Prerequisite: *MAT 102 or by permission of instructor*

### **CSC 201—Data Structures**

3 lect., 0 lab., 3 cr. (Fall)

A course in Data Structures. Arrays and records are reviewed and abstract data structures and their implementations are introduced using recursion and dynamic storage where appropriate. Structures studied include linked lists, stacks, queues, trees, and graphs.

*This course fulfills the math requirement for the A.S. degree*

Prerequisite: *CSC 102*

### **CSC 204—Computer Organization and Assembly Language**

3 cr. (Spring)

An introduction to the organization of digital computers. Topics include information representation, system architecture, instruction sets, addressing modes, input/output techniques, and subroutine linkage considerations. Students write Intel 80286 microprocessor assembly language programs.

Prerequisite: *CSC 201*

### Criminal Justice

#### (Criminal Justice Department)

##### **CRJ 101—Criminal Justice**

3 cr.

This course focuses on the development of the criminal justice system in a democratic society. Subject matter includes a comprehensive overview of the police, courts, and correctional components of this system. The historical and theoretical development of the criminal justice system and the impact of issues such as technology, transnational terrorism and homeland security on this development are explored. *Fulfills category C.*

##### **CRJ 103—Understanding the Juvenile Offender**

3 cr.

This course studies the causes, types and prevention of juvenile delinquency. The legal aspects and responsibilities in handling the juvenile offender are thoroughly analyzed and discussed. The course features an overview of the history and theoretical development of the American juvenile justice system as well as the treatment of the juvenile offender. *Fulfills category C.*

##### **CRJ 105—Police-Community Relations**

3 cr.

The course focuses on the issues relative to policing in a multi-cultural society. The course includes an analysis of prejudice and discrimination as sources of tension between law enforcement officials and private citizens. The role of the Police and the diverse communities they serve is thoroughly explored and critically assessed. *Fulfills category C.*

##### **CRJ 106—Patrol Operations**

3 cr.

This course explores the purpose, methods, and types of police patrol and operational functions. The course provides an overview of police administration, police patrol and analyzes the relevant issues that impact modern police systems. The course will explore the origins of policing and compare and contrast the major eras of policing with particular emphasis on community policing, problem solving and the Compstat process.

Prerequisite/Corequisite: *CRJ 101*

##### **CRJ 107—Industrial and Private Security**

3 cr.

This course provides an overview of industrial and private security systems. The methods, procedures and techniques that are utilized in the area of private security are studied and reviewed. Security issues such as loss prevention, disaster preparation, accident control, identity theft, cyber security, fire prevention, business continuity and homeland security are discussed and evaluated. The course provides an in

depth analysis and definition relative to the organizational structure of security organizations, proprietary organizations, and contract organizations. Security problems at the industrial, retail and government level are analyzed and assessed.

##### **CRJ 109—Critical Issues in Law Enforcement**

3 cr.

This is an overview of current issues in law enforcement that combines both the social science and legal approach to controversial issues in criminal justice and criminology. The course analyzes current issues in law enforcement such as police stress, corruption, brutality, police response to diverse communities, search and seizure, gun control, sentencing, hate groups, terrorism and homeland security.

##### **CRJ 111—Criminology**

3 cr.

This course explores the development of criminology as a discipline. Contemporary criminological theories relative to the causes of criminal behavior and victimization are studied. Students are expected to study these sociological, psychological and anthropological explanations of crime and critically discuss their relevancy to the modern world.

##### **CRJ 113—Corrections, Probation and Parole**

3 cr.

The structure and theory of correctional systems. A comprehensive study of correctional theory and the development of the prevention and treatment of adult and juvenile offenders. The course provides an overview of probation, parole, state training schools and community based correctional systems.

Prerequisite: *CRJ 101* or permission of department chair

##### **CRJ 211—Criminal Law**

3 cr.

This course presents an overview of the philosophical development of our system of criminal law. The course focuses on the definitions and classification of crimes, criminal liability, and the development of controversial issues in criminal law such as the insanity defense, culpability, and jurisdiction etc. The course utilizes actual court cases to illustrate major legal concepts.

Prerequisite: *CRJ 101*

##### **CRJ 213—Police Organization and Administration**

3 cr.

This course comprises an analysis of the organizational structure of municipal police departments including an examination of the major divisional components and operational units. The course will focus on the major organizational, managerial and supervisory principles of administration as they relate to law enforcement

agencies. The course will also review and critically assess police organizational ethics, corruption, police brutality, investigation and training.

Prerequisite: *CRJ 101*

### **CRJ 215—Criminal Investigation 1**

3 cr.

This course provides an overview and introduction to basic criminal investigations. The course will provide instruction on proper note taking, report writing, interviewing techniques, crime scene searches, suspect identification, crime scene photography, composite sketch drawing, and court preparation. The investigative function and the relationship between investigators and the District Attorney are explored. Legal issues relative to the investigative function such as search and seizure, Miranda warnings, informant processing, undercover operations, wiretapping and surveillance are discussed and evaluated.

Prerequisite: *completion or concurrent enrollment CRJ 101*

### **CRJ 216—Criminal Investigation 2**

3 cr.

The investigation of specific crimes and the exploration of methods utilized in specific criminal investigations. The course will explore specific crimes such as arson, narcotics, sex crimes, child abuse, domestic violence, assaults, burglary, larceny, homicide, auto theft, organized crime, domestic and transnational terrorist groups and cyber investigations. An emphasis on the types of evidence that are critical to the successful investigation of the above listed crimes will be thoroughly reviewed and analyzed. Court room preparation of these specific investigations will be thoroughly presented and discussed.

Prerequisite/Corequisite: *CRJ 101*

### **CRJ 226—Criminalistics**

2 lect., 2 lab., 3 cr.

This course emphasizes the scientific investigation of crime. The importance of crime scene preservation and laboratory examination of forensic evidence as critical steps in the investigative process are emphasized. The processing of evidence in the field and laboratory are performed during in class lectures and in laboratory settings. Specific areas that will be covered during this class include crime scene searches, recording and securing forensic evidence, developing and recording latent fingerprints, examination of body fluids, microscopic examination of evidence such as ballistics, firearms, breathalyzer examinations and polygraph examinations etc.

Prerequisite: *CRJ 101, CRJ 215, and CRJ 216*

### **CRJ 230—Criminal Justice Internship**

3 cr.

This course provides students with an opportunity

to acquire practical “hands-on” experience under the direct supervision of professionals in a field or area which interests them. The internship affords opportunities for academically related field work in a wide range of criminal justice, correctional, government agencies, social service programs, cultural organizations, businesses, research and non-profit institutions.

The internship requires 80 hours of supervised field work and 15 hours of class work for a total of 95 hours per semester.

Prerequisite: *Student must be a criminal justice major, have completed 30 credits or more, have a CumGPA of 2.5 or higher and have the permission of the department chair.*

## Cyber Security

### (Applied Technologies)

#### **CFR 221—Computer Forensics**

2 lect., 2 lab; 3 cr.

This course will introduce the student to the accepted methods of properly conducting a computer forensics investigation, beginning with a discussion of ethics while mapping to the objectives of the International Association of Computer Investigative Specialists (IACIS) certification. Students should have a working knowledge of hardware and operating systems (OSs) to maximize their success on projects and exercises throughout the text. Specific topics covered include: computer forensics and investigations as a profession, understanding computer investigations, the investigator's office and laboratory, current computer forensics tools, processing crime and incident scenes, digital evidence controls, working with windows and DOS systems, Macintosh and Linux boot processes and disk structures, data acquisition, computer forensic analysis, recovering image files, network forensics, e-mail investigations.

Prerequisite: *CIT 112, CIT 118*

#### **CFR 222—Network Forensics**

2 lect., 2 lab., 3 cr.

This course will introduce the student to the accepted methods of properly conducting a forensics investigation over a network. Students should have a working knowledge of networks, hardware, and operating systems (OSs) to maximize their success on projects and exercises throughout the text. Specific topics covered include: network forensics investigation overview, the Microsoft network structure, processing crime and incident scenes, digital evidence controls, data acquisition, forensic analysis, recovering image files, the registry structure, registry evidence, presenting the results.

Prerequisite: *CIT 203, CFR 221*

#### **CSS 223 Information Security**

3 cr.

This course is designed to familiarize the student with the foundation utilized by most organizations in developing a management framework that will implement a secure, predictable and dependable system throughout the organization. In addition, it will help students preparing to take the Certified Information Systems Security Professional Exam (CISSP). This is a first course in the introduction and study of Information security.

A broad view of the field is provided along with enough detail to facilitate an understanding of the topic as a whole. All pertinent terminology is covered, along with the field's history and an overview of how to

implement and manage an information security plan.

Readings and cases are provided to further enable a student to master the text material while bringing realistic security issues to the forefront. Readings from current periodicals in the information security will also be reviewed.

Prerequisite: *CIT 116*

#### **CSS 224—Network Perimeter Security**

2 lect., 2 lab, 3 cr.

This course introduces firewalls and the network security components that can work together to provide an in-depth defensive perimeter around a local area network. Accordingly, this course examines firewalls in context with the other elements needed for effective perimeter security as well as security within a network. These include packet filtering, authentication, proxy servers, encryption, bastion hosts, virtual private networks, log file maintenance, and intrusion detection systems. Different firewall configurations will also be examined.

Prerequisite: *CIT 203*

#### **CSS 226—Cyber Crime Investigations**

2 lect., 2 lab, 3 cr.

This course is designed to provide the student with foundational knowledge of common techniques used by most cyber crime investigators. Procedural approaches and documentation will be covered. These procedures identify the accepted approaches to protect a digital crime scene/incident, process the collected data/information, ensure and document the integrity of the entire process. The cyber crime investigative procedures will be scrutinized to identify potential problems. The student will be instructed in how the procedures and outcomes of those procedures create supporting documentation for a legal case.

*Prerequisite or concurrent enrollment in CFR 222*

# Dental Hygiene

## (Dental Hygiene Department)

*NOTE: Students must comply with all policies, procedures, and regulations of the internship/fieldwork site. Failure to do so will result in immediate removal from the internship site and automatic failure of the course.*

*Note: A minimum grade of C (75%) is required in all DNT courses to maintain enrollment in the program.*

### DNT 101—Preventive Oral Health Services 1

2 lect., 9 lab., 5 cr. (Fall)

An introduction to the profession of dental hygiene and to the scientific principles of practice are core topics presented in this preclinical course. Didactic concepts and clinical techniques are integrated and applied in laboratory and clinical practice. Fundamental client assessment procedures, instrumentation skills and infection control protocols are the major foundational concepts presented. These will prepare the novice clinician to begin the provision of dental hygiene services to clients in the clinical setting. [R-1]

Corequisites: *ENG 101, BIO 115, CHM 110, DNT 103, CPR certification*

### DNT 102—Preventive Oral Health Services 2

2 lect., 9 lab., 5 cr. (Spring)

The emphasis of this course is on the role of the dental hygienist in the care of medically compromised clients or clients whose particular needs require special consideration in clinical practice. The mandated New York State course in Child Abuse Detection and Reporting is also presented. Clinical content includes continued study of the Dental Hygiene Process of Care addressing the Dental Hygiene Diagnosis, as well as Treatment Planning phases. The clinical experience provides the student with the opportunity to further develop novice level instrumentation skills and assessment techniques. [R-1]

Prerequisites: *CPR certification, DNT 101, BIO 115, CHM 110, DNT 103*

Corequisites: *ENG 102, DNT 104, DNT 106, DNT 108, MLT 106*

### DNT 103—Maxillofacial Anatomy and Oral

#### Histology

3 lect., 3 lab., 4 cr. (Fall)

Study of the anatomy, embryology, and histology of the orofacial complex and neck as foundational knowledge for the study of dental hygiene. Detailed anatomy of the teeth and periodontium and anatomy of local anesthesia is provided. Other topics include embryology of the orofacial complex, histology of oral tissues, and the following anatomy: osteology, musculature, circulation, lymphatics, glands, and

cranial nerves of the head and neck region.

Corequisites: *ENG 101, DNT 101, BIO 115, CHM 110*

### DNT 104—Dental Radiology

2 lect., 3 lab., 3 cr. (Spring)

Dental Radiology is the application of the principles of radiology in the study of the teeth and their surrounding structures. The students will study in lecture the history and principles of radiation physics, radiation biology, radiation safety, radiographic quality assurance, image theory, and alternative imaging modalities. The laboratory will provide demonstrations and practical application in the fundamentals of intraoral and extraoral radiographic techniques, processing, mounting and interpretation. Throughout the dental hygiene program, students will continue to integrate both didactic and preclinical skills by practical application in the clinic and extended clinical settings. [R-1]

Prerequisites: *BIO 115, CHM 110, DNT 101, DNT 103*

Corequisites: *ENG 102, DNT 102, DNT 106, DNT 108, MLT 106*

### DNT 106—Oral Health Education

2 cr. (Spring)

Students develop skills in health promotion and disease prevention, focused primarily at the clinical, private practice setting. Topics include principles of client education, communication, psychology of oral health care, client management, oral physiotherapy, client assessment for preventive education and treatment, tobacco cessation and prevention, therapeutics and topics in advanced caries prevention. Didactic concepts and clinical application are coordinated with clinical practice. Specific health education/preventive topics are assigned.

Prerequisites: *DNT 101, BIO 115, CHM 110, DNT 103*

Corequisites: *DNT 102, DNT 104, DNT 108, ENG 102, MLT 106*

### DNT 108—Pharmacology

2 cr. (Spring)

The composition, dosage, therapeutic action, use and effects of drugs related to clinical dentistry and dental hygiene are studied.

Prerequisites: *BIO 115, CHM 110, DNT 101, DNT 103*

Corequisites: *DNT 102, DNT 104, DNT 106, ENG 102, MLT 106*

### DNT 110—Pain Management in Dentistry

2 cr. (Summer 1)

This course is designed to teach the management of pain control through the administration of local anesthetic agents and nitrous oxide/oxygen for conscious sedation. Topics for the course include: related anatomy and physiology, behavioral considerations, pharmacology of the drugs including indications/contraindications for their usage and the

# Dental Hygiene

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treatment of possible complications and/or medical emergencies.

Prerequisites: *BIO 115, CHM 110, DNT 101, DNT 102, DNT 103, DNT 104, DNT 106, DNT 108, MLT 106, CPR certification*

## **DNT 201—Preventive Oral Health Services 3**

1 lect., 15 lab., 5 cr. (Fall)

Advanced dental hygiene theory and skills are presented in this course and integrated into the clinical experience. Periodontal instrumentation skills including ultrasonic scaling, implant care, and advanced assessment procedures are covered. Emphasis is placed on the implementation and evaluation phases of the Dental Hygiene Process of Care. The role of the dental hygienist in the dental specialty areas of prosthodontics and orthodontics is also included. The student will continue to develop clinical skills, advancing towards beginner level. [R-1]

Prerequisites: *DNT 102, DNT 104, DNT 106, DNT 110, DNT 108, MLT 106, CPR certification*

Corequisites: *BIO 125, DNT 203, DNT 205, DNT 207*

## **DNT 202—Preventive Oral Health Services 4**

1 lect., 15 labs., 5 cr. (Spring)

This course is designed to prepare the student to begin dental hygiene practice. The major topics include: Ethical and Legal Considerations of Licensure and Practice, Professional Development and Employment and Practice Management Theory. The clinical experience emphasizes time management and the evaluation phase of the Dental Hygiene Process of Care. Students will continue to develop the knowledge, skills and attitudes necessary to achieve clinical competency. [R-1]

Prerequisites: *BIO 125, DNT 110, DNT 201, DNT 108, DNT 203, DNT 205, DNT 207, CPR certification*

Corequisites: *COM 101, DNT 206, PSY 101, SOC 101*

## **DNT 203—Oral Pathology**

2 cr. (Fall)

The study of the branches of biologic sciences dealing with the nature of disease, its causes, processes and effects with an emphasis on the manifestations of the disease in the oral cavity. This lecture course integrates both basic and clinical sciences to prepare the dental hygienist to detect, identify, describe and differentiate from normal any abnormalities found in the head and neck region.

Prerequisites: *BIO 115, CHM 110, DNT 101, DNT 102, DNT 103, DNT 104, DNT 106, DNT 108, DNT 110, MLT 106*

Corequisites: *BIO 125, DNT 201, DNT 205, DNT 207*

## **DNT 205—Periodontology**

2 cr. (Fall)

This course is designed to study the dental specialty of Periodontics and the role of the dental hygienist in the prevention, detection, treatment and maintenance of periodontal diseases. The content of the lectures will be applied to the clinical process of dental hygiene care including assessment, treatment planning, non-surgical periodontal instrumentation, and evaluation of the periodontium during supportive periodontal therapy.

Prerequisites: *BIO 115, CHM 110, DNT 101, DNT 102, DNT 103, DNT 104, DNT 106, DNT 108, DNT 110, MLT 106*

Corequisites: *BIO 125, DNT 201, DNT 203, DNT 207*

## **DNT 206—Community Dental Health**

1 lect., 3 lab., 2 cr. (Spring)

Students gain understanding of health promotion and disease prevention at the community level. The course focuses on knowledge and skills necessary for various roles in community oral health. Topics include basic epidemiology, assessment tools, dental health education strategies, basic statistical and research concepts, the evaluation of dental literature, application of disease prevention and control principles at the community level, and access to care. Participation in field experience is required.

Prerequisite: *BIO 125, DNT 108, DNT 201, DNT 203, DNT 205, DNT 110, DNT 207*

Corequisite: *COM 101, PSY 101, SOC 101, DNT 202*

## **DNT 207—Dental Bio-Materials and Advanced Functions**

2 lect., 3 lab., 3 cr. (Fall)

The study of structure, properties, uses, manipulation and care of materials used in the prevention and treatment of oral disease. This course will prepare the student to perform to clinical proficiency those functions recognized by the New York State Dental Practice Act for Dental Hygienists. Other functions will be limited to conceptual proficiency. Emphasis will be placed upon the development of independent and inter-dependent decision making skills and applications of these skills to the successful manipulation of dental materials.

Prerequisite: *BIO 115, CHM 110, DNT 101, DNT 102, DNT 103, DNT 104, DNT 110, DNT 108, MLT 106*

Corequisite: *BIO 125, DNT 201, DNT 203, DNT 205*



## Economics

(Global Studies Department)

### ECO 201—Macro-Economics

3 cr. (Fall/Spring)

Topics include the central problems of every economic system, individual and family income, business organization and income, fiscal and monetary policy, the national income measurement, the banking system, the business cycle, international economics, and the economic role of government. *Fulfills category A. (GE 3)*

### ECO 201DL—Macro-Economics

3 cr. (Fall/Spring)

Distance learning course. Topics include the central problems of every economic system, individual and family income, business organization and income, fiscal and monetary policy, the national income measurement, the banking system, the business cycle, international economics, and the economic role of government. Access to course materials, assignments, and other resources are available through the Internet using "Blackboard." Students communicate with the instructor and other classmates via email, and participate in class discussions using "Discussion Board." Testing and group projects are done online. *Fulfills category A. (GE 3)*

### ECO 202—Micro-Economics

3 cr. (Fall/Spring)

Topics include alternative economic systems, wages, interest rent and profits in our society, economic theory of business costs and revenues, determination of price by the forces of supply and demand, the psychological factors in economic behavior, ethics as related to our economic system and the nature of competition in contemporary American business. *Fulfills category A. (GE 3)*

### ECO 203—Economic Development

3 cr. (Fall/Spring)

Economic development is concerned with the efficient allocation of science resources in relationship to sustained economic growth over time with emphasis on such underdeveloped regions of the world as Africa, Asia, and Latin America. The economic, political, historical, cultural and geographical factors which have contributed to economic underdevelopment will be analyzed, and these mechanisms, necessary to bring about improvements for the impoverished populations of these regions will be stressed. *Fulfills category A.*

Prerequisite: *ECO 202 or ECO 201*

## Education

(Education Department)

*NOTE: Students must comply with all policies, procedures, and regulations of the internship/field work site. Failure to do so will result in immediate removal from the internship site and automatic failure of the course. Evidence of fingerprinting through NYS Department of Education is mandatory for students in the Jointly Registered Teacher Education Program or those in other programs who are registering for EDU 103 and EDU 207. Please see your advisor or visit our SUNY Orange Education Department website for more details.*

Child Developmental Associate credential candidates (CDA) are eligible to take: EDU 101, EDU 102, EDU 111, EDU 201, EDU 202 and EDU 206 without certain prerequisites. See Early Childhood Coordinator. A grade of C (2.00) or better is required in all EDU courses for progression in the program and graduation with an A.A.S. or Certificate in Early Childhood.

### EDU 101—Child Development 1

3 cr. (Fall)

This course provides study of human development and behavior from conception to age two. Topics include: heredity, physical growth, sensory and perceptual development, early brain development and research, adult-child interactions, relevant development and learning theories. Up to four (4) hours of directed observation beyond classroom hours are required. A grade of C or better is required to continue and graduate in the A.A.S./Certificate program.

### EDU 102—Child Development 2

3 cr. (Spring)

This course continues Child Development 1 to age 8 years. Additional emphases of study include language, emotional, social, and moral development, typical and exceptional cognitive development, measurement and assessment, self-concept, cultural, family, and secular issues and influences. Up to four (4) hours of directed observations beyond classroom hours are required. A grade of C or better is required to continue and graduate in the A.A.S./Certificate program.

Prerequisite: *EDU 101*

### EDU 103—Introduction to Early Childhood / Childhood Education

3 cr. (Fall/Spring)

For JRTEP students or students in A.A./A.S. Liberal Arts with Foundations of Education/Teaching Careers. This course offers a broad look at the historical, philosophical, and cultural roots of education in America, focusing on early childhood and childhood, birth through sixth grade. Basics of child development, learning theories, appropriate environments and curricula, educational issues and trends, diversity, multiculturalism, inclusion, family partnership, and the multi-faceted role of the early childhood/childhood professional will be addressed. The NYS Learning Standards and NAEYC guidelines will be included. Twenty-four (24) hours of guided

## Education

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field work at two diverse settings is required. A grade of B- is required in the JRTEP track. Evidence of completion of fingerprinting through NYS Dept. of Education is required.

Prerequisite: *ENG 101*

### **EDU 105—Preparing to Teach Young Children**

2 cr. (Fall)

This course addresses the skills and concepts necessary for the classroom teacher of young children. Emphasis is placed on putting theory into practice. Such topics as daily schedule, lesson planning, transitions, balancing individual and small group work, communication strategies, classroom guidance, evaluation techniques, and portfolio preparation will be included. Personal learning and teaching styles, one's philosophy of excellent education, and developing as a professional will also be examined. A grade of C or better is required to continue and graduate in the A.A.S./Certificate program.

### **EDU 107—Mandated Training**

1 cr. (Fall/Spring)

This course provides training in both the identification and reporting of child abuse and maltreatment, and in school violence prevention and intervention. Intended primarily for school administrators, teachers, instructional aides, and child care professionals, other mandated reporter categories for whom this course may apply include: all health practitioners, EMTs, foster parents, social workers, law enforcement, probation and parole officers, film and photographic print processors, clergy, firefighters, animal control and humane society officers, child visitation monitors, and others. Upon successful completion of the course, students will receive State Education Department Certificate forms for use in documenting their satisfactory course work. A grade of C or better is required to continue and graduate in the A.A.S./Certificate program.

### **EDU 109—Language and Literacy Development in the Young Child**

3 cr. (Fall)

This course presents the progressive, interwoven development in early childhood of the four language arts: listening, speaking, reading, and writing. Both the natural processes of language arts development and the educator's role in providing a supportive environment will be discussed. Adaptation suggestions for children with disabilities, English as an additional language, or limited literacy experiences will be explored. Learning appropriate techniques will utilize major authors, illustrators, and examples of young children's literature. A grade of C or better is required to continue and graduate in the A.A.S./Certificate program.

Prerequisite: *ENG 101*

### **EDU 111—Childhood Health and Safety**

3 cr. (Fall, Spring)

Topics include: physical and emotional needs of infants and children; development of healthy physical self-concept; chronic and communicable diseases, immunizations; first aid; teething and dental health;

accident prevention; recognition and prevention of sexual abuse; identifying problems and screening techniques for vision and hearing; nutritional needs, appropriate menus and meal planning. A grade of C is required to continue and graduate in the A.A.S./Certificate program.

### **EDU 201—Observation and Assessment**

2 lect., 2 lab., 3 cr. (Fall)

This interactive course combines the observation and assessment of children, preschool through second grade, in all developmental areas. By using a variety of professional techniques and tools during weekly field work, students will objectively and accurately observe and record children's behavior. Corresponding theory, appropriate practices, environments, and curricula will be related to field work. Use of NAEYC guidelines will be included. Twenty-four (24) hours of field work in diverse settings is required. A grade of C or better is required to continue and graduate in the A.A.S./Certificate program.

Prerequisite: *EDU 101, EDU 102, PSY 101\*\**

### **EDU 202—Infant and Toddler Development and Curriculum**

2 lect., 2 lab., 3 cr. (Spring)

Study, education, and care of children, pre-natal through age three, according to basic development principles and current research will be explored. Techniques to stimulate cognitive, language, physical, social, and emotional growth, and to create appropriate environments, curricula, and care will be studied. Preparation for the diverse roles of the infant/toddler professional are included. Guidelines from NAEYC are used. Thirty-two (32) hours of field work in diverse settings is required. A grade of C or better is required to continue and graduate in the A.A.S./Certificate program.

Prerequisite: *EDU 101, EDU 102, EDU 111, PSY 101\*\**

### **EDU 203—Child Care Curriculum Development and Field Experience 1**

3 lect., 6 lab., 5 cr. (Fall)

The student gains experience in early childhood through supervised participation in local facilities where, over the course of a year, they take increasing responsibility in the various roles of early childhood professionals. In a weekly seminar/lecture, students discuss their field experiences, and learn to develop early child education curricula including these areas: Art and Creative Experiences, Music, Movement, Physical Activities, Creative Play, Language Arts, Beyond Books, Discipline and Classroom Management\*. A grade of C is required to continue and graduate in the A.A.S. program

Prerequisite: *EDU 101, EDU 102, EDU 111 and permission of instructor/coordinator\*\**

Corequisite: *EDU 201*

### **EDU 204—Child Care Curriculum Development and Field Experience 2**

3 lect., 6 lab., 5 cr. (Spring)

A continuation of EDU 203 including Blocks, Science, Math, Culturally Inclusive Classrooms, Special Needs Populations, Modern Issues, Transitions, Thematic Webs, Parent Interactions, Professional Preparation.\* Requires local site observations beyond

college attendance. A grade of C is required to continue and graduate in the A.A.S. program.

Prerequisite: *EDU 203*

**EDU 206—Administration and Management of Child Care Centers**

3 cr. (Spring)

This course is designed to acquaint advanced students in the early childhood curriculum with practical matters involved in establishing and maintaining an early childhood facility. It includes topics such as determining the need for, and structure of, an early childhood facility; legal requirements for child care centers and staff; child selection and grouping; staff recruitment, development and evaluation; funding and budget management; interactions with parents and community organizations; and an introduction to management techniques. A grade of C or better is required to continue and graduate in the A.A.S./Certificate program.

Prerequisite: *EDU 101, EDU 102, EDU 201, EDU 203\*\**

**EDU 207—Social and Philosophical Foundations of Education in America**

3 lect., 3 cr.

This course examines the social, cultural, philosophical, historical, ethical and practical aspects of education in the United States. Current issues, such as economics and school equity, areas of bias, school achievement, policies, practices and reform initiatives will be addressed. Ten hours of field observation beyond the college classroom are required. Two meetings of field experience reflection groups will be scheduled in addition to college classroom hours. Location and time of these meetings will be student-scheduled to accommodate the groups' needs. Evidence of completion of fingerprinting through NYS Dept. of Education is required.

Prerequisites: *ENG 101*

**EDU 208—Home, School and Community: Families and Teachers as Partners**

3 cr. (Spring)

This course will address issues in communication, barriers to effective dialogue, active listening, conflict resolution, and classroom expectations of families and teachers. Parenting styles, skills and community, as well as local resources and referrals will be considered. Diversity and multicultural awareness and importance will be stressed and celebrated. A grade of C or better is required to continue and graduate in the A.A.S./Certificate program.

Prerequisite: *EDU 101*

Pre/Corequisite: *EDU 102*

*\*NOTE: EDU 203 and EDU 204 require documentation of a satisfactory physical examination, negative tuberculin test, chest x-ray as stipulated by state regulations. Fingerprinting and State Clearance Registry forms required.*

*\*\* Students who took EDU 103 MUST meet with their advisor. Possible waivers MAY be given for certain EDU courses.*

**Electrical Technology—Telecommunications**

(Applied Technologies Department)

**EET 101—Electric Circuits**

3 lect., 3 lab., 4 cr. (Fall)

A study of the fundamentals of DC & AC circuit theory. Topics include DC circuits (series, parallel and combinational) and network theorems (Thevenin, superposition and loop analysis), AC waveforms, capacitance(RC circuits), inductance(RL circuits) and complex AC circuits(RCL), including complex circuit analysis and passive filter applications. The course also includes a 1.5 credit technical writing component.

Corequisite: *MAT 102 or higher, ENG 160*

**EET 104—Digital Electronics 1**

3 lect., 3 lab., 4 cr. (Spring)

This course begins with a basic understanding of digital fundamentals such as binary and hex numbers, basic logic functions, Boolean Algebra, logic minimization and simple combinational logic circuits. Additional topics such as electrical characteristics of TTL and CMOS logic are discussed. The student will then explore a few basic designs using CAD programs. The student will explore combinational logic functions, arithmetic circuits, sequential logic, programmable logic architectures, counters and shift registers, state machine design, logic DAC and ADC. The student will be introduced to CPLD applications and VHDL.

Prerequisite: *MAT 020 or placement into MAT 101 or higher*

**EET 106—Telecommunications 1**

2 lect., 4 lab., 4 cr. (Spring)

This course is designed to form a basis for a career in telecommunications. Students will gain a comprehensive understanding of telecommunications technologies, their applications, and their implications for business. The focus will be telecommunications basics, switching and routing and telecommunications networking. On-site telecommunications laboratory will provide students with hands-on experience.

Prerequisite: *EET 101, MAT 107 or higher*

**EET 107—Telecommunications 2**

2 lect., 4 lab., 4 cr. (Fall)

This course covers advanced electronic telecommunications concepts. It is intended to provide the technician with a working knowledge of digital data telecommunication systems and components. The focus will continue with Telecommunications Networking, communications service providers, Telecommunications applications and emerging technologies

Prerequisite: *EET 106*

**EET 110—Computer Applications & Graphics**

2 lect., 2 lab., 3 cr. (Fall/Spring)

This entry level course is designed to introduce the student to computer graphical concepts and the visual display of information. Topics include layouts, charts, drawings, illustrations, computer aided design, image manipulation and enhancement, and graphic

presentations. Projects include graphical techniques and analysis for graphic arts, medical imaging, and the sciences. Applications used include word processing, spreadsheet, databases, graphical presentation, photo editing, illustrating and computer aided design.

### **EET 201—Electronics 1**

3 lect., 3 lab., 4 cr. (Fall)

A study of basic semiconductor theory, diodes, bipolar transistors and FET's, bias circuits, amplifiers, frequency response, diff amps, and an introduction to semiconductor processing. Emphasis is placed on circuit and system design.

Prerequisite: *EET 101*

### **EET 202—Electronics 2**

3 lect., 3 lab., 4 cr. (Spring)

A study of of amp theory, configurations and applications. Circuit design problems are used throughout to emphasize real design situations. Circuit simulation is used to provide a base for prototyping and then bench testing real systems. Topics include op amp configurations, summing amps, Integrators and Differentiators, Log amps, D to A and A to D and a variety of control applications.

Prerequisite: *EET 201*

### **EET 204—Digital Electronics 2**

3 lect., 3 lab., 4 cr. (Spring)

An in-depth look at Microprocessors, digital interface circuits (bus controllers, latches/I/O techniques and memory mapping), Microcontrollers and assembly language programming. Micro controller applications design and hardware system design are also be covered. A number of analog control applications are designed and implemented. The course uses the Motorola 68HC11 system.

Prerequisite: *EET 104*

### **EET 206—Telecommunications 3**

2 lect., 4 lab., 4 cr. (Fall)

A study of basic RF systems, Analog systems (AM & FM), digital data techniques and protocols, antennas, wave propagation, satellite systems, wireless networks and cellular/PCS systems. The course also includes a semester long communications project that includes a 1.5 credit technical writing component.

Prerequisites: *EET 106*

### **EET 230— Internship: Technology**

3 cr. (Fall/Spring)

Students are assigned to a work study experience in an appropriate technology field at an off-campus site or provided with on-campus project work. The particular interests of the student in the field are considered in arranging the field experience.  
*Enrollment by permission of the department chair.*

## Engineering

(Science, Engineering & Architecture Dept.)

### **EGR 101—Engineering 1**

2 lect., 2 lab., 3 cr. (Fall)

An introduction to Engineering as a career with emphasis on communication skills. Topics to be presented include engineering graphics, technical report writing, computer graphics, 3D graphics modeling, 2D physical modeling and introduction to spreadsheets.

Prerequisite: *concurrent enrollment in MAT 121 or MAT 131 or higher*

### **EGR 102—Engineering 2**

2 lect., 2 lab., 3 cr. (Spring)

An introduction to engineering calculations involving the use of the digital computer. A structured object-oriented language such as C++ or Java is taught. Problems are drawn from DC- AC- digital circuit theory, numerical methods. A programming language course where problems are also solved using spreadsheets, math processors circuits modeling program, and visualization applications.

Prerequisite: *concurrent enrollment in MAT 121 or MAT 131 or higher*

### **EGR 205—Mechanics 1**

4 cr. (Fall)

Deals with forces in static equilibrium, including frictional forces. Introduces matrices to solve equations of more than one unknown. Thorough treatment of centroids and second moments. Maximum and minimum second moments; principal axis.

Prerequisite: *PHY 104*

Corequisite: *MAT 207*

### **EGR 206—Mechanics 2**

4 cr. (Spring)

Kinematics—absolute and relative motion. Force, mass, and acceleration. Work and energy, Impulse and momentum. Mechanical vibrations. Modern use of vector analysis throughout the course.

Prerequisites: *EGR 205 and completed or concurrent enrollment in MAT 214*

### **EGR 212—Circuit Theory**

3 cr. (Spring)

Sinusoidal analysis of circuits using complex algebra and phasor concept. Average and RMS voltage, current and power. Complex power. Fourier analysis. Series and parallel resonance. Polyphase circuits. Complex frequency. Thevenin's and Norton's Theorem. Superposition theorem.

Prerequisite: *PHY 203*

**EGR 214—Thermodynamics**

3 cr. (Summer)

A study of the first and second laws of thermodynamics, open and closed energy systems, properties, and unit systems. Includes application to compressors, pumps, turbines, heat exchangers, and nozzles.

Prerequisites: *PHY 104 and MAT 207*

**EGR 216—Engineering Computations**

2 cr. (Spring)

A survey of the mathematical methods used in electricity and magnetism, and mechanics. The goal of the course is to introduce the gradient divergence, curl, and Laplacian. Application to the wave equation.

Prerequisites: *MAT 207, completed or concurrent enrollment in MAT 214*

**EGR 218—Materials Science**

3 cr. (Fall)

A study of the relationship between the structure and properties of metallic, organic, and ceramic compounds. The physical structure of materials and their limitations are related to use in the areas of science and engineering.

Prerequisite: *CHM 106 and (PHY 104 or PHY 106)*

**EGR 220—Solid Mechanics**

3 cr. (Spring)

Analysis of stress and strain due to axial, torsional, thermal and flexural loads; elastic deformation and buckling applied to beams, shafts and columns. The course will address statically determinant and indeterminate problems. The concepts of principal stresses, principal strains and Mohr's Circle will be presented as well as shear and moment diagrams.

Prerequisites: *EGR 205 and MAT 207*

**English****(English Department)**

ENG 120 and all 200-level English courses fulfill the Humanities requirement for the A.A. and A.S. degree. ENG 120 and ENG 130 do NOT fulfill the 200-level English requirement.

**WRT 020—English-As-A-Second Language**

3 lect., 1 lab., 3 units (Fall/Spring)\*

An intensive course in the structure, basic vocabulary, and idioms of the English language. Through exercises, reading, oral and written composition, the student will develop the command of English needed to understand instruction in academic courses. A weekly lab hour is required.

*\*not applicable to associate degrees or certificate programs*

**WRT 030—Basic Writing Skills 1**

3 lect., 1 lab., 3 units (Fall/Spring/Summer)\*

This course is designed to help students develop very basic writing skills through extensive writing practice. By writing simple narrative and descriptive paragraphs, students learn the composing process and begin to control sentence construction, word choice, fluency, spelling of commonly used words, and end punctuation. A grade of Pass (P) indicates that the student is ready for Basic Writing Skills 2. An individually scheduled, weekly lab hour is required in the Writing Center.

Prerequisite: *placement by the English Dept.*

*\*not applicable to associate degrees or certificate programs*

**WRT 040—Basic Writing Skills 2**

3 units (Fall/Spring/Summer) \*

In this course, students develop the writing skills required to begin college-level composition. Students learn control and development of the paragraph. They review the composing process, as well as word and sentence skills. Students also develop some control of internal punctuation, modifiers, and sentence variety. A grade of Pass (P) indicates that the student is ready for Freshman English 1.

Prerequisite: *placement by the English Dept. or successful completion of WRT 030*

*\*not applicable to associate degrees or certificate programs*

**RDG 060—ESL Reading**

3 lect., 1 support module, 4 units\*

This course is specifically designed to offer low-intermediate to intermediate ESL students the opportunity to develop efficient reading skills and strategies necessary to function successfully in a native speaking reading class. Through instructor-guided whole class instruction, individualized instruction and extensive reading, both in class and outside of class, students will

## English

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be able to practice and acquire those reading skills and strategies presented in the course. In addition to three lecture class meetings each week, students will register for a one-hour per week support module.

### **RDG 061—Support Module**

The support module allows the students to further practice the skills learned in class and to receive one-on-one instruction from the instructor. A grade of P (Pass) indicates that the student is ready to enter the required RDG 070 (Reading and Study Skills 1) reading course.

Prerequisite: *Placement by the English Department, based on placement testing or by recommendation of the admissions office.*

*\*not applicable to associate degrees or certificate programs*

### **RDG 070—Reading and Study Skills 1**

3 lect., 1 lab., 3 units (Fall/Spring/Summer)\*

Using high-interest novels and short stories, this course is designed to stimulate an interest in reading and to offer an opportunity to improve and strengthen basic reading skills. In addition, the course introduces basic study techniques which help to increase students' potential for academic success. Much of the course is individualized. A grade of Pass (P) indicates that the student is ready for RDG 070. An individually scheduled, weekly lab hour is required in the Reading Lab.

Prerequisite: *placement by the English Dept. or by recommendation of the Admissions office*

*\*not applicable to associate degrees or certificate programs*

### **RDG 080—Reading and Study Skills 2**

3 lect., 1 lab., 3 units (Fall/Spring/Summer)\*

Designed to help students develop the necessary reading and study skills needed for dealing with college-level study. Extensive reading of novels and short stories furthers vocabulary growth and helps develop higher-level comprehension skills, i.e., analysis, synthesis, etc. Study techniques such as note-taking, studying a textbook, exam preparation are also developed. Weekly lab hour is required in the Reading Lab.

Prerequisite: *placement by the English Dept., recommendation of the Admissions office, or successful completion of RDG 070*

*\*not applicable to associate degrees or certificate programs*

### **ENG 101—Freshman English 1**

3 cr. (Fall/Spring/Summer)

This first course in the Freshman English sequence introduces college-level writing and revision, construction of expository essays, and research skills. Reading and class discussion center on the formal and informal essay. Research essay is required. (GE 10 when combined with COM 101)

*Note: Students who have placed into any developmental reading or writing courses must complete them before taking ENG 101.*

### **ENG 102—Freshman English 2**

3 cr. (Fall/Spring/Summer)

In this second course in the sequence, students learn to read critically, to organize supporting details, and to develop coherent oral and written arguments. Fiction, drama and poetry are used as common texts. An analytical research paper is required. (GE 7)

Prerequisite: *ENG 101*

### **ENG 120—Introduction to Mythology**

3 cr.

Introduces the student to the major myths of the Greeks and Romans, examines the definitions and functions of mythology, and attends carefully to several of the most important and influential classical works, including Homer's *Odyssey* and Ovid's *Metamorphoses*. Some research required. (GE 7)

Prerequisite: *concurrent enrollment in or completion of ENG 101*

### **ENG 130—Journalism—Writing**

3 cr. (Spring)

Journalistic practices and principles are studied, with emphasis on the techniques of writing for the print and broadcast media.

Prerequisite: *ENG 101 (This course counts as a general elective.)*

### **ENG 160—ENG 161—Technical Writing Module**

3 lab. 1.5 cr.

Combined with designated program-specific courses, these modules teach students to transfer and apply technical writing skills to particular situations, formats and language requirements of their co-requisite program courses and professional workplace situations. Collaborating with the program course instructor, the technical writing instructor works closely with students to complete customized technical writing assignments through lecture, small group, and individual instruction. Students may earn a maximum of one and a half credits per module. These modules do not fulfill the humanities requirements for the A.A. degree.

Prerequisite: *concurrent enrollment in a Writing Consultancy-related designated program course; ENG 101, or concurrent enrollment in ENG 101, or by permission of the instructor.*

For all of the following electives, ENG 101 and ENG 102 Freshman English 1 and 2 are the prerequisites of all 200-level courses in English.

### **ENG 203—World Literature: Ancient World Through The Renaissance**

3 cr.

A survey of world masterpieces from the ancient world through the Renaissance, presenting literature as a reflection of time, place, and thought. Major works are examined in depth. Some research required. (GE 7)

Prerequisite: *ENG 101 and ENG 102*

**ENG 204—World Literature: Enlightenment to the Modern Age**

3 cr.

A survey of world masterpieces from the Seventeenth to the Twentieth century, presenting literature as a reflection of time, place and thought. Major works are examined in depth. Some research required. (GE 7)

Prerequisite: *ENG 101 and ENG 102*

**ENG 205—Drama: Ibsen to O'Neill**

3 cr. (Fall)

A study of the development of modern drama from Ibsen to O'Neill. Some research required. (GE 7)

Prerequisite: *ENG 101 and ENG 102*

**ENG 206—Drama: Contemporary**

3 cr. (Spring)

A study of contemporary dramatists beginning at the time of Brecht and continuing to the present. Some research required. (GE 7)

Prerequisite: *ENG 101 and ENG 102*

**ENG 207—English Literature: 14th Through 18th Century**

3 cr. (Fall)

Introduction to the works of significant English prose writers and poets, from the Old English period through eighteenth-century Neo-Classicism. Literary forms, trends, and backgrounds are studied as aids to the development of critical judgment and aesthetic appreciation. Some research required. (GE 7)

Prerequisite: *ENG 101 and ENG 102*

**ENG 208—English Literature: 19th and Early 20th Century**

3 cr. (Spring)

An introductory study of the works of significant English authors, from the Romantic Movement to the early twentieth century. Critical judgment and aesthetic appreciation are fostered, through consideration of literary forms, trends, and backgrounds. Some research required. (GE 7)

Prerequisite: *ENG 101 and ENG 102*

**ENG 209—American Literature: To The Civil War**

3 cr. (Fall)

A survey of American literature from the Puritan era through the Romantic Movement presenting literature as a reflection of time, place, and thought. The course emphasizes major authors. Some research required. (GE 7)

Prerequisite: *ENG 101 and ENG 102*

**ENG 210—American Literature: 1865 to the Present**

3 cr. (Spring)

A survey of American literature from the late nineteenth century to the present, emphasizing literature as a reflection of time, place and thought. Major authors are examined in depth. Some research required. (GE 7)

Prerequisite: *ENG 101 and ENG 102*

**ENG 211—Creative Writing: Fiction**

3 cr. (Fall)

An advanced writing course designed to help students develop skill in writing fiction. In addition to writing, the student will evaluate the work of fellow students and other assigned works. Some research required. (GE 8)

Prerequisite: *ENG 101 and ENG 102, with grade of C or higher*

**ENG 212—Creative Writing: Poetry**

3 cr. (Spring)

This course provides opportunity for the student to develop skill in writing poetry. Classroom discussions are devoted to both student work and outside readings. Some research required. (GE 8)

Prerequisite: *ENG 101 and ENG 102, with grade of C or higher*

**ENG 213—Journalism: Survey of Mass Media**

3 cr. (Fall)

A study of journalism theory, emphasizing the principles and the responsibilities that newspapers, radio, and television share in conveying information and in developing public opinion. Writing about the media is required. Some research required. (GE 7)

Prerequisite: *ENG 101 and ENG 102*

**ENG 215—Shakespeare**

3 cr.

A close reading of selected plays and some sonnets, together with lectures on the Elizabethan way of life, the playhouse, and stage-craft. Some research required. (GE 7)

Prerequisite: *ENG 101 and ENG 102*

**ENG 216—Children's Literature**

3 cr.

Survey of children's literature: What makes it last? How did it develop? What does it show about the culture and age that produce it? How does it connect to a child's developmental stages? An adult's? What are representative types of the literature, writers and works? How does it handle special issues like multiculturalism, bias, censorship? Readings include picture books, fairy/folk tales, to fiction (historical, realistic, fantasy); representative writers like "Mother Goose" and Brothers Grimm to Sendak, Potter, Carroll, Lowry. Group and individual projects further explore the field. Some research required. (GE 7)

Prerequisite: *ENG 101 and ENG 102*

**ENG 217—Film and Literature**

3 cr.

A literary approach to cinema, with emphasis on story, plot, theme, characters, and symbols. The relationships between literary works and their screen adaptations are examined. Basic film terminology is considered to assist the student to become a reflective viewer. Some research required. (GE 7)

Prerequisite: *ENG 101 and ENG 102*

## English

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### **ENG 220—Women Writers**

3 cr.

A survey of the works of representative women writers focusing on human relationships and society from a woman's perspective as revealed in their poetry, drama, and prose. Works by such authors as Bronte, Woolf, Chopin, Mansfield, and O'Connor may be included. Some research required. (GE 7)

Prerequisite: *ENG 101 and ENG 102*

### **ENG 221—Contemporary Short Story**

3 cr.

Careful reading, analysis, and interpretation of short stories, emphasizing varied approaches, characteristics and styles, with some attention to development of the form in the 19th century. Some research required. (GE 7)

Prerequisites: *ENG 101 and ENG 102*

### **ENG 222—Contemporary Novel**

3 cr.

Careful reading, analysis, and interpretation of several significant novels that vary in style and that suggest how the form has developed during this century. Some research required. (GE 7)

Prerequisites: *ENG 101 and ENG 102*

### **ENG 223—Contemporary Poetry**

3 cr.

Careful reading, analysis, and interpretation of poetry, emphasizing varied approaches, characteristics and styles. Some research required. (GE 7)

Prerequisites: *ENG 101 and ENG 102*

### **ENG 225—International Literature: Non-European**

3 cr.

A survey of the works of representative international writers. Readings will focus on human relationships and man/woman's place in his/her society as revealed in novels, short stories, non-fiction and poetry. Works by such authors as Rigoberta Menchu, Gabriel Garcia Marquez, Chinua Achebe, Nagib Mahfouz, Jamaica Kincaid and Bharati Mukherjee may be included. Some research required. (GE 7)

Prerequisites: *ENG 101, ENG 102*

### **ENG 226—Fantasy Fiction**

3 cr.

This course introduces the student to the genre of fantasy fiction, gives background on the major figures in the area, and provides extended attention to the tales, characters, and important topics in either Arthurian Legend or the works of Tolkien. Some research required. (GE 7)

Prerequisites: *ENG 101, ENG 102*

### **ENG 230—African-American Literature**

3 cr.

Reading and discussion of novels, plays, essays, and poems written by African Americans. Course will include works by authors like Ralph Ellison, James

Baldwin, Lorraine Hansberry, Imamu Amiri Baraka, Toni Morrison and August Wilson. Some research required. (GE 7)

Prerequisite: *ENG 101 and ENG 102*

### **ENG 297—Special Studies in Literature**

3 cr.

Presented on the sophomore level, this 200-level literature course offers students the opportunity to explore current or emerging topics or types of literature or to focus on specific writers. Two particular course options are Science Fiction and Coming to America and are offered on a rotating basis. Additional topics may be added by the department. Some research required. (GE 7)

Prerequisites: *ENG 101 and ENG 102*

### **ENG 297—Special Studies in Literature: Latin American Literature**

3 cr.

This survey course introduces students to the richness of Latin American literature. All readings from the Colonial Period through the Contemporary Period are in English and may include non-fiction, short stories, poetry, and a novel. Slides and music enhance the course, and the student is required to connect these and other resources to the works read. Significant writers may include De Las Casas, Garcilasco de la Vega, Pablo Neruda, Borges, Julia Alvarez, Arguedas, Carlos Fuentes, Gabriel Garcia Marquez, Mario Vargas Llosa, Rosario Ferre, Julio Cortazar, and Rigoberta Menchu, an indigenous writer. All reflect Latin America's diversity. Some research required. (GE 7)

Prerequisites: *ENG 101 and ENG 102*



### Field Studies: Travel

(Global Studies Department)

#### FLD 101—Field Studies

1 cr.

Students will attend lectures, conduct research, and participate in direct observation at an on-site location of relevant significance to the academic topic of investigation. A minimum of five days will be spent in the field study.

Prerequisite: *Permission of course instructor*

#### FLD 102—Cultural/Historical Seminar

1 lect., 3 lab., 2 cr.

Classroom instruction combines with faculty-supervised travel to provide in-depth exposure to a selected geographical region, culture, or historical period. A rigorous, academic investigation of an aspect of the seminar is required. Length of the seminar is approximately two weeks.

Prerequisite: *Permission of course instructor*

### Fire Protection Technology

(Hudson Valley Educational Consortium)

#### FIR 101—Introduction to Fire Protection Technology

3 cr.

This course is an essential component within the Fire Protection Technology core group. The student is introduced to the field of fire protection technology through a review of tragic fires of yesterday to provide a historical perspective on the development of fire safety practices in place today. Students are introduced to the chemistry and behavior of fire in order to develop an understanding of how technology is applied to detect, control and suppress fire today.

#### FIR 102—Introduction to Fire and Emergency Services Administration

3 cr.

The premise of the course is to provide an introductory understanding of the administrative, management and leadership skills that are required in today's fire and emergency services. To accomplish this goal, the history and past practices of the Fire Service will be examined. An overview of the administration, financial management, human resources, customer service, training, educational requirements, and health and safety issues of the Fire and Emergency service will be explored.

#### FIR 103—Principles of Building Construction

3 cr.

This course is part of the Fire Protection Technology core group. It is designed to introduce the student to methods and techniques of building construction and how building construction impacts both fire behavior and the life safety of building occupants. Students are also introduced to the causes of building failures (structural collapse) and the role of interior finish in fire spread and toxic gas production.

#### FIR 203—Fire Protection and Detection Systems

3 cr.

A study of the various types of fire detection and extinguishing systems. Portable fire extinguishers, sprinkler systems and special agent systems are discussed. The operation of municipal and private alarm systems, automatic fire detection systems and guard services are also examined.

#### FIR 207—Legal Aspects of the Fire and Emergency Services

3 cr.

The focus of this course is the exploration of the many legal issues associated with fire and emergency services. Issues confronting today's fire and emergency services include legal and civil liability, Occupational Safety and Health Administration (OSHA) compliance, workers compensation, physical abilities testing, negligence, discrimination and sexual harassment. These are but a few of the pivotal issues confronting today's fire and emergency services.

## **FIR 211—Investigation and Detection of Fire Incidents**

3 cr.

This course examines the causes of incendiary and accidental fires. In the study of intentional fires and explosions the scientific method is the analytic process now used that leads to accurate and defensible conclusions in fire investigation. The course will focus on the application of this process and create a sound basis for the student to use when evaluating fire scenes, preparing reports, gather evidence and offer testimony in an arson investigation case. Topics discussed include: investigation techniques, interrogation, reports, court procedures, testimony, legal opinions and processing of criminal evidence. State and local statutes related to the crime of arson are examined.

# French

## **(Global Studies Department)**

*Elementary level foreign language courses can be used to meet the humanities requirement for the A.A. and A.S. degrees if a minimum of two semesters of study of the same language is completed. Only one semester of an intermediate level foreign language course is necessary for humanities credit.*

### **FRE 101—Elementary French 1**

3 cr.

A beginning study of the language for students who have not previously studied French, or those who have no more than one year of high school French. Although emphasis is placed on the language as it is heard and spoken, reading and writing skills are also developed. (GE 9)

*Note: Students who are proficient in French may be placed in a more advanced course.*

### **FRE 102—Elementary French 2**

3 cr.

Additional practice in conversation is combined with the development of reading and writing skills. Readings pertain to cultural topics. (GE 9)

*Prerequisite: FRE 101 or two years of high school study or placement by the instructor*

### **FRE 201—Intermediate French 1**

3 cr.

This course increases the student's ability to use the language through practice in conversation, reading, and writing. It includes a systematic review of the essentials of grammar. Readings pertain to contemporary cultural topics. (GE 9)

*Prerequisite: FRE 102 or instructor placement*

### **FRE 202—Intermediate French 2**

3 cr.

Emphasis is given to cultural or literary readings and to free oral expression. Grammatical structures, including the subjunctive, are reviewed. (GE 9)

*Prerequisite: FRE 201 or instructor placement*

### **FRE 203—Advanced French 1**

3 cr.

Literary works of twentieth century French authors are studied and oral fluency is further developed through practice in conversation. Grammar is reviewed as needed. (GE 9)

*Prerequisite: FRE 202 or instructor placement*

### **FRE 204—Advanced French 2**

3 cr.

Readings in twentieth century prose and poetry are discussed, as well as other topics of cultural interest. Compositions are occasionally required. (GE 9)

*Prerequisite: FRE 203 or placement by the instructor*

## Green Building Maintenance and Management

(Hudson Valley Educational Consortium)

### GRB 1100—Introduction to Green Buildings

3 cr.

This course covers the principles, methods, equipment associated with sustainable building systems and design. Topics include land use, climate, day lighting, green power, HVAC, environmental quality, and water conservation.

## Geography

(Global Studies Department)

*GEO 101 fulfills the mathematics or natural science requirement for the associate degrees. Further, those courses which fulfill the social science requirement for the AA. degree are identified by requirement category at the end of the course description.*

### GEO 101—Elements of Physical Geography

3 cr. (Fall/Spring)

The study of the origin and distribution of the major physical features on the earth's surface. Topics include an introduction to globes and maps, earth-sun relationships, weather, climate, land forms, soils and natural vegetation.

*GEO 101 fulfills the mathematics and natural science requirement for associate degrees not requiring a lab science. It does not fulfill the social science requirement for any degree.*

### GEO 102—Human Geography

3 cr. (Fall)

The origin, distribution, differences and ecology of the world's population along with cultural activities are studied. Topics include race, world religions, languages, agricultural and industrial development, and the rise of urban centers as human responses to the physical environment. *Fulfills category C. (GE 3)*

### Geology

(Science, Engineering & Architecture Dept.)

(See also: Physics/Physical Science)

#### GLG 110—Physical Geology

3 lect., 2 lab., 4 cr.

A study of geologic processes and features with emphasis on plate tectonics. Topics include origin of magma, plutons, volcanoes, earthquakes, metamorphism, sediments, rivers, groundwater, glaciation and Earth's interiors. Laboratory study emphasizes mineral and rock identification and topographic map reading. One field trips is generally taken. (GE 2)

#### GLG 112—Historical Geology

2 lect., 3 lab., 3 cr. (Spring)

The principles of geological interpretation are emphasized through a study of earth history. Special attention is given to the geological development of North America. Topics include geologic time, paleontology, structural geology, sea-floor spreading and continental drift, and mountain building. labs., include studies of invertebrate fossils, geologic structures and paleogeography. Several field trips are taken. (GE 2)

Prerequisite: *GLG 110*

#### GLG 120—Environmental Geology

3 cr. (Fall)

A lecture-seminar approach is used in studying selected environmental problems related to geology, such as geologic hazards, waste disposal, energy resources and their recovery, engineering problems, environmental alterations, and land-use planning.

Prerequisite: *GLG 110*

### Health

(Interdisciplinary)

#### HTL 101—Introduction to the Health Professions

2 Cr.

The course is designed to provide the learner an opportunity to explore and understand the variety of health professions. The concepts of "health" and "professionalism" will be examined for self and others. The college library and internet will be used to find journals and other professional sources of information. Students will compare standards of care, sub-specialization, levels of practice and educational preparation within the various disciplines. Healthy self care interventions will be practiced as part of professional development. Trans-disciplinary concepts and scientific principles will be applied in practicing skills such as hand washing and use of personal protective equipment. Interdisciplinary care models will be observed in site visits to local agencies.

Prerequisite: *placement in Writing 040 or higher*

# History

(Global Studies Department)

## HIS 101—U.S. History to 1865

3 cr. (Fall/Spring)

A study of the political, intellectual, economic and cultural development of the United States from earliest colonial settlements to the Civil War. Topics include the Puritan mind, regional cultural patterns, the evolution of constitutional law, the struggle for independence, the Hamiltonian and Jeffersonian perspectives, expansion, slavery, and the Civil War. *Fulfills category A.* (GE 4)

## HIS 102—U.S. History Since 1865

3 cr. (Fall/Spring)

Course surveys the Reconstruction Era within the context of the 13, 14, and 15 Amendments, their impacts and interpretations. An examination of the issues inherent in the change from an agrarian to an industrial society, the course focuses on dislocations in rural America, the rise of cities, immigration, and the labor movement. An assessment of twentieth century U.S. participation in world events, and the balance of power between the superpowers and Third World nations are included. *Fulfills category A.* (GE 4)

## HIS 103—History of African-Americans

3 cr. (Fall/Spring)

A survey of the cultural and historical background of the African-Americans from their African heritages to their present roles in American society. Former title History of Afro-Americans in the USA. *Fulfills category A.* (GE 3 only for students scoring 85 or above on NYS American History Regents)

## HIS 104—The American Civil War and Reconstruction

3 cr. Fall/Spring)

This course examines political, economic, and social developments in the United States from 1850 to 1877. The causes of increasing sectional tensions leading to succession, the diplomatic, military, and technological aspects of the conflict and the controversies inherent in the reconstruction process will be emphasized.

Liberal Arts or General Elective credit only.

## HIS 105—Science, Technology, and Society

3 cr. (Fall/Spring)

This course is an introduction to the histories of science and technology and their relationships to global society. Emphasis is placed on the interactions among science and technology and the corresponding economic, social, and political developments rather than on the internal histories of science and technology. Former course number 23190. *Fulfills category D.*

## HIS 121—World History to 1500 AD

3 cr. (Fall/Spring)

This course introduces the student to the major civilizations of the world prior to 1500 A.D. The various civilizations of Europe, Asia, Africa and the Americas are analyzed separately, emphasizing the unique contributions of each. Emphasis is also placed on cross-cultural contacts and connections to illustrate the diversity and unity of the human condition in the world society. *Fulfills category D.* (GE 6)

## HIS 122—World History Since 1500 AD

3 cr. (Fall/Spring)

This course traces the major developments of world history since 1500, with special emphasis on the theme of the rise of western European civilizations, its penetration of other cultures around the world, and developments in those cultures as they responded to European expansion. Twentieth century trends and problems including world wars, nuclear weapons, the global economy, overpopulation and other environmental issues are explored. *Fulfills category D.* (GE 6)

## HIS 123—Latin American Heritage and History

3 cr. (Spring-evening)

A survey of pre-colonial and colonial Latin America, including discovery and conquest by the Europeans and the subsequent blending of the civilizations. Emphasis is given to cultural elements of the various races, to the period from 1800 to the present, and to the topics of nationalism and revolutions. *Fulfills category D.* (GE 6)

## HIS 124—Africa: Past and Present

3 cr. (Fall-evening)

A study of the development of the African world from the earliest cultures to the emergence and problems of the modern African states. Close attention is paid to the influences of geography, indigenous cultural systems, and cultural exchanges between Africa and the rest of the world. *Fulfills category D.* (GE 6)

## HIS 130—The Greek and Roman World

3 cr. (Fall/Spring)

A basic history course which provides the beginning student with the fundamental conceptual and factual information necessary for the understanding of our ancient traditions. The course begins with the earliest civilizations of the Middle East but focuses primarily on the histories of Greece and Rome. *Fulfills category D.* (GE 5)

## HIS 131—Medieval and Renaissance Europe

3 cr. (Spring)

An introductory course which deals with the Medieval and Renaissance periods in European history. The course begins with the post-Roman world and ends with the Protestant Reformation. Emphasis is on the political, social, cultural, and economic

## History - Honors

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developments of the period. Topics to be considered are feudalism, manorialism, the life of the peasant, monarchy, the development of the nation-state, the medieval church, the Renaissance, Protestantism. *Fulfills category D.* (GE 5)

### HIS 132—The Age of Revolutions

3 cr. (Fall)

An introductory course which deals with the important political, economic, social and scientific developments of the seventeenth and eighteenth centuries in Europe. The course begins with the post-Reformation religious wars and carries through the French Revolution of 1789-1795 and the Napoleonic Era. Some topics included are the English Revolution, the Scientific Revolution, the Enlightenment, the Industrial Revolution, urbanization, the rise of the middle class, and political revolution. *Fulfills category D.* (GE 5)

### HIS 133—Modern Europe

3 cr. (Fall/Spring)

This course begins with the Congress of Vienna and extends to the present time. Some topics considered are nationalism, imperialism, Communism, Fascism, the two World Wars, the Cold War, and united Europe. Emphasis is on the social, economic, cultural, and political developments, centering on the theme of humanity's disillusionment with the promises of earlier generations. *Fulfills category D.* (GE 5)

### HIS 220—Modern China and Japan

3 cr. (Fall)

A study of the modern histories of China and Japan in general with emphasis on the modern period. Topics stressed are religion, social, political and cultural traditions, and the role of both countries in our contemporary world. *Fulfills category D.* (GE 6)

### HIS 221—Modern India and Southeast Asia

3 cr. (Spring)

A study of the histories of India and Southeast Asia in general with emphasis on the modern period. Topics stressed are: religion; social, political, and cultural traditions; economic development; the Vietnam War; China and the United States in Southeast Asia. *Fulfills category D.* (GE 6)

### HIS 222—The Middle East

3 cr. (Fall-evening)

The course is a survey of Middle East civilizations. Emphasis is placed upon the major historical, cultural, social and political themes that form the basis for an understanding of the modern Arab world, Israel, and Iran. *Fulfills category D.* (GE 6)

## Honors

Permission of Honors Coordinator is required for registration in all Honors courses.

All courses are offered on a rotating basis. See Honors Coordinator.

### General Education Courses with Honors Designation:

The honors sections of courses offer enrichment through alternative texts, outside readings, research projects and abstract concept development beyond the traditional section. Course objectives include: to expand student's ability to analyze and apply concepts to current events, to transcend gender, culture, race and socio-economic issues, to work cooperatively, to communicate effectively and to enhance communication and leadership qualities. The courses come from the departments of English, arts, communication, math, biology, social sciences, and movement science.

### HON 120H—Honors Service Learning

1 cr. (Fall)

This one to two-semester service course, required of all Honors Program students, provides an opportunity for them to gain service learning experiences both within the college and in the broader community. The independent study format of the course reflects the student-centered nature of the Honors Program itself. Students, individually or in groups, work on a variety of projects to enhance themselves, the Honors Program, the college community and the community at large. Students maintain logs and provide an essay of activities and learning experiences.

The course involves forty-five contact hours, is graded pass/fail and carries one credit. It may be repeated once for credit.

### HON 201H—Honors Seminar

1 cr.

Cross disciplinary in nature, the Honors seminar provides students an opportunity to study a topic from various academic perspectives. The topics change each semester and must cover at least four academic disciplines. Students participate in class discussions, maintain journals and do projects. Some of the seminar topic descriptions are listed below. Completion of three seminars is required in the Honors Program; each is worth one credit.

### Sample Honors Seminar Topics:

**Monopoly Power**—This seminar explores the monopoly power of businesses within the context of: a) history and development over time; b) the market structure, conduct, and performance within an economy; c) the ethical decisions and social responsibilities faced by businesses with monopoly power; and d) the political effects of both public and private monopolies.

**Terrorism and Society**—The student will be able to: discuss the historical perspective of terrorism and the current threat and challenges it imposes; identify major terrorist

groups and their ideology, strategies and tactics; discuss the limits on political, military and civil authority; identify jurisdictional, constitutional and legislative issues and the role of federal, state, and local law enforcement in combating terrorism; the use of anti and counterterrorist operations, techniques and intelligence gathering; implementation of terrorist crisis command and control, logistics and support; prevention of and planning for terrorist attacks.

**1968 Explosions—Social, Military, Literary**—This seminar examines many of the significant social, political, and historical events of the year 1968. Media, art and pop culture will be explored. Section One focuses on the social and political upheaval of the time, paying particular attention to the assassinations of Martin Luther King, Jr. and Robert Kennedy and the emergence of pop culture. Section Two focuses on events in the Vietnam War. Section Three discusses some of the important books of the year.

**Frontiers in Biology**—This honors seminar covers three areas of current biology: discovery of new species and habitats, biotechnology, and the challenge of living sustainably on earth. Readings, discussions, case-studies and guest speakers expose participants to new scientific findings and the ethical challenges that these discoveries bring.

**From Gothic to Goth**—This seminar explores the history, art, architecture, music, literature, philosophy and religions of the gothic period. It then explores the correlation between these mediums and theories and those of the gothic sub-culture of the late 20th century to the present.

**The History of the Future**—This course examines how the future becomes reality. By looking at early technologies, ideas and trends, students will follow the evolution of past cultural and technological changes from the point of ideation to the reality of acceptance by society. Students will look at the evolution of specific areas including: journalism, space exploration, computer mediated technologies, and fads. The student will focus on how new ideas are generated, how they move towards fruition, and what forces may impact them.

**The 60's**—This seminar explores the decade of the 1960s. Specifically it looks at the political, social and cultural components that combined to create one of the most dynamic decades in American history.

**Ethics and Human Relations**—This seminar explores ethical issues in the differing relationships in which humans are engaged. Relationships may include familial, marital, employment, friendships as well as those based on gender, age, and others.

**Latin American Culture**—This seminar studies the countries, culture and people of Latin American, including song, dance, music, art, food, history, politics, geography, religion, sociology, architecture and literature.

**Viennese Culture and Rise of Modernism**—This seminar explores the influence of developments in Vienna 1900 on thought, architecture, art, music, and writing, as well as, politics and our world today.

**Ethics and Criminal Justice**—This seminar explores ethical issues in the criminal justice system as faced by law enforcement practitioners and society at large.

**The Arts in New York City**—Through lecture, discussion and participation in metropolitan events, participants experience and respond to human cultural and creative expression in art, music, architecture and theater. Students attend up to five major arts events and participate in pre- and post-event lectures and discussions. Note: Most events are on Saturday or Sunday. Students are responsible for ticket expenses.

**That Light Bulb Moment: Studies in Creativity**—This seminar explores creativity and the creative process from interdisciplinary perspectives. Students examine various examples of creativity and creators in different contexts and explore their own creativity through exercises, traditional and non-traditional writing assignments, etc.

**Science and Society**—This seminar explores the close relationship between scientific/ technological innovations and society. It examines important innovations relative to the existing political, social, economic and intellectual background and, in turn, how important innovations influence the society from which they came. Concepts include: The Agricultural Revolution, China's Contributions to Technology, the Scientific Revolution in Early Modern Europe and the Transition from Alchemy to Chemistry.

**1900: The End and the Beginning**— This seminar explores the architecture, music, philosophy and science that became “modern” in fin-de-siecle Europe and America. Emphasis is on how the makers of modern culture faced the challenges in finding function and meaning in their world at the turn of their century.

**Tropical Forests of Latin America**— In this seminar we will explore the complex issues surrounding tropical forests of Latin America. Through readings, discussions and writing, students will explore the ecological characteristics of tropical forests, and the anthropogenic forces that are driving changes in these ecosystems. We will examine the trends of current land-use and explore possible future scenarios. Students will also investigate what can be done to influence the nature of change to these ecosystems.

**Net Gen: The Brave New World of Social Networks**—This seminar will survey the history, business model, end uses and cultural contexts of social networking tools such as MySpace, FaceBook, Twitter, and Second Life. Other social networking sites may be discussed. Development of terminology will be reviewed. This is a web-enhanced course. Final project will be a case study and presentation on a social networking tool.

**Machiavelli: Prince of Evil**—This seminar is intended to familiarize the student with one of the great political thinkers and treatises in western history. Niccolo Machiavelli thought more deeply about power than most who have lived. Furthermore, his work *Il Principe* straddles the line between ancient and modern thought: the little book is the gateway to our understanding of modern politics in all its pains and glory. By the end of this seminar, students will have a great appreciation of Machiavelli, of political philosophy and of the role that power plays in all our lives—political and personal.

## Honors

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**The Holocaust**—This seminar explores the ideological development and actual implementation of the Holocaust. It will examine the rise of the National Socialist (Nazi) party in Germany and the government's execution of racial laws, eventually leading to the killing of approximately six million Jews and five million "enemies" of the Reich, inclusive of the mentally and physically disabled, partisans, homosexuals, religious objectors, gypsies, Socialists and Communists. Additionally, the seminar will explore how the genocide was initiated and implemented and look closely at the lives of all the people who were involved (victims and perpetrators).

**Gender Roles: Past, Present and Future**—This seminar will explore various issues in gender studies from past to present and future trends from interdisciplinary viewpoints. Theory will be balanced with group discussion and collaboration. Students will be encouraged to direct their analysis of gender dynamics through use of critical thinking and illuminating readings from a variety of relevant sources.

**Debating the Vikings**—This course surveys the history of the Vikings from approximately 800 to 1100 CE, from their early raiding and trading activities to their conquest and colonization of territories from Russia to Iceland to the coast of North America. The positive and negative aspects of Viking society, culture and way of life will be evaluated, with special attention to Viking religion and mythology. The stereotyped view of the Vikings as bloodthirsty, rapacious barbarians will be checked against actual records and opened to critique and discussion.

**Man, Tree, Saw: Environmental Ethics**—In this seminar, we will examine the true-life mystery of a man who saws down a sacred tree and will consider the roles of culture, economics, science, religion, mythology, and aesthetics in approaching an environmental ethics for today. We will ask what the relationship should be between humans and nature. Are natural resources just that, a commodity primarily for human consumption? Should we see the environment as a living system or organism worthy of care? Is nature to be revered? What value does nature have for humans, or in and of itself? Answers to questions such as these may contribute to the development of ethics towards the environment relevant to our current times and the future.

**Problem of Evil**—The primary aim of this seminar is to investigate different answers to the questions people have been asking about evil for thousands of years: What is evil? What is the origin of evil? How can evil exist in a world created by an all-powerful and benevolent God? How has our understanding of evil changed over the millennia as our understanding of what it means to be human has changed to include our knowledge of genetics, biochemistry, psychology, sociology? We will approach these questions through the examination of significant works in the history of philosophy and religion and elsewhere from the ancient world to the present day, with special attention to questions about the relationship between evil and good and the vast gray area in between these two concepts that makes simple definitions of such powerful terms impossible.

**Visions of the Hudson Valley**—This seminar will begin with a focus on the geology, biology, ecology and history of the Hudson Valley. The historical section will look at

political and economic developments. The course will move to representations of the valley in the literature, painting, and cinema. Further, it will look at architecture, music, drama and the arts scene in the area.

**Civility and Democracy**—The Culture Wars in America  
Ever wonder why modern conservatives and liberals in the U.S. fight like cats and dogs? Perhaps some of this is the inevitable fallout of a two-party system which lends itself to polarization and conflict. And yet, since the 1960s and the age of Nixon, Republicans and Democrats can't seem to get along on anything. (Witness the recent debate over the Federal Debt ceiling). This seminar explores the history behind the culture wars, the main figures in the media and politics responsible for this divisiveness, and solutions for how to find more common ground between the left and right as American politics moves deeper into the new century. This seminar is ideal for students interested in national government, modern politics, political parties and political power.

### **HON 288H —Honors Capstone: Planning and Research**

1 cr. (Spring)

This capstone course, required of all Honors Program students, provides an opportunity to synthesize knowledge and skills acquired as an Honors student. Students choose their final project topic, conduct the appropriate research and begin drafting the paper. The independent study format of the course reflects the student-centered interdisciplinary nature of the Honors Program itself. Three plenary meetings during the semester provide a framework for individual meetings with faculty mentors. Students must complete both HON 288H (Planning and Research) and HON 289H (Writing and Presentation) to fulfill the program requirements.

Prerequisites: *ENG 101, ENG 102, cumulative GPA of 3.2 or permission of Honors Program coordinator*

### **HON 289H—Honors Capstone: Writing and Presentation**

1 credit

This course is a required continuation of HON 288H. Students finalize their research projects and prepare the presentation which is given at the end of the semester. Three plenary meetings during the semester provide a framework for individual meetings with faculty mentors. Students must complete both HON 288H (Planning and Research) and HON 289H (Writing and Presentation) to fulfill the program requirements.

Prerequisites: *ENG 101, ENG 102, HON 288H, cumulative GPA of 3.2 or permission of Honors Program coordinator*



## Human Services

(Behavioral Sciences Department)

### HMS 101—Introduction to Human Services

3 cr.

This course is an introduction to the history, theories, policies and methods of human service delivery systems. Designed for those students interested in a career in the helping professions, this course will introduce the student to society's responses to social problems which arise when individuals' basic needs cannot be met independently. Considering both theory and practical application, the class will explore the models and organization and management of human service agencies, the role of client and professional and ethical considerations.

*\*This course may be used as a liberal arts elective only; it does not fulfill the Social Science requirement for any degree nor any SUNY General Education requirement.*

### HMS 201—Field Experience 1

2 cr.

This course is designed to allow the student interested in the field of Human Services an opportunity to apply Psychological and Sociological terms, concepts and theories to a practical situation. The purpose of this first field placement is to introduce the student to six intra and interpersonal skills and competencies involved in direct care positions within the human service field. These include: Empowerment, communication, assessment, self-development, crisis intervention, and advocacy. Students will be given assignments to direct their field experiences. Students will be responsible for arranging their site placements with the assistance of the instructor or field placement coordinator. A grade of C is required to continue on to Human Services Practicum 2/or graduate.

Four hours of off campus site observation/ participation per week is required.

Prerequisites: *placement into ENG 101*

### HMS 202—Field Experience 2

2 cr.

This course is designed to allow the student interested in the field of Human Services an opportunity to continue to apply theory and knowledge to a practical situation. The purpose of this course is to introduce the student to six family, community, group, and organizational skills and competencies involved in direct care positions within the human services field. These include: Networking: Community and Service Systems, facilitation of services, vocational, educational and career support, organizational participation and documentation. Students will be given assignments to direct their field-work observations and participation. Students will be responsible for arranging their site placements with the assistance of the instructor or field placement coordinator. Placements in this second practicum must involve a different client population from the first placement (e.g. mental health-mental retardation; children-adult populations) A grade of C is required to graduate.

Four hours of off campus site observation/ participation per week required.

Prerequisites: *HMS 201, and permission of coordinator/instructor*

## Italian

(Global Studies Department)

### ITA 101-102—Elementary Italian

3 cr.

For beginners. A basic course in grammar, punctuation, conversation, and reading. Contemporary Italian culture is discussed. (GE 9)

### ITA 201—Intermediate Italian 1

3 cr.

This course increases students' ability to use the language through advanced grammar study and continued reading, writing & speaking. Students do basic review, then study more complex patterns, verb tenses, including subjunctive. Reading, writing and speaking focus on contemporary Italian culture and events.

Prerequisite: *ITA 102 or instructor placement*

### ITA 202—Intermediate Italian 2

3 cr.

This course continues to focus on reading, writing, speaking related to contemporary Italian cultural issues. Advanced grammatical structures, including passive and subjunctives, are presented. Particular emphasis on idiomatic expressions and advanced conversational fluency.

Prerequisite: *ITA 201 or instructor placement*

## Interdisciplinary Studies

(Interdisciplinary Studies Department)

### MIDS 115—Introduction to Gender

3 cr.

This is an introductory and foundational course on the key concepts, themes and theories of study of gender and sexuality. It will examine gender as an outcome of biological, social and cultural systems. This course will introduce students to basic concepts such as gender, sex, sexuality, gender differences and gender socialization. It will then explore how gender concepts and behaviors shape and are shaped by larger social institutions, including class divisions, ethnicity, media, philosophy/religions, educational and economic systems, and governments. (GE 7)

### IDS 151—Introduction to Sustainability

3 cr.

This course will explore meanings of the sustainability concept, including its historical context and application to the contemporary global society. Environmental impacts of resource use in the context of conventional economic growth will be assessed in the areas of energy, technology, production of goods, and transportation, and the nature of these impacts will be detailed. Tradeoffs associated with various strategies for mitigating impacts will be analyzed with the intent of proposing solutions to the challenges of achieving economic and environmental sustainability at local, regional and global scales.

### HUM 201—Intro to Humanities I: Ancient to the Medieval

3 cr.

This course is a survey of the development of Western culture, from early man through the Middle Ages, with a focus on its beginnings in classical antiquity and a study of the other important influences, including Asian, African and Middle Eastern, on social and cultural development. This course will examine the ideas, theories, and cultural artifacts (including the arts, literature, philosophy, religion and law) that led to, resulted from and helped define these times and places. Students experience the humanities by observing, reading, listening and reasoning. Note: class field trips may be required. (GE 7)

*Prerequisite: ENG 101*

### HUM 202—Intro to Humanities II: Renaissance to the Contemporary

3 cr.

This course is a survey of the development of Western culture from the Renaissance to the contemporary era, including a study of other important influences from Africa, Asia, the Middle East and the Americas, on social and cultural development. This course will examine the ideas, theories and cultural artifacts (including the arts, literature, philosophy, religion and law) that helped define these times and places. Students experience the humanities by observing, reading, listening and reasoning. Note: class field trips may be required. (GE 7)

*Prerequisite: ENG 101*

## Management

(Business Department)

### MGT 201—Principles of Management

3 cr. (Fall/Spring)

The theory and applications of management techniques are examined. The essential processes necessary for the practice of management are developed. Within the framework of the functions of management, such topics are covered: Managing Change, Organizational Communication and Structure, Making Decisions, Strategic Planning, Leadership, Work Groups, Ethics and Social Responsibility. Cases and projects enrich the student's class experience.

*Prerequisite: MAT 020 or placement into MAT 101 or higher*

### MGT 203—Entrepreneurship

3 cr. (Fall/Spring)

This course is designed for individuals who wish to start a business and for those who are already in business for themselves. Emphasis is placed on strengthening the organizational skills of the small business manager. The issues of a small business are analyzed through discussions and business plan development.

*Prerequisite: MAT 020 or placement into MAT 101 or higher*

### MGT 205—Human Resource Management

3 cr. (Fall/Spring)

The student is introduced to an overview of this complex human resource management function as it applies to both the small and large business organization. The major thrust of the course is devoted to the basic personnel practices involved in employee recruitment selection, training, appraisal, affirmative action, labor relations, compensation, safety, and career planning.

### MGT 220—Internship: Business

3 cr. (Fall/Spring)

An internship is an on-site, academically-related learning experience in an industry setting aligned to a student's personal career interests and academic course of study. This is a hybrid course. The student meets bi-weekly with the instructor in a seminar class setting to review reports and discuss class concepts. The student also meets weekly in an online setting to post to their job experience folder and interact with other student's job experiences. A research paper and internship portfolio must also be submitted. This is a fourth semester course.

*Prerequisite: Approval of the Business Management Department Chair plus a CumGPA of 2.5 or higher. Open to Business Management and Marketing majors.*

NOTE: Students must comply with all policies, procedures, and regulations of the internship/ fieldwork site. Failure to do so will result in immediate removal from the internship site and automatic failure of the course.

## Marketing

(Business Department)

### MKT 101—Principles of Marketing

3 cr. (Fall/Spring)

The thrust of this course is the “marketing concept” which stresses the organization’s first goal—customer satisfaction. Students use a systems approach to integrate the major marketing areas such as: Marketing Plan, Marketing Research, Consumer Buying Behavior, Product/Service Concepts, Promotion, Ethics and Social Responsibility. Marketing applications are developed through the strategic marketing process, which identifies the target market and its support of the marketing mix. Student exercises include customer service and Internet projects.

Prerequisite: *MAT 010* or placement into *MAT 020* or higher

### MKT 201—Principles of Advertising

3 cr. (Spring)

Students learn to identify the role of advertising and how it reflects society. Emphasis is placed on the need for strategic planning in order to determine creative tactics - visualization, copywriting and layout - and use of media (traditional, electronic, print and new) vehicles. Current materials from today's Advertising Agency departments are utilized.

Prerequisite: *MAT 010* or math placement into *MAT 020* or higher

*NOTE: Introduction to Business (BUS 103) and Marketing (MKT 101) are the recommended pre- or co-requisite courses for Business majors.*

### MKT 202—Salesmanship

3 cr. (Fall)

Emphasis is placed on application of selling principles, various sales roles and motivational factors. Topics include: electronic commerce, prospecting, preparing the sales presentation, obtaining the appointment, the demonstration, and meeting objections and the use of the Internet in sales. Students participate in role-playing, dialogue, case analysis, and formal presentation.

### MKT 203—Marketing Management

3 cr. (Fall)

A study of the application of the principles underlying effective marketing management. The student examines the impact of marketing management decisions on such major areas as market research, product development, industrial marketing, promotion, pricing, and distribution. A field study market research project is included.

Prerequisite: *MKT 101*

### MKT 204—Problems in Marketing

3 cr. (Spring)

Marketing problems are analyzed by use of the case study approach. This approach emphasizes the interrelationship of marketing management to the areas of accounting, economics, mathematics, and statistics toward the solution of problems. Topics include: product development and trend policy, channels of distribution, market research, pricing, advertising, and selling.

Prerequisite: *MKT 101*

## Mathematics

(Mathematics Department)

### MAT 010—Developmental Arithmetic

3 units\* (Fall/Spring/Summer)

Designed for students who need a review of arithmetic, including addition, subtraction, multiplication and division of whole numbers, fractions, mixed numbers and decimals. Areas and volumes of geometric figures are investigated. The course is both intended to alleviate mathematics anxiety and avoidance and to develop self-confidence to continue study in mathematics.

Prerequisite: *math placement test*

*\*not applicable to associate degrees, or certificate programs*

### MAT 020—Developmental Algebra

3 units\* (Fall/Spring/Summer)

Designed for students who need a review of beginning algebra. Topics include addition, subtraction, multiplication, and division of signed numbers, solutions of linear equations and inequalities, exponents, combining polynomials, literal equations, and applications of linear equations. Students learn to develop skills in reading of mathematics. Concerns about mathematics anxiety and avoidance are confronted and eased.

Prerequisite: *MAT 010* or math placement test

*\*not applicable to associate degrees or other certificate programs*

### MAT 101—Elementary Algebra

3 cr. (Fall/Spring/Summer)

An elementary algebra course. Topics include operations on polynomials and rational expressions, laws of exponents, factoring, graphing of equations and inequalities, and systems of equations. A knowledge of operations on signed numbers and solutions to linear equations is required. Emphasis is placed on developing the skills necessary for further study of algebra.

Prerequisite: *MAT 020* or math placement test

*Not open to students who have successfully completed MAT 102 or higher numbered courses. MAT 101 may only be used as the liberal arts elective credit in A.A., A.S., and A.S. Individual Studies degrees.*

### MAT 102—Intermediate Algebra

3 cr. (Fall/Spring/Summer)

An intermediate algebra course. Topics covered: absolute value equations and inequalities, additional factoring techniques, radical expressions, complex numbers, quadratic equations, functions, graphing techniques, coordinate geometry, mathematical modeling, applications and problem solving. (GE 1)

Prerequisite: *C or better in MAT 101* or math placement test

*Not open to students who have successfully completed MAT 113 or higher numbered courses. MAT 102 may only be used as math credit in the A.A. degree and only as elective credit in the A.S. or A.S. Individual Studies degrees.*

# Mathematics

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## **MAT 107—Technical Math** 3 cr. (Fall)

A basic operations approach to the study of algebra and trigonometry for students entering technical programs. Scientific calculators are used for applied problem solutions.

Prerequisite: *C or better in MAT 101*

## **MAT 111—Foundations of Elementary School Mathematics** 3 cr. (Fall/Spring)

This course is designed to provide the student who is interested in teaching elementary school with a clear understanding of the major concepts and skills that are commonly taught in elementary school classes. The primary goals of the course are to enable a student to develop multiple representations and models of mathematical concepts, to become proficient at mathematical problem solving and to be able to communicate mathematical ideas effectively. The contents of this course can be divided into the following general categories: problem solving, set theory, logic, operations and properties involving different based number systems, number theory, functions, statistics and probability. This course is recommended only for students interested in teaching elementary school.

Prerequisite: *C or better in MAT 102 OR completion of or placement on math assessment of MAT 113 or higher*

## **MAT 113—Mathematics for the Liberal Arts** 3 cr. (Fall)

A liberal arts mathematics survey course. MAT 113 and MAT 114 are independent courses and may be taken in any order, even simultaneously, if desired. Topics are drawn from the areas of sets, logic, rational and real numbers, numeration systems, statistics, probability, patterns of numbers, and modular systems. (GE 1)

Prerequisite: *C or better in MAT 102 or math placement test*

*This course is not recommended for students who desire to progress towards the study of calculus. MAT 113 does not fulfill the 6-8 credits in math required in the A.S. degree.*

## **MAT 114—Contemporary Mathematics** 3 cr. (Spring)

A liberal arts mathematics survey course. MAT 113 and MAT 114 are independent courses and may be taken in any order, even simultaneously, if desired. Topics are drawn from the areas of linear programming, network theory, game theory, geometry, matrices, topology, patterns of mathematics, and growth and form. (GE 1)

Prerequisite: *C or better in MAT 102 or math placement test*

*MAT 114 is not recommended for students who desire to progress towards the study of calculus. MAT 114 does not fulfill the 6-8 credits in math required in the A.S. degree.*

## **MAT 121—College Algebra** 3 cr. (Fall/Spring/Summer)

College Algebra is the first course for students who plan to continue on toward the study of Calculus. Topics include: a thorough treatment of the concept of functions and their graphs, linear and quadratic functions, polynomial and rational functions, inverse functions, exponential and logarithmic functions, conic sections, and the binomial formula. (GE 1)

Prerequisite: *C or better in MAT 102 or math placement test*

## **MAT 122—College Trigonometry** 3 cr. (Fall/Spring/Summer)

College Trigonometry is the second course for students who plan to continue on toward the study of Calculus. Topics include trigonometric functions, graphing techniques, right triangle applications, trigonometric identities, inverse functions, oblique triangles, two-dimensional vectors, and complex numbers in trigonometric form. (GE 1)

Prerequisite: *C or better in MAT 121*

## **MAT 125—Introduction to Statistics** 3 cr. (Fall/Spring/Summer)

This course examines the general elements and principles of statistics used in the fields of education, consumerism, quality control, allied health, physical sciences, & social sciences. Course is broken into two parts; descriptive statistics and inferential statistics. Topics include: methods of summarizing and presenting data; measures of center, spread, and position; probability; binomial probability distribution; normal probability distribution; t-test; chisquare test; confidence intervals, hypothesis testing; and linear regression. (GE 1)

Prerequisite: *C or better in MAT 102 or placement on math assessment of MAT 121 or higher*

## **MAT 131—Pre-Calculus** 4 cr. (Fall/Spring/Summer)

A course designed to review advanced techniques in algebra and trigonometry that are necessary for the study of calculus. The major areas of study are: algebra, manipulations, analytic geometry, exponentials, trigonometry, transforms and problem solving. Former title Essentials for Calculus (GE 1)

*MAT 131 is not open to students who have completed MAT 121 or MAT 122.*

Prerequisite: *math placement test*

## **MAT 134—Mathematical Reasoning and Proof** 3 cr. (Spring)

Special Topics Course—Mathematical Reasoning and Proof is designed for students who plan to continue their studies in mathematics, mathematics education or science. This course will foster the ability to read and write mathematically correct proofs. Using some of the classic proofs and mathematical patterns, the course familiarizes the student with many of the foundational topics of mathematics as well as some of the current areas of research. The course includes Euclidean Geometry, Mathematical Induction, Strict Arithmetic Proof, and Elementary Number Theory Proofs, among others. The course also explores the developments in mathematics that gave rise to Computer Science.

Prerequisite: *C or better in MAT 131, MAT 122 or college placement test*

## **MAT 136—Introduction to Discrete Mathematics** 3 cr. (Spring)

Discrete mathematics deals with the analysis of discontinuous (separate, distinct, unconnected) phenomena. This branch of mathematics provides much of the underlying methodology for the use of computers. This branch of mathematics has applications in the fields of engineering, physical sciences, economics, behavioral sciences, health sciences, and computer science. Topics covered include: Sets,

sequences, functions, prime numbers, elementary logic (proofs), relations (Matrices), induction and recursion, counting and an introduction to graphs and trees.

Prerequisite: *C or better in MAT 122*

**MAT 205—Calculus 1**

4 cr. (Spring/Fall/Summer)

Analytic geometry topics are introduced as needed to carry out the orderly development of the calculus. Topics include algebraic functions and transformations, trigonometric functions and identities, limits, continuity, derivatives, implicit differentiation, related rate problems, Rolles' Theorem and Mean Value Theorem, curve sketching (relative min/max, concavity, points of inflection, limits at infinity, horizontal asymptotes), applications of differentiation, differentials, antidifferentiation, the definite integral, sigma notation, and Fundamental Theorem of Calculus. (GE 1)

Prerequisite: *C or better in MAT 122, or MAT 131 or math placement test*

**MAT 206—Calculus 2**

4 cr. (Spring/Fall/Summer)

A continuation of the calculus which builds on the basic concepts of derivatives and integration to include calculus of exponentials, logarithms, trigonometric functions, inverse trigonometric functions and hyperbolics, the area of a region between two curves, solids of revolution, application problems, integration, Trapezoidal rule, Simpson's Rule, L'Hopital's Rule, Taylor and Maclaurin polynomials, sequences and series, and power series.

Prerequisite: *C or better in MAT 205*

**MAT 207—Calculus 3**

4 cr. (Fall/Spring evening)

Covers three areas of discourse: vector analysis, partial differentiation and multiple integration. The study of vectors includes conic sections, analysis of vectors in two and three space as well as their development as vector functions. Partial differentiation includes such topics as directional derivatives, gradients, tangent planes, surface extremes, and exact differentials. Multiple integration is used for volumes, surface area, moments, Green's theorem and line integrals.

Prerequisite: *C or better in MAT 206*

**MAT 211—Linear Algebra**

3 cr. (Fall/Spring/Summer)

Designed primarily for students planning to specialize in mathematics, computer science, or engineering. Topics include: vectors in  $R^2$  and  $R^3$  systems of linear equations, determinants and matrices, vector spaces, linear independence and basis, linear transformations, eigenvalues and eigenvectors, and diagonalizations.

Prerequisite: *C or better in MAT 205*

**MAT 214—Differential Equations and Series**

4 cr. (Spring/Summer)

The following differential equations topics are covered: equations of first order, linear equations of the second order, operators, successive approximations, interpolation, numerical integration, and Partial Differential Equations. Series topics include Fourier's Series, Gamma and Bessel Functions, and Laplace Transforms.

Prerequisite: *C or better in MAT 207*

**Medical Laboratory Technology**

**(Laboratory Technology Department)**

*NOTE: Students must comply with all policies, procedures, and regulations of the internship/fieldwork site. Failure to do so will result in immediate removal from the internship site and automatic failure of the course.*

*NOTE: A grade of C (2.0) or better is required in all MLT—series courses for progression in the program and graduation with an A.A.S. degree in Medical Laboratory Technology. Completion of this A.A.S. degree is a requirement for national certification and NYS licensure examinations.*

*A physical examination as well as a tuberculin skin test is required prior to the beginning of the fall semester each academic year while enrolled in the Medical Laboratory Technician Program. The initial physical and admissions criteria also require a urine drug screen and a criminal background check which must be successful for entry into the program. Completed physical examinations, urine drug screen and criminal background checks must be on file at the college before the student is permitted to enter the clinical affiliate. Students are responsible for their own transportation to and from the college and to and from the clinical affiliate.*

*MLT 110 fulfills the liberal arts science requirement (without laboratory component) for the associate degrees. MLT 101 (with laboratory) can be applied to the liberal arts science requirement for associate degrees or the Medical Laboratory Technology program.*

**MLT 101—Fundamentals of Medical Physiology for MLT Majors 1**

3 lect., 2 lab., 4 cr. (Fall)

Overview of the ten systems of the human body in health and disease with emphasis on cardio-vascular and respiratory physiology of the human. Laboratory exercises relate structure to function. Human materials and models are used. [R-1]

**MLT 102—Fundamentals of Medical Physiology for MLT Majors 2**

3 lect., 2 lab., 4 cr. (Spring)

Examination of function of selected organs in health and disease. In-depth studies of renal, gastrointestinal and endocrine physiology of the human. Laboratory exercises relate system structure with organ function. Human materials and models are used. [R-1]

Prerequisite: *MLT 101*

**MLT 103—Immunology**

2 lect., 1 lab., 2 cr. (Fall)

The immune system; its components, and their functions. Antigen-antibody reactions, cell-mediated immunity, the complement system, and pathological conditions are discussed. [R-1]

**MLT 104—Hematology**

2 lect., 3 lab., 3 cr. (Spring)

Topics include blood cell formation, function, pathological states both physiological and genetic, hemoglobinopathies, coagulation theory and factors. Laboratory exercises correlate basic tests with lecture topics. Test proficiency is developed

# Medical Laboratory Technology

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utilizing manual and both automated and semiautomated techniques. [R-1]

Corequisite: *ENG 161*

## **MLT 105—Introduction to Laboratory Science**

1 lect., 2 lab., 2 cr. (Fall)

A survey of the clinical laboratory profession with emphasis on basic skills as it applies to the instrumentation used. Lecture topics include safety, specimen handling, basic instruments, solution-making, and quality assurance. [R-1]

Corequisite: *ENG 160*

## **MLT 106—Microbiology for Health Professionals**

2 lect., 2 lab., 3 cr. (Fall/Spring/Summer)

Overview of bacteria, yeasts, molds, protozoa and viruses in relation to the Allied Health Professions. Lectures deal with host-microorganism relationships. Laboratory includes use of the microscope, culture methods and destruction of micro-organisms. Sterile technique is stressed. [R-1]

Prerequisite: *one semester of a biological science or corequisite: concurrent enrollment in BIO 111*

## **MLT 109—Phlebotomy**

6 lect., 4 lab., 7 cr. (Fall/Spring)

Training in drawing and handling blood samples for laboratory testing in hospitals, doctor's offices, and large service laboratories. Emphasis on approved methods & safety, medical terminology, anatomy, and laboratory procedures. Students are eligible to sit for National Certification Examination upon successful completion of this NAACLS approved course of study. See Medical Laboratory Technology Program pages for NAACLS address and phone number.

Prerequisite: *attendance at a pre-admissions orientation and permission of department chair*

## **MLT 110—Fundamentals of Medical Physiology 1**

3 lect., 3 cr. (Spring)

Overview of the ten systems of the human body in health and disease with emphasis on cardiovascular and respiratory physiology. This course does not include a laboratory component fulfills the liberal arts science requirement for associate degrees.

## **MLT 201—Instrumentation and Clinical Applications 1**

1 lect., 1 cr. (Fall)

Survey of instrumentation used in laboratories. The basic principles and theories of laboratory instruments will be discussed, as well as clinical instrumentation in relation to hematology, urinalysis and immunohematology. [R-1]

Prerequisite: *one year of college chemistry*

Corequisite: *MLT 251*

## **MLT 202—Instrumentation and Clinical Applications 2**

1 lect., 1 cr. (Spring)

This course is designed to give the student a broad-based understanding of clinical laboratory instrumentation principles, the process of instrument

selection and specific applications of these principles, especially in microbiology, clinical chemistry and immunoassays. Laboratory and hospital information systems, workflow analysis, and economic issues related to instrument selection are also discussed. [R-1]

Prerequisite: *MLT 201*

Corequisite: *MLT 252*

## **MLT 203—Immunohematology**

2 lect., 3 lab., 3 cr. (Fall)

Detailed study of basic concepts of inheritance and heredity with respect to human blood factors. Blood-bank procedures such as typing, immune antibody screening and identification, titre level determination, medicolegal exclusions and transfusion procedures are performed. [R-1]

Prerequisite: *MLT 103, MLT 104*

## **MLT 207—Clinical Chemistry 1**

2 lect., 2 lab., 3 cr. (Fall)

Study of the composition and methods of assay of body fluids. Lecture stresses the physiologic basis of human metabolites in health and disease. Laboratory emphasizes analytical methodologies, basic instrumentation and quality control. Carbohydrate metabolism, NPN, electrolytes and proteins are studied in detail. [R-1]

Prerequisite: *CHM 103, CHM 104 or CHM 105, CHM 106*

## **MLT 208—Clinical Chemistry 2**

2 lect., 2 lab., 3 cr. (Spring)

Continued study of the composition and methods of assay of body fluids. Lipids, enzyme kinetics, liver function tests, renal function, cardiac assessment hormone levels and toxicology are discussed in lecture and performed in the laboratory. [R-1]

Prerequisite: *MLT 207, MLT 103*

## **MLT 209—General Microbiology**

3 lect., 3 lab., 4 cr. (Fall)

Classification, nomenclature and identification of micro-organisms. The physiology of micro-organisms, pathogenic organisms and organisms of economic importance are considered. Industrial microbiology and agricultural bacteriology are included. Laboratory exercises stress sterile technique, staining methods, culture of microorganisms and biochemical tests used in identification. [R-1] (GE 2) This course is open to MLT majors only. Permission of the department chair is required for other students.

Prerequisite: *one semester of a biological science*

## **MLT 212—Clinical Microbiology**

2 lect., 3 lab., 3 cr. (Spring)

The identification and quantification of pathologic and non-pathologic organisms encountered in human specimens. Treatment and handling of specimens are discussed. Methods in mycology, parasitology and serology as applicable to the clinical laboratory are taught. [R-1]

Prerequisite: *MLT 209*

## **MLT 216—Histology** 2 lect., 3 lab., 3 cr. (Spring)

The microscopic study of vertebrate cells, tissues and organs, stressing the relationship of structure to function. Laboratory work includes the preparation of stained slides for light microscopic study and study of prepared slides of cells, tissues and organs to enable the student to identify basic tissues. [R-1]

Prerequisite: *one semester of a biological science*

## **MLT 251—Clinical Training 1** 6 lab., 2 cr.

Under the supervision of clinical proctors, students practice medical laboratory techniques. [R-1]

Prerequisite: *MLT 101, MLT 102, MLT 104, MLT 103*

Corequisite: *MLT 201, MLT 207*

## **MLT 252—Clinical Training 2** 6 lab., 2 cr.

Continuation of clinical experience. Under the supervision of clinical proctors, students gain additional experience in developing technical skills. [R-1]

Prerequisite: *MLT 203, MLT 209*

Corequisite: *MLT 202, MLT 208 and MLT 212, or completion of all professional courses*

# Music

(Arts & Communication Department)

## **MUS 101—Introduction to Music** 3 cr. (Fall/Spring/Summer)

Enjoyment of music through the study of basic musical concepts and acquisition of listening skills. Examines a wide variety of musical styles within their cultural contexts. (GE 8)

## **MUS 103—History of Western Music to 1750** 3 cr. (Fall)

A survey of the music of ancient cultures including Greece and Rome and the Early Christian, Medieval, Renaissance, and Baroque periods. Social, political, historical, and cultural influences are considered. This course includes extensive classroom listening to the music of the great composers culminating in the works of Bach and Handel. (GE 7)

## **MUS 104—History of Western Music from 1750** 3 cr. (Spring)

A survey of the music of the Classical, Romantic, and Twentieth century periods. Social, political, historical and cultural influences are considered. This course includes extensive classroom listening to the music of the great composers from Mozart and Beethoven to contemporary artists. (GE 7)

## **MUS 105—History of Jazz** 3 cr. (Fall/Spring)

A study of jazz from its origin to the present. An examination of the important musicians, styles, and influences through recorded examples of ragtime, blues, Dixieland, swing, bop, progressive jazz, third stream, and contemporary trends. (GE 7)

## **MUS 107—History of Rock Music** 3 cr. (Fall/Spring/Summer)

A survey of rock music from its origins in African-American and Anglo-American folk styles through the present. Examines the entire phenomenon of rock music, its relationship to other musical styles, the influence of social factors on the music, and the influence of the music, in turn, on society. (GE 7)

## **MUS 109—Music Business** 3 cr. (Fall/Spring)

An introductory course exploring practical, legal, and procedural problems encountered in the music industry. A variety of career areas are surveyed to provide an orientation for students preparing for a career in music as well as those planning to transfer to four-year programs in the music business and other fields.

## **MUS 111—Audio Engineering and Design for the Arts** 2 lect., 2 lab, 3 cr. (Spring)

This is a hands-on course designed to give students a basic working knowledge of sound technologies in the

## Music

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performing and presentational arts. Students will focus on the nature and physics of sound and its effect on the performance environment, the equipment that enhances and augments sound, and the design and implementation of sound in different performance media.

### **MUS 121—Fundamentals of Music**

3 cr. (Fall/Spring)

This course provides thorough groundwork in the rhythmic, melodic, and harmonic elements of music. It is intended for students who wish to major in music but have no background in music theory and for others desiring a basic music theory class. Topics include music notation, scales, intervals, and chord construction. (GE 8)

### **MUS 123—Basic Musicianship 1**

3 lect., 4 lab., 5 cr. (Fall)

An intensive course designed to enhance comprehension of musical concepts and develop skill in the handling of musical materials. Includes a review of music fundamentals, basic principles of part-writing, harmonization, and analysis. Studies integrate music theory, ear training, keyboard harmony, and sight singing to lay the groundwork for future study. (GE 8)

Prerequisite: *MUS 121 or departmental placement*

Corequisite: *enrollment in a piano course*

### **MUS 124—Basic Musicianship 2**

3 lect., 4 lab., 5 cr. (Spring)

A continuation of Basic Musicianship 1. Topics include triad inversion, secondary chords in a key, seventh chords, and nonharmonic tones correlated with more advanced ear training, keyboard harmony, and sight singing materials. (GE 8)

Prerequisite: *MUS 123*

Corequisite: *enrollment in a piano course*

### **MUS 131—Elementary Piano 1**

2 cr. (Fall/Spring)

Class instruction for beginners with no previous musical training and for those wishing a refresher in piano fundamentals. Emphasizes the development of basic keyboard skills, sight reading, and the use of basic chord patterns. (GE 8)

### **MUS 132—Elementary Piano 2**

2 cr. (Fall/Spring)

A continuation of MUS 131 which concentrates on the performance of more advanced materials. (GE 8)

Prerequisite: *MUS 131*

### **MUS 141—Group Voice 1**

2 lect., 0 lab., 2 cr. (Fall)

An introductory level course designed to develop vocal potential by learning proper vocal technique, studying musical notation and performing folk, musical theater and art songs in an individual setting. (GE 8)

### **MUS 142—Group Voice 2**

2 lect., 0 lab., 2 cr. (Spring)

An intermediate level course designed to continue individual vocal development by learning advanced vocal technique, increasing musical vocabulary and performing musical theater and foreign language art songs and arias in an individual setting. (GE 8)

Prerequisite: *MUS 141 or permission of instructor*

### **MUS 151—Chorus**

0 lect., 2 lab., 1 cr. (Fall/Spring)

This course provides choral performance experience. The repertoire includes selections from major choral works, music representing a variety of styles, and pieces in different languages. No audition is required. Participation in all concerts is mandatory. Students may repeat course for a total of four credits. (GE 8)

### **MUS 153—Madrigal Singers**

0 lect., 2 lab., 1 cr. (Fall/Spring)

A select vocal ensemble that performs a variety of advanced a cappella and accompanied pieces from choral repertoire composed throughout the centuries. Required audition is held the first week of each semester. Participation in concerts is mandatory. Students may repeat course for a total of four credits. (GE 8)

Prerequisite: *audition and permission of instructor*

Corequisite: *MUS 151*

### **MUS 155—Orchestra**

0 lect., 2 lab., 1 cr. (Fall/Spring/Summer)

This course will provide a wide variety of instrumental experiences for those who enjoy playing an orchestral instrument. Standard orchestral repertoire will be studied, ranging from light to classical selections. Participation in public performances is mandatory. May be repeated for a total of four credits. (GE 8)

Prerequisite: *audition and permission of instructor*

### **MUS 157—Chamber Ensemble**

0 lect., 2 lab., 1 cr. (Fall/Spring)

A variety of instrumental ensembles will be organized: string, woodwind, brass and combinations. Students may repeat course for a total of four credits. (GE 8)

Prerequisite: *audition and permission of instructor*

### **MUS 159—Band**

0 lect., 2 lab., 1 cr. (Fall/Spring/Summer)

The SUNY Orange Symphonic Band offers the student a variety of instrumental experiences. Music programmed during the semester explores a variety of original and arranged works for symphonic and concert band, from traditional and contemporary classical concert works to more popular numbers as well as suites from Broadway and Hollywood scores.

The minimum performance level expected is NYSSMA Level 3. Participation in performances is



mandatory. Students may repeat course for a total of four credits. (GE 8)

Prerequisite: *audition and permission of instructor*

**MUS 161—Jazz Ensemble**

0 lect., 2 lab., 1 cr. (Fall/Spring)

The study of performance of compositions in the jazz idiom. Principles of group performance are presented with emphasis on balance, phrasing, interpretation and other factors important to the development of jazz performance techniques. Participation in performance is mandatory. Students may repeat course for a total of four credits. (GE 8)

Prerequisite: *audition and permission of instructor*

**MUS 163—Jazz Improvisation 1**

2 cr. (Fall)

Basic techniques of jazz improvisation. Chord usage, scales, arpeggios are used to color standard tunes and strengthen weak progressions. Students are expected to bring their instruments to class and practice assignments at home. Class time is allocated for individual and group instruction and analyzing recorded solos by noted artists. (GE 8)

**MUS 164—Jazz Improvisation 2**

2 cr. (Spring)

Improvisation approached as spontaneous composition with emphasis on melodic and rhythmic principles. The ability to read music is necessary. Students explore different stylistic approaches to reading and phrasing. Listening, discussion, demonstration and performance are required. (GE 8)

Prerequisite: *MUS 163 or permission of instructor*

**MUS 165—Jazz Keyboard Harmony**

2 lect., 0 lab, 2 cr. (Spring)

This is a functional keyboard class designed primarily to assist students with the assimilation of concepts and skills taught in Jazz Improvisation and Elements of Arranging, but is open to any student with permission of the instructor. The course focuses on jazz harmonization techniques with an emphasis on harmonizing and performing tunes from the standard jazz repertoire at the piano.

Prerequisite: *MUS 123 Intermediate Piano or permission of instructor*

**MUS 167—Jazz/Commercial Guitar 1**

2 lect., 0 lab., 2 cr.

A study of Jazz/Commercial Guitar styles covering nomenclature, modes, diatonic and altered chord voicings, improvisation, chord melody and basic repertoire.

Prerequisite: *permission of instructor or department chair*

**MUS 169—Jazz/Commercial Drumming**

2 lect. 0 lab., 2 cr. (Spring)

A study of jazz and commercial drumset styles covering nomenclature, sticking and brush patterns, phrasing, coordination techniques, rhythm reading and drum chart reading, with an emphasis on current swing, Latin, fusion and ballad styles.

Prerequisite: *permission of instructor or department chair*

**MUS 170-MUS 177—Private Instruction**

1 cr. (Fall/Spring)

Students are responsible for arranging private music lessons with an instructor approved by the Arts and Communication Department and for paying an additional fee to the instructor. Forms available from the Arts and Communication Department must be obtained during the first week of classes and completed no later than the third week.

End-of-semester jury examination is required of all Private Instruction students.

May be repeated progressively. Special fee. (GE 8)

Prerequisite: *Music major or permission of course coordinator or department chair*

**MUS 221—Songwriting**

1 lect., 2 lab., 2 cr. (Spring)

An introduction to the art and craft of songwriting. Includes analysis of existing songs written in various styles in terms of the fundamental musical elements: rhythm, form, melody, harmony, timbre, dynamics, texture and text. Analytic and creative exercises and projects enable students to acquire skill in evaluating and critiquing songs and in producing original work.

Prerequisite: *Music major or permission of instructor*

**MUS 223—Advanced Musicianship 1**

3 lect., 2 lab., 4 cr. (Fall)

Advanced harmony, ear training, sight singing, harmonization at the keyboard and writing of original compositions. (GE 8)

Prerequisite: *MUS 124*

Corequisite: *enrollment in a piano course*

**MUS 224—Advanced Musicianship 2**

3 lect., 2 lab., 4 cr. (Spring)

A continuation of Advanced Musicianship I. Topics include chorale harmonization, ninth chords, altered chords, modulation to distant keys. Score analysis and composition projects. (GE 8)

Prerequisite: *MUS 223*

Corequisite: *enrollment in a piano course*

**MUS 226—Elements of Arranging**

3 cr. (Spring)

Emphasis is placed on the fundamentals of scoring for various instrumental combinations with particular attention to range, color, transposition, and technical capabilities of individual instruments. The course includes planning and writing arrangements for various ensembles with focus on the jazz idiom. Creative projects to be performed when possible by SUNY Orange ensembles. (GE 8)

Corequisite: *MUS 224*

**MUS 231—Intermediate Piano 1**

2 cr. (Fall/Spring)

Materials are drawn from classic, romantic and contemporary composers. (GE 8)

## Music - Nursing

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Prerequisite: *MUS 132*

### **MUS 232—Intermediate Piano 2**

2 cr. (Fall/Spring)

Emphasis on technique, sight reading, pedaling, phrasing and interpretation. (GE 8)

Prerequisite: *MUS 231*

### **MUS 233—Advanced Piano 1**

2 cr. (Fall/Spring)

Materials of medium grade difficulty. Compositions for piano ensemble. Technical studies. Memorization of at least two selections. (GE 8)

Prerequisite: *MUS 232*

### **MUS 234—Advanced Piano 2**

2 cr. (Spring)

Materials of increasing difficulty for solo and ensemble. (GE 8)

Prerequisite: *MUS 233*

## Nursing

### **(Nursing Department)**

*NOTE: Students must comply with all policies, procedures, and regulations of the preceptorship/clinical site. Failure to do so will result in immediate removal from the site and automatic failure of the course.*

*NOTE: A letter, A through F, may immediately follow the last digit of the catalog number; it merely serves to identify course sections on the student's transcript.*

### **NUR 010—Support Module for Nursing 1**

1 unit\*

This course is designed to assist the student in understanding the principles and practices presented in Nursing 1: Fundamentals. Various forms of supplemental material, such as worksheets and case studies, are used to reinforce the information and concepts required of Nursing 1 students.

Corequisite: *Nursing 1: Fundamentals*

\* not applicable to associate degree or certificate programs

### **NUR 020—Support Module for Nursing 2**

1 unit

This course is designed to assist the student in understanding the principles and practices in Nursing II: Fundamentals. Various forms of supplemental material, such as worksheets and case studies, are used to reinforce the information and concepts required of Nursing 2 students.

Corequisite: *Nursing Fundamentals 2*

### **NUR 030—Support Module for Nursing 3**

1 unit

This course is designed to assist the student in understanding the principles and practices in Nursing 3: Caring for the Growing Family. Various forms of supplemental material, such as worksheets and case studies, are used to reinforce the information and concepts required of Nursing 3 students.

Corequisite: *Nursing 3: Caring for the Growing Family*

### **NUR 040—Support Module for Nursing 4**

1 unit

This course is designed to assist the student in understanding the principles and practices in Nursing 4: Physical and Mental Illness. Various forms of supplemental material, such as worksheets and case studies, are used to reinforce the information and concepts required of Nursing 4 students.

Corequisite: *Nursing 4: Physical and Mental Illness*

### **NUR 101—Nursing 1: Fundamentals**

4 lect., 9 lab., 7 cr.

This student introduces students to the various roles of the associate degree nurse. This semester the growth and development of the older adult is the focus of study. The physiological and psychological needs of members of

this population are introduced. The nursing process, a model for decision making, is presented. The student is guided in the gathering of data, planning and implementation of nursing care. [R-1]

Corequisites: *BIO 111, MLT 106*

### **NUR 102—Nursing 2: Fundamentals\***

6 lect., 12 lab., 10 cr.

This course builds on previous knowledge, giving the student further insight into the various roles of the associate degree nurse. The growth and development of the middle adult is the focus of study. The basic needs of the middle adult with a common health problem are introduced. The student uses the nursing process in planning and implementing the client's care. [R-1]

Prerequisites: *BIO 111 with C or higher; MLT 106 with C or higher; grade of 75% (C) or higher in NUR 101; completed or concurrent enrollment in BIO 112*

### **NUR 111—Basic Clinical Calculations for Medication Administration 1**

1 lect., 1 cr.

This course introduces the calculations used for the safe administration of oral and parenteral medications in the health care setting. Dimensional analysis is the method used to assist the learner to obtain answers with accuracy.

Prerequisites: *tested into MAT 101 Basic Math I, or by permission of the instructor*

Corequisite: *NUR 101*

### **NUR 112—Basic Clinical Calculations for Medication Administration 2**

1 lect., 1 cr.

This course reviews Dimensional Analysis and the conversion between the various systems of measurement. The student will receive practice in calculating the safe administration of complex oral and parenteral medications in the health care setting. The safe administration of intravenous fluids and medications will be introduced.

Prerequisite: *completion of NUR 111 or NUR 101*

Corequisite: *NUR 102*

### **NUR 191—Nursing: Process & Writing 1 (Hybrid)**

1 lect., 1 cr.

This team-taught course helps Nursing 1 students to practice applying the Nursing Process and writing skills to workplace documentation. Documentation situations and exercises are specific to Nursing 1 course and clinical experience. Course begins in Week 7 (Fall semester) and meets 1 hr/wk in class, 1 hr/wk online. The instructor team is from the Nursing and English Departments.

Corequisite/Prerequisite: *NUR 101*

### **NUR 192—Nursing & Writing 2 (Hybrid)**

1 lect., 1 cr.

This team-taught course helps Nursing students to practice applying the Nursing Process and writing skills to workplace documentation. Documentation situations and exercises are specific to Nursing 2 and 4 course and clinical experience. Instructor team is from both the Nursing and English Departments.

Pre or Corequisite: *NUR 102*

### **NUR 195—Nursing & Writing 3 (Hybrid)**

1 lect., 1 cr.

This team-taught course helps Nursing students to practice applying the Nursing Process and writing skills to workplace documentation. Documentation situations and exercises are specific to Nursing 2 and 4 course and clinical experience. Instructor team is from both the Nursing and English Departments.

Pre or Corequisite: *NUR 201*

### **NUR 196—Nursing & Writing 4 (Hybrid)**

1 lect., 1 cr.

This team-taught course helps Nursing students to practice applying the Nursing Process and writing skills to workplace documentation. Documentation situations and exercises are specific to Nursing 4 course and clinical experience. Instructor team is from both the Nursing and English Departments.

Pre or Corequisite: *NUR 202*

### **NUR 201—Nursing 3: Caring for the Growing Family**

4 lect., 9 lab., 7 cr.

This course is designed to promote understanding of the various roles of the associate degree nurse related to family development. This semester the growth and development of individual members of the family is studied in relation to their basic needs. The student refines skills in using the nursing process to assess the needs and provide care for the maternity client, as well as the child, in health and illness. [R-1]

Prerequisites: *ENG 101-2, BIO 112 with C or higher, MLT 106 with C or higher, and grade of 75% (C) or higher in NUR 102*

Corequisite: *PSY 101, CHM 120*

### **NUR 202—Nursing 4: Physical and Mental Illness\***

6 lect., 13\*\* lab., 9 cr.

This course prepares the student for entry into practice as an associate degree nurse. The course is structured to promote a secure knowledge base in chronic and complex physical and mental illness that affect individuals of all ages. The student demonstrates skill in using the nursing process to make and evaluate nursing care decisions. [R-1]

Prerequisites: *PSY 100, CHM 110 with C or higher and grade of 75% (C) or higher in NUR 201*

*NOTE: A grade of 75% (C) or higher in NUR 202 is required to graduate with an A.A.S. degree in nursing. An A.A.S. degree in nursing is required for certification to take the National Council Licensure Examination (NCLEX) for Registered Professional Nurse (RN). \*\*13 weeks.*

### **NUR 203—Nursing 5: Transition to Practice**

1 cr.

This course focuses on the role transition of student to staff nurse. The student will work with a registered nurse preceptor and faculty members as part of a health care team. Emphasis will be placed on the duties and responsibilities of the beginning staff nurse

in planning, prioritizing, coordinating and implementing client care activities. The objectives will include increased skill in applying the nursing process, as well as an increased ability to evaluate self-performance and heightened levels of self-confidence.

*Prerequisite:* NUR 101, NUR 102, NUR 201, NUR 202

### **NUR 205—Pharmacology and the Human Body**

3 cr.

An introduction to medications used to maintain health and/or treat diseases and disorders. The course includes beginning concepts in the origins of medications, how commonly used medications act in the body, how they are changed in the body and how their effects are produced. Toxic effects, side effects and adverse reactions to commonly used drugs are included as well as the effects of medications in all stages of human development.

*Corequisite:* enrollment in the Nursing Program or permission of Nursing Dept. Chair

### **NUR 207—Advanced Clinical Calculations for Medication Administration**

1 lect., 1 cr. (Fall/Spring)

This course is designed to assist the student to perform the preparation and administration of medications safely in complex and diverse clinical situations. Dimensional analysis is the method used to assist the learner to obtain answers with accuracy.

*Prerequisites:* NUR 112 or NUR 102 or permission of instructor

### **Physical Examination**

Physical examination is required upon admission to the program within a three-month period prior to the beginning of classes in nursing and at the beginning of classes in nursing of the second year. Students will not be allowed in the clinical area without a completed physical examination, required immunizations and negative drug screening on file with the college. Criminal background check clearance is also required upon admission to the program and prior to registering for nursing classes

### **Transportation Costs**

Students must make their own arrangements, at their own expense, for transportation on days when classes are held off campus.

### **Uniforms**

Nursing student uniform must be worn whenever class meets off campus.

*\*All nursing courses combine classroom theory with clinical experience in the hospitals and community agencies throughout the local area.*

## Occupational Therapy Assistant

### **(Occupational Therapy Assistant Department)**

*NOTE: Students must comply with all policies, procedures, and regulations of the internship/fieldwork site. Failure to do so will result in immediate removal from the internship site and automatic failure of the course.*

*NOTE: A grade of C or higher is required in all OTA—series courses to graduate with an A.A.S. Occupational Therapy Assistant degree.*

*Failure to pass BIO 111 and/or BIO 112 may prevent progression in the Occupational Therapy Assistant course sequence. Students who fail or withdraw from either of these courses must receive special permission from the department chairperson to continue in the program sequence.*

*Failure to pass the first ENG 160 course, corequisite to OTA 101, will prevent progression into second year OTA courses.*

### **OTA101—Fundamentals of Occupational Therapy I**

2 lect., 3 lab., 3 cr. (Fall)

This course is an introduction to the basic concepts of occupational therapy. Content includes history, philosophy, role delineation, ethics, cultural issues, standards of practice and professional associations. The OT process, practice framework, principles and application of group dynamics, therapeutic use of self and the importance of delivering evidence-based practice are emphasized. A Level I fieldwork component provides exposure to the practice of OT in a variety of practice setting. [R-1]

*Corequisite:* ENG160, OTA 103

### **OTA102—Fundamentals of O.T. II**

2 lect., 2 lab., 3 cr. (Spring)

This course provides the student with practical experience in a variety of treatment techniques utilized in occupational therapy. Units on splinting, transfer techniques, activities of daily living techniques and adaptive equipment are included. [R-1]

*Prerequisite:* OTA101 & BIO111

*Corequisite:* OTA106 & BIO111

### **OTA103—Occupational Performance I**

3 hour lab - 1 cr. (Fall)

Emphasis is on the understanding of occupation in one's daily life and the impact of physical, emotional and developmental challenges to carrying out activities of daily living. Basic problem-solving skill techniques and activities are learned as well as their therapeutic application to a variety of disability areas. Students actively engage in the teaching and learning-process which is essential in occupational therapy practice. Students are required to learn specific craft activities in a group setting, as a form of treatment intervention in the delivery of occupational therapy services. Principles of activity analysis, therapeutic application, and group and dyadic presentation techniques are covered. [R-1]

*Corequisite:* OTA101, OTA 107, ENG 160

**OTA104—Occupational Performance II**

3 hour lab - 1 cr. (Spring)

This is the second in a series of three clinical skills courses, following Occupational Performance I and preceding Clinical Reasoning Skills. The occupational performance course builds upon the foundation of occupation and the Occupational Therapy Practice Framework established in the preceding course. The course also addresses a variety of intervention techniques including adapted and therapeutic games, computers and assistive technology. Emphasis is on community outreach projects, problem-based learning and evidence-based practice research projects [R-1]

*Prerequisite:* OTA101 & BIO111

*Corequisite:* OTA102 & OTA 106

**OTA106—Medical Conditions**

3 cr. (Spring)

Medical, orthopedic, and neurological conditions are presented with regard to etiology, pathology, and treatment. Medical terminology and relevance to the practice of occupational therapy are stressed. [R-1]

*Prerequisite:* OTA101 & BIO111

*Corequisite:* OTA102, OTA 104, BIO 112

**OTA 107—Principles of Occupational Therapy in Geriatrics and Gerontology**

2 cr. (Fall)

This course gives the student a working knowledge of the social, emotional, physical, and psychological aspects of aging. The student is made aware of services available to older adults in the community and the principles of occupational therapy as they relate to the older adult patient. [R-1]

*Corequisite:* OTA101

**OTA 201—Pediatrics and Developmental Disabilities**

3 cr. (Fall)

The pattern of normal growth and development from birth through adolescence is reviewed during the initial weeks of the course. The student is then introduced to the various conditions that interfere with typical development and the occupational therapy treatment techniques utilized to develop age appropriate and context appropriate occupation. [R-1]

*Prerequisites:* PSY220, OTA 102 and OTA 106

*Corequisites:* OTA207 and OTA203

**OTA 203—Clinical Reasoning Skills**

3 hour lab - 1 cr. (Fall)

This is a lab course which integrates all of the OTA theory courses; Pediatric/Developmental Disabilities, Principles of Occupational Therapy in Mental Health and Principles of Occupational Therapy in Physical Disabilities. The emphasis in this course is on the application of clinical reasoning skills applied to the diverse OT practice areas. A series of clinical reasoning/role playing modules encourage students to simulate intervention approaches and treatment activities. [R-1]

*Prerequisites:* OTA 102, OTA 104 and OTA 106

*Corequisites:* OTA 201, OTA 205 OTA 207, ENG 161

**OTA 205—Principles of Occupational Therapy in Mental Health**

3 cr. (Fall)

This course addresses the critical mental health component in all areas of occupational therapy service provision; physical, developmental and psychiatric. The emphasis is on addressing remediation, and

compensation for mental, cognitive, perceptual, behavioral skills and sensory functions across a wide spectrum of physical, developmental and mental health issues. A study of the theoretical basis for in DSMIV Classifications is reviewed and applied to occupational therapy intervention techniques.

Students are guided through a series of self-reflection activities to develop the essential aspects of therapeutic use of self as an occupational therapy practitioner. [R-1]

*Corequisites:* PSY 230, OTA 203 and ENG 161

**OTA 207—Principles of Occupational Therapy in Physical Disabilities**

3 cr. (Fall)

A study of the theoretical basis for occupational therapy treatment techniques in physical disorders. The student is introduced to specific techniques and skills utilized in the area of physical dysfunction. [R-1]

*Prerequisites:* OTA102, OTA 104, OTA106, BIO 112

*Corequisites:* ENG161, OTA201 and OTA203

**OTA 217—Clinical Practice I**

25 lab, 7.5 cr. (Spring)

This course provides a supervised clinical experience in an occupational therapy treatment setting. The student may elect to work with the physically disabled, emotionally disabled, or developmentally disabled population. The student is expected to use knowledge and skills, acquired through previous course work, to carry out prescribed treatment programs. Evaluation, treatment intervention, and treatment documentation are the major components of the fieldwork experience. [R-1]

*Prerequisites:* OTA201, OTA205, OTA207 and ENG 161

**OTA 218—Clinical Practice II**

25 lab, 7.5 cr. (Spring)

This second eight-week clinical experience follows the successful completion of Clinical Practice I and occurs in a setting that services a different patient population than the one selected by the student in the first clinical course. Evaluation, treatment intervention, and treatment documentation are the major components of this experience. The student is expected to apply knowledge and skills acquired through previous course work and to carry out prescribed treatment programs. [R-1]

*Prerequisites:* OTA 217

# Office Technologies

### (Business Department)

#### OFT 103—Medical Coding

3 cr. (Fall/Spring)

This course will introduce students to the characteristics and conventions of CPT-4 and ICD-9-CM coding. Format and correct coding practices will be taught. The importance of using accurate coding conventions to maximize reimbursement in the medical office will be stressed.

Prerequisite: *MAT 010 or math placement into MAT 020 or higher*

#### OFT 106—Keyboarding

.5 lect., 1 lab., 1 cr. (Fall/Spring)

This course concentrates on building skills over a period of one-half semester. Students learn the use of alphabetic and numeric keys. In order to complete the course with a passing grade of C, students will be expected to work at a minimum speed of 20-25 words per minute for three minutes with reasonable accuracy using the touch method (without looking at the keys). This course meets three hours per week for eight weeks.

*Students who already have acceptable skill levels, should take the departmental examination for possible waiver of the course. OFT 107 or higher may be substituted for OFT 106.*

#### OFT 107—Elementary Computer Keyboarding

2 lect., 2 lab., 3 cr. (Fall/Spring)

The course objective is mastery of the typewriter/computer keyboard. Topics include the parts and functions of the workstation, personal and business letter arrangements, manuscript writings, and basic centering and tabulation problems. For a grade of C on straight copy writings, the student must achieve a minimum speed of 30 words per minute with a maximum of 5 errors on a five-minute writing.

#### OFT 108—Intermediate Computer Keyboarding

2 lect., 2 lab., 3 cr. (Fall/Spring)

Professional competence is developed in the keyboarding of business documents on a computer using WordPerfect software. Students learn to format business reports, tables, forms, and correspondence with emphasis on correct keyboarding, formatting, and proofreading techniques. For a grade of C on straight copy writings, the student must achieve a minimum speed of 40 words per minute with a maximum of 4 errors on a five-minute writing.

*Prerequisite: OFT 107 or placement by department*

#### OFT 109—Advanced Computer Keyboarding

2 lect., 2 lab., 3 cr. (Spring)

Emphasis is placed on building production skill in the keyboarding of statistical reports, advanced business correspondence with tables, business forms and financial statements, medical reports, and legal forms using word processing software. For a grade of

C, the student must achieve minimum speed on straight-copy, five-minute writings of 50 words per minute with a maximum of 3 errors.

*Prerequisite: OFT 108*

#### OFT 110—Legal Documents and Terminology

3 cr. (Summer)

This course presents classroom knowledge in preparing the legal documents used in a legal office setting. They include: pleadings and related documents, separation and dissolution of marriage papers, criminal law papers, wills and trusts, contracts, corporation and partnership forms, and real estate transactions. Students will learn legal terminology as they progress through each topic. They will also develop speed on straight-copy keyboarding.

*Prerequisite: OFT 108 or placement by department*

#### OFT 201—Records/Information Management

3 cr. (Fall/Spring)

This is a survey course which provides an overview of records/information management as a system. The role of the records manager and the records management staff within the system are emphasized. Other areas of emphasis include inventories, developing retention schedules, active/inactive records management, archives management, disaster prevention and recovery, and manual preparation. An introduction to Microsoft Access is included.

*Prerequisite: MAT 010 or math placement into MAT 020 or higher*

#### OFT 207—Transcription Skills

2 lect., 2 lab., 3 cr. (Fall)

The student transcribes business communications and/or medical and legal documents from a voice transcriber. Emphasis is placed on the rapid production of mailable copy. Office procedures, basic grammar rules, spelling, punctuation, and proofreading are reviewed.

*Prerequisite: OFT 108, MAT 010 or math placement into MAT 020 or higher*

#### OFT 208—Computer Fundamentals for the Office

3 cr. (Fall/Spring)

The interaction of people, procedures, and technologies which work together to make the office environment efficient and effective is studied. Available technology and methods for evaluating present and future systems are investigated. Topics include: hands-on evaluation of an operating system, Windows XP; use of e-mail; research on the Internet; and the evolution of information processing, telecommunications, and reprographics.

#### OFT 209—Microsoft Word and PowerPoint

2 lect., 2 lab., 3 cr. (Fall)

Hands-on instruction in Microsoft Word and PowerPoint is provided to the student. Emphasis is placed on creating, revising, formatting, enhancing, proof reading, printing, and merging of numerous

business documents. Decision-making skills are exercised in the selection of formats and procedures. **Preparation for MOUS Certification in Word is available.**

Prerequisite: *OFT 108 or placement by department*

### **OFT 211—Medical Transcription**

2 lect., 2 lab., 3 cr.

The student transcribes communications documents such as: letters, case histories, medical evaluations, medical reports, and summaries from a voice transcriber. Most medical specialties are included. Emphasis is placed on the correct medical terminology and spelling, medical form format, and rapid production of mailable copy. Office procedures, basic grammar rules, spelling, punctuation, and proofreading are reviewed.

Prerequisite: *OFT 108 or placement by department, MAT 020 or placement into MAT 101 or higher*

### **OFT 214—Excel and Access**

2 lect., 2 lab., 3 cr. (Spring)

This course provides hands-on training in the use of Excel and Access. Medical, legal and business projects help students learn to process specialized documents. Group assignments aid in the development of teamwork and decision-making skills.

**Preparation for MOUS Certification in Excel and Access is available.**

Prerequisite: *OFT 108 or placement by department, MAT 020 or placement into MAT 101 or higher*

### **OFT 215—Desktop Publishing**

3 cr.

This course provides the student with the ability to change ordinary text into attractive, professional-looking documents and web pages using design elements such as: font faces, font styles, font sizes, graphics, lines, and spacing techniques, etc. A special individualized project is required using at least five desktop features.

Prerequisite: *OFT 106, MAT 020 or placement into MAT 101 or higher*

### **OFT 220—Office Internship**

1 lect., 4 lab., 3 cr. (Spring)

Students work in an approved part-time office position with a cooperating employer. The work assignment is under the dual guidance of the employer and the college coordinator and the student will be evaluated by each. Students are required to attend a weekly one-hour seminar to discuss office procedures and to submit reports on their work experience.

Prerequisites: *completion of OFT 108, BUS 203, and OFT 209 plus CumGPA of 2.0 or departmental permission*

*NOTE: Students must comply with all policies, procedures, and regulations of the internship/fieldwork site. Failure to do so will result in immediate removal from the internship site and automatic failure of the course.*

## **Philosophy & Religion**

**(English Department)**

*The following courses in this area fulfill the humanities requirement for the A.A. and A.S. degrees: PHL 220, PHL 111, PHL 112, PHL 210, PHL 230.*

### **PHL 111—Hebrew Bible (Old Testament)**

3 cr. (Fall)

The historical background and literature of the Hebrews, with emphasis on the major religious themes and beliefs developed within the context of the history of the Middle East. (GE 7)

### **PHL 112—New Testament**

3 cr. (Spring)

The history and literature of Christianity, and the origins of the early Church, as described in the New Testament. (GE 7)

### **PHL 210—Philosophy**

3 cr.

An introduction to the main questions raised by philosophers concerning knowledge of human nature and the universe. Emphasis is placed on the methods of Western philosophers in their responses to these questions. (GE 7)

Prerequisite: *ENG 101 or concurrent enrollment*

### **PHL 220—Ethics**

3 cr.

The course introduces students to basic ethical theories and explores the values behind moral decision-making. Readings are drawn from classical and modern sources; classroom discussion centers on ethical issues in such areas as medicine, health, business, education, the arts, and law. (GE 7)

Prerequisite: *ENG 101 or concurrent enrollment*

### **PHL 230—Religious Concepts**

3 cr.

The development of world religions from primitive times to the present day. Attention is given to the history and culture of the people whose religions are studied. (GE 7)

Prerequisite: *ENG 101 or concurrent enrollment*

## Physical Education/Exercise Studies/Health

### (Movement Science Department)

*NOTE: PED 111 and PED 112 fulfill the liberal arts requirement for the associate degrees. Courses with subject PED do not satisfy the Physical Education requirement for graduation.*

#### **PED 100—Introduction to Physical Education**

2 cr. (Fall/Spring)

Designed for students interested in careers in physical education or exercise science. Topics include the history of physical education and sport, the objectives of physical education and sport, the meaning of biological fitness, a survey of various programs and their importance, and career opportunities in teaching, coaching, exercise science and sports medicine.

#### **PED 101—Introduction to Exercise Science**

2 cr. (Fall)

The course provides a broad-based introduction to exercise science as an academic discipline which integrates anatomy, biochemistry, epidemiology, molecular biology, physics, physiology and psychology. The course will examine the history of exercise science and its affect on society as well as professional development, relationships to other health care professions, and trends for the future.

Prerequisite: *placement into MAT 101*

#### **PED 111—Substance Abuse and Health**

3 cr. (Fall/Spring)

An introduction to substance abuse that considers the physiological and psychological aspects of licit and illicit recreational drugs. Students develop an understanding of the importance and limitations of prescriptive medication.

#### **PED 112—Contemporary Health**

3 cr. (Fall/Spring)

Topics include stress management, violence in society, planning diet and fitness programs, and adapting to aging and dying. Students are able to make informed decisions concerning their personal physical and emotional states of health.

#### **PED 114—Stress Management**

2 lect., 1 cr. (Fall/Spring)

Stress management is a course that approaches stress as a function of life over which we do have control. Emphasizing the relationship between stress and wellness, classes explore means of intervention to better manage common sources of stress. Course does not satisfy the physical education requirement for the associate degrees.

#### **PED 145—Group Fitness Instructor**

1 lect., 2 lab., 2 cr. (Fall)

This course is designed to provide theoretical knowledge and practical skills in preparation for a national certification exam in group fitness instruction. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the instructor-participant relationship, the principles of motivation to encourage adherence in the group fitness setting, effective instructor-to-participant communication techniques, methods for enhancing group leadership, and the group fitness instructor's professional role.

#### **PED 150—First Aid and Safety**

1 lect., 2 lab., 2 cr. (Fall/Spring)

This responding to emergencies course presents principles of safety awareness and accident-illness prevention, as well as practice in the techniques of first aid care for most common accident and sudden illness situations. American Red Cross certification for responding to emergencies and CPRO/AED is granted upon successful completion of requirements..

#### **PED 151—Lifeguard Training**

1 cr.

This course meets twice a week for eight weeks. Trains individuals who have an interest in life-saving skills. Includes the additional skills and knowledge required to develop effective lifeguard systems at swimming pools and waterfronts. Certification will include Lifeguard Training and AED upon successful completion. Satisfies Physical Education requirement.

Prerequisite: *Must be at least 15 years old, swim 300 yards continuously using the front crawl, breaststroke for at least 100 yards each. Must submerge to minimum depth of 7 feet, retrieve a 10 pound object and return using legs only.*

#### **PED 152—Water Safety Instructor**

1 cr. (Spring/Summer)

Covers the skills necessary to teach the following courses: Progressive Swimming Course, Longfellow's Whale Tales, Infant/Pre-School Aquatic Program, Basic Water Safety, Emergency Water Safety, and Safety Training for Swim Coaches. Course does not satisfy the physical education requirement and requires a minimum of 52 hours to receive certification.

Prerequisite: *1) Be at least 16 years old at the start of the Instructor course (driver's license or birth certificate as proof), 2) Pass the Instructor Candidate Training certificate or a current American Red Cross Health and Safety instructor authorization, and 3) Successfully pass the precourse written and skills tests.*

*\*The Written Comprehensive Test is based on information in the American Red Cross Basic Water Safety program (minimum score 80% to meet ARC standards).*

*\*Skills are based upon a proficiency level equal to the American Red Cross Water Safety Instructor and Level V learn-to-swim program.*



**PED 155—CPR**

1 cr. (Fall/Spring)

Methods of dealing with respiratory emergencies and cardiac arrest for the adult, child, and infant are covered in this half-semester course. American Red Cross CPR certification for the Professional Rescuer is granted upon successful completion of requirements.

**PED 156—Infant and Child First Aid and CPR**

1 cr. (Fall/Spring)

This First Aid and CPR course presents principles of safety awareness and accident-illness prevention, as well as practice in the techniques of First Aid care for infants and children. American Red Cross certification is granted upon successful completion of requirements.

**PED 201—Introduction to Bio-Mechanics of Human Movement**

2 lect., 2 lab., 3 cr. (Spring)

A qualitative approach to the principles and components of movement and their application to various forms of movement; daily living, work tasks, sport skills and dance are explored. Emphasis is placed on gaining an understanding of movement as a phenomenon, the forces and human variables that shape it, and the principles to be applied in refining movement behavior.

Pre/co-requisite: *BIO 111*

**PED 202—Basic Exercise Physiology**

2 lect., 2 lab., 3 cr. (Fall)

A study of the functions of the human body during physical activity. Topics include: physiological responses of the body during exercise in relation to the percentage of body fat, cardiac output, energy expenditure, temperature regulation, gender, and physical working capacity. Laboratory work provides practical experience in assessing human performance.

Co-requisite: *BIO 112*

**PED 203—Physical Fitness and Exercise Prescription**

3 cr. (Spring)

Designed for students interested in the importance of physical fitness in today's mechanical society. This course focuses on the components of physical fitness; the role of fitness in disease prevention; factors that affect individual physical fitness and training levels; and how to evaluate and develop a fitness program according to individual goals, needs, and objectives.

Prerequisite: *PED 202* Corequisite: *PED 204*

**PED 204—Lab/Field Fitness Assessment**

1 cr. (Spring)

Assessment and evaluation of different areas of physical fitness through various measurement techniques used in the field of exercise science for testing and exercise programming. Students will be active participants in this course. A practical exam will be given at the end of this course.

Co-requisite: *PED 203* and *PED 204* *MUST* be taken together.

**PED 205—Personal Training**

2 cr.

This course is designed to provide theoretical knowledge and practical skill in preparation for the National Council on Strength and Fitness Personal Training Certification exam. The course will cover the most up to date fitness conditioning principles and assessment methods, provide students essential knowledge for developing client-trainer relationships, and effective implementation of fitness program and individual exercise instruction.

*Pre-/Co-requisites: BIO 111 Anatomy and Physiology I and PED201 Exercise Physiology.*

**PED 230—Exercise Studies Practicum**

2 cr.

Students will meet weekly as a class to explore topics of professionalism, market survey, trouble shooting, motivation, supervision and initiative as well as developing web site pages, newsletters, and designing bulletin boards. Students will also document experiences to meet the requirement of 45 hours in an applied work setting. Develop skills, abilities, competencies and organizational and administrative techniques while working under direct supervision of selected professionals in their chosen area of interest: exercise physiology, personal training, exercise leadership, athletic training, nutrition, recreation, teaching, and coaching.

*Prerequisites: PED 202 Basic Exercise Physiology, PED 201 Human Movement, PED 203 Fitness & Exercise Prescription (can be taken concurrently). Cumulative GPA 2.5 or Chair permission.*

**PED 280—Exercise Studies Capstone**

The capstone course in the program of study provides a student the opportunity to synthesize, analyze, and apply knowledge acquired over different courses in the program. Students will choose a project, plan and implement the project, write a scholarly paper with research into the topic, discuss the detailed process of the project and present their findings and experiences to the Movement science faculty, peers and other college/public individuals interested. The course will provide students the opportunity to assess their interests and talents as they relate to the professional areas of study in the field of physical education, nutrition, exercise studies, personal training, health and fitness professional, recreation, athletic training, and/ or health education. All projects *MUST* be pre-approved by faculty and completed during the registered semester.

**PHYSICAL EDUCATION SKILLS:**

*1 credit each for a full semester, unless otherwise noted. The skills courses are designed for those majoring in Exercise Studies, or the suggested study*

*area of Physical Education in the Liberal Arts degrees. However, if a student outside these areas wishes to enroll in these courses to fulfill the physical education requirement they can do so only with Department Chair approval. Skills courses are graded A through F; the grades are based on skill and knowledge level of the material presented. Written tests are required. For physical education courses graded either A through F or graded on a pass/fail basis, see PES—Physical Education.*

**PEM 160 – Aerobic Fitness**

**PEM 161 – Racquet Sports 1**

**PEM 162 – Team Sports**

**PEM 163 – Studio Fitness**

**PEM 164 – Dance**

**PEM 165 – Beg—Int/Adv—Learn to Swim**

**PEM 166 – Golf/Badminton**

**PEM 167 – Weight Training**

**PEM 168 – Alpine Ski/Boarding**

**PEM 169 – Leadership Skills/Group Games**

**PEM 170 – Water Exercise**

**PEM 171 – Hiking for fit/outdoor individ.**

### **PES 100—Concepts of Physical Wellness**

1 lect., 1 lab., 1 cr.

A theory/discussion course designed to introduce students to the basic fundamental building blocks of physical wellness and how this body of knowledge relates to their own personal wellness. Course focus is on physical wellness which will include the components of physical fitness, exercise, nutrition and weight management, disease prevention, personal safety, stress management, and current consumer issues relevant to physical wellness. This course enables students to begin designing a lifetime personal wellness program that suits their own physical wellness goals and objectives. Students will participate in various labs to assess current fitness levels and practice exercise prescription principles through various forms of activity. All physical activity is modified to challenge the student within the individual's ability.

Note: 1 credit in Concepts of Physical Wellness is a graduation requirement for all A.A., A.S. and A.A.S. degrees offered at Orange County Community College with the exception of an A.S. in Exercise Studies.

### **PES—Physical Education**

<sup>1</sup>/<sub>2</sub> cr. each, <sup>1</sup>/<sub>2</sub> semester each

All students are required to take the 1 credit PES 100 “Concepts of Physical Wellness” course in order to graduate with an A.A., A.S., or A.A.S. degree from Orange County Community College. Students majoring in Exercise Studies are not required to take PES 100 with the exception of students earning an A.S. in Exercise Studies.

In addition, students must choose an additional 1 credit from a wide variety activities offered in the following areas: individual sports, team sports, aquatics, gymnastics, dance and physical fitness.

These courses fulfill the physical education requirement. They are graded A through F, or students may choose the option of taking them as pass or fail. Upon choosing this option, students will have two weeks to decide whether they want to receive a pass/fail or a letter grade for their physical education course. Requirements for both grading procedures will be the same. Students should not postpone taking these courses. To do so may jeopardize their timely graduation. (See course listing below.)\*

### **Repeating Physical Education Courses**

A student may take a maximum of one credit of any course in physical education when fulfilling the two-credit graduation requirement. The “Concepts of Physical Wellness” course can only be taken once. A student may repeat a course to change a grade.

### **Physical Education Credit for Varsity Participation**

A student may earn 1/2 credit in PES physical education, up to a maximum of 1 credit, when he/she participates in a varsity sport. All student-athletes must complete the season in order to receive credit. In case of injury, the student must have completed no less than 15 hours of participation.

Transfer students who want to receive physical education credit for varsity athletic participation must first fill out an athletic participation transfer form. Forms and information may be received from the Director of Athletics. Transfer students may receive up to 1 credit of physical education depending on their varsity athletic participation.

\*Note: Matriculated students who graduated from Police Academies or Correctional Training Academies within the last ten years and have completed PES 100—Concepts of Physical Wellness may request 1 P.E. activity credits.

Students who have completed basic training in the U.S. armed forces may qualify for two (2) physical education credits. For more information call the Veterans' representative at 341-4071.

PES 170- Aerobic Fitness  
PES 171- Step Aerobics  
PES 172- Body Shaping  
PES 173- Cardio Kick Box  
PES 174- Ex & Wt. Management  
PES 180- Jogging  
PES 182- Walking  
PES 183- Spinning  
PES 184- Triathlon Training  
PES 200- Volleyball  
PES 201- Basketball (coed)  
PES 202- Basketball (men)  
PES 203- Floor Hockey (coed)  
PES 204- Floor Hockey (men)  
PES 205- Baseball  
PES 206- Soccer  
PES 207- Golf  
PES 208- Archery  
PES 209- Tennis  
PES 210- Racquetball  
PES 211- Badminton  
PES 300- Weight Train  
PES 301- Circuit Train  
PES 302- Strength Train  
PES 303- Physical Fitness  
PES 400- Self Defense co-ed  
PES 401 Self Defense women  
PES 410- Pilates  
PES 411- Yoga  
PES 412- Tai Chi  
PES 413- Stretch For Wellness  
PES 420- Ballet  
PES 421- Jazz Dance  
PES 422- Modern Dance  
PES 423- Modern Dance 2  
PES 424- Ballroom Dance  
PES 425- Social Dance  
PES 426- Latin Dance  
PES 427- Theatre Dance  
PES 500- Outdoor Adventure  
PES 501 Basic Wilderness Skills  
PES 503- Rock Climbing  
PES 504- Hiking For Fitness  
PES 505- Alpine Boarding/Ski  
PES 600- Begin Swim co-ed  
PES 601- Int/Adv swim  
PES 602- Fit Swim  
PES 603- Aqua Aerobics  
PES 605 - Deep H2O Jog  
PES 606 - Water Polo  
PES 800 - Varsity Basketball Women  
PES 801 - Varsity Basketball Men  
PES 802 - Varsity Tennis Women  
PES 803 - Varsity Tennis Men  
PES 804 - Varsity Golf  
PES 805 - Varsity Baseball  
PES 806 - Varsity Softball  
PES 807 - Varsity Soccer  
PES 808 - Volleyball

## Physical Sciences

(Science, Engineering & Architecture Dept.)

(See also: Astronomy, Chemistry, Geology)

### PSC 125—Physical Science: The Physical World

2 lect., 2 lab., 3 cr.

Topics are drawn from the fields of Physics, Chemistry, Geology, Meteorology and Astronomy with emphasis on how the scientific method guides the various disciplines. Laboratory work enhances and develops the lecture material. (GE 2)

Prerequisite: *tested into MAT 101 or completed Developmental Algebra MAT 020*

### PSC 140—Physical Science: The Environment

2 lect., 2 lab., 3 cr.

A study of the interaction between the physical environment and man. Concepts in natural sciences are introduced as a basis for discussion of current environmental issues. Local environmental issues are discussed. (GE 2)

Prerequisite: *tested into MAT 101 or completed Developmental Algebra MAT 020*

## Physical Therapist Assistant

### (Physical Therapist Assistant Department)

*NOTE: Students must comply with all policies, procedures, and regulations of the clinical education site. Failure to do so will result in immediate removal from the clinical education site and automatic failure of the course.*

*NOTE: A grade of C or higher is required in all PTA series courses and A&P 1, A&P 2 and Basic Exercise Physiology to graduate with an A.A.S. Physical Therapist Assistant degree.*

*NOTE: Transportation costs: students must make their own arrangements, at their own expense for transportation.*

*NOTE: A physical examination is required annually prior to the beginning of classes each September while enrolled in the Physical Therapist Assistant Program. The initial physical examination includes a 10-panel urine drug screen. Students who receive a positive drug test will not be allowed to begin the PTA Program. Attempted readmission to the PTA program will be possible only when the course is offered again and only if the student then successfully passes the urine drug test. Failure to successfully pass a drug test for a second time will result in permanent removal from the PTA program. Additionally, students will not be allowed to participate in clinical areas without completed physical examinations on file with the college and appropriate current CPR Certification.*

### **PTA 010—Clinical Applications for the PTA Support Module**

1 lect., 1 unit\* (Fall)

This course is intended to provide a voluntary support module for students enrolled in the first semester of the PTA program.

Corequisite: *ENG 101, ENG 160, BIO 111, PTA 101, PTA 103, PTA 105*

*\*not applicable to associate degrees or certificate programs*

### **PTA 012—Kinesiology Support Module**

1 lab., 1 unit\* (Spring)

This course is intended to provide a voluntary support module in Kinesiology for students enrolled in the PTA Program.

Prerequisite: *BIO 111, PTA 101, PTA 103, PTA 105*

Corequisite: *PTA 104*

*\*not applicable to associate degrees or certificate programs*

### **PTA 101—Physical Therapist Assisting 1**

3 lect., 3 lab., 4 cr. (Fall)

This is the first in a sequence of four procedures courses. Topics include: vital signs, universal precautions, wound care, proper body mechanics, patient positioning and transfers, medical terminology, documentation, and gait training. [R-1]

Corequisite: *ENG 101, BIO 111, PTA 103, PTA 105*

### **PTA 102—Physical Therapist Assisting 2**

3 lect., 3 lab., 4 cr. (Spring)

In this second course in the sequence of four procedures courses, the basic principles of massage and application of modalities are emphasized, as well as practice of specific skills including massage, hot and cold packs, paraffin, whirlpool, contrast baths, ultrasound, diathermy, electrical stimulation, ultraviolet, infrared and intermittent compression. Principles and procedures related to the Hubbard Tank and therapeutic pool are also presented. [R-1]

Prerequisite: *BIO 111, PTA 101, PTA 103, PTA 105*

Corequisite: *BIO 112, PTA 104*

### **PTA 103—Introduction to Physical Therapy**

2 lect., 2 cr. (Fall)

An introductory course to Physical Therapy which covers the history, scope of practice, role of the PT and PTA, preferred practice relationship between the PT and PTA, role of other health care providers, communication skills, ethical and legal principles, structure and organization of health care systems, and cultural diversity. [R-1]

Corequisite: *ENG 101, BIO 111, PTA 101, PTA 105*

### **PTA 104—Kinesiology**

3 lect., 3 lab., 4 cr. (Spring)

A study of basic human motion, emphasizing nervous, muscle and skeletal systems is presented. Analysis of normal and pathological gait patterns is included. [R-1]

Prerequisite: *BIO 111, PTA 101, PTA 103, PTA 105*

Corequisite: *BIO 112, PTA 102*

### **PTA 105—Medical Conditions for the Physical Therapist Assistant**

3 lect., 3 cr. (Fall)

This course serves to describe specific systems pathology across the life span, including medical/surgical management, as they relate to the field of Physical Therapy. [R-1]

Corequisite: *ENG 101, BIO 111, PTA 101, PTA 103*

### **PTA 201—Physical Therapist Assisting 3**

3 lect., 3 lab., 4 cr. (Fall)

In this third course in the sequence of four procedures courses, the principles and techniques of therapeutic exercise are presented. Students study specific neurological, orthopedic, medical, and surgical conditions, and their PT management. [R-1]

Prerequisite: *BIO 112, PTA 102, PTA 104*

Corequisite: *PED 202, PTA 205, PTA 207*

### **PTA 202—Physical Therapist Assisting 4**

3 lect., 3 lab., 4 cr. (Spring)

This course is the final course in a series of four procedures courses in which the students defines, discusses, and demonstrates more advanced Physical Therapy Treatment techniques. Topics include: joint mobilization, proprioceptive neuromuscular facilitation, lumbar stabilization, pediatrics, cardio-

pulmonary rehab, amputee rehab, head trauma rehab, burn rehab. [R-1]

Prerequisite: *ENG 102, PED 202, PTA 201, PTA 205, PTA 207*

Corequisite: *PTA 206, PTA 208*

### **PTA 205—Clinical Education 1**

16 lab., 3 cr. (Fall)

Students spend two full days per week in a clinical facility under the direction and supervision of a physical therapist. The actual hours will be determined by the facility and may include evening hours. This assignment is designed to allow students to observe, assist, and acquire skills in application of all procedures studied. [R-1]

Prerequisite: *PTA 102, PTA 104*

Corequisite: *PED 202, PTA 201, PTA 207*

### **PTA 206—Clinical Education 2**

16 lab., 3 cr. (Spring)

Students spend two full days per week in a clinical facility under the direction and supervision of a physical therapist. The actual hours will be determined by the facility and may include evening hours. This assignment is designed to allow students to observe, assist, and acquire skills in application of all procedures studied. [R-1]

Prerequisite: *PED 202, PTA 201, PTA 205, PTA 207*

Corequisite: *PTA 104, PTA 208*

### **PTA 207—Test and Measurement for the PTA**

3 lect., 3 lab., 4 cr. (Fall)

The principles and techniques of appropriate assessment and measurement skills to assist a supervising physical therapist in monitoring and modifying the plan of care within the limits of practice are presented. Major topics include: ROM, MMT, balance, coordination, sensation, posture, pain and ADL assessment. [R-1]

Prerequisite: *BIO 112, PTA 102, PTA 104*

Corequisite: *PED 202, PTA 201, PTA 205*

### **PTA 208—Contemporary Practice for the PTA**

3 lect., 3 cr. (Spring)

This course serves as a culminating course to explore current concepts and trends in Physical Therapy. Legal, fiscal, administrative, professional and ethical issues are explored as they relate to the Physical Therapist Assistant. This course places heavy emphasis on self-directed learning and classroom participation through the use of the Internet, case scenarios, classroom discussion, and independent assignments. \* Throughout the core courses each student is required to attend two APTA meetings or two continuing education seminars OR one APTA meeting AND one continuing education seminar which count toward a portion of this course. [R-1]

Prerequisite: *PTA 201, PTA 205, PTA 207*

Corequisite: *PTA 202, PTA 206*

### **PTA 220—Clinical Education 3**

40 lab., 3 cr. (Summer I or III)

Students spend six weeks full time working in a clinical facility under the direction and supervision of a physical therapist. This externship provides a comprehensive clinical experience which allows the student to apply all skills acquired to date. The actual hours will be determined by the facility and may include evening hours. [R-1]

Prerequisite: *Completion of course series PTA 101 through PTA 208*

## Physics

### (Science, Engineering & Architecture Dept.)

Note: The keeping of a laboratory notebook and the writing of formal laboratory reports are required.

#### PHY 101—General Physics 1

3 lect., 3 lab., 4 cr. (Fall/Spring/Summer I)

This course covers the concepts of classical physics from introductory mechanics through thermodynamics. Topics include: kinematics, Newton's Laws-particle dynamics, statics, fluid statics and dynamics, heat and thermodynamics. (GE 2)

Prerequisite: *MAT 102 or math placement test into MAT 121*

#### PHY 102—General Physics 2

3 lect., 3 lab., 4 cr. (Fall/Spring/Summer II)

A continuation of PHY 101. A treatment of wave motion, harmonic motion and sound, electricity and magnetism, optics, relativity, quantum theory, atomic and nuclear physics. (GE 2)

Prerequisite: *PHY 101*

#### PHY 103—Physics for Science & Engineering 1

3 lect., 3 lab., 4 cr. (Fall)

The science of measurement; vector analysis; rectilinear motion; Newton's laws and their application to particle dynamics, conditions for equilibrium; rotational kinematics and dynamics and angular momentum; conservation of energy; linear and angular momentum; introduction to relativistic kinematics. (GE 2)

Prerequisite: *completed or concurrent enrollment in MAT 205 is required*

#### PHY 104—Physics for Science & Engineering 2

3 lect., 3 lab., 4 cr. (Spring)

A continuation of PHY 103. Topics include: gravitational theory, atomic physics of Bohr atom; fluid statics and hydrodynamics; oscillations and simple harmonic motion; traveling waves; vibrating systems and sound; temperature and heat measurement, heat transfer, kinetic theory of gases; first and second law of thermodynamics; introduction to nuclear structure. (GE 2)

Prerequisite: *PHY 103, completed or concurrent enrollment in MAT 205 is required. A minimum grade of C- in PHY 103 is required.*

#### PHY 105—General Physics 1 with Calculus

3 lect., 3 lab., 4 cr. (Fall)

A calculus-based course in general physics. The course covers the concepts of classical physics from introductory mechanics through thermodynamics. Topics include: kinematics, particle dynamics, statics, fluid statics and dynamics, thermodynamics. (GE 2)

Prerequisite: *MAT 205*

#### PHY 106—General Physics 2 with Calculus

3 lect., 3 lab., 4 cr. (Spring)

A continuation of PHY 105. A calculus-based treatment of wave motion, electricity and magnetism, optics, relativity, quantum theory, atomic and nuclear physics. (GE 2)

Prerequisite: *PHY 105*

Corequisite: *MAT 206*

#### PHY 108—Acoustics

2 lect., 2 lab., 3 cr. (Spring)

An introduction to the fundamentals of sound. Topics include: elementary principles of wave motion; analysis of musical sounds from varied sources including voices, instruments, oscillators, synthesizers, and recording media. Emphasis is placed on those factors which permit performer and listener to understand and control musical sounds. (GE 2)

Prerequisite: *MAT 101 or by permission of instructor*

#### PHY 111—Applied Physics 1

2 lect., 2 lab., 3 cr. (Fall)

An introduction to the fundamentals of mechanics, fluids, and heat. Topics include statics, kinematics, dynamics, energy, heat measurement gas laws, pressure, and hydraulics. (GE 2)

Prerequisite: *completed or concurrent enrollment in MAT 107 or higher is required*

#### PHY 112—Applied Physics 2

2 lect., 2 lab., 3 cr. (Spring)

Topics include an introduction to rotation, vibrations, harmonic motion, wave motion, electricity and magnetism, induced EMF, optics, quantum theory, atomic and nuclear physics. (GE 2)

Prerequisite: *PHY 111*

#### PHY 203—Physics for Science & Engineering 3

3 lect., 3 lab., 4 cr. (Fall)

Treatment of electro and magneto-statics, Gauss' Law, Faraday's Law, Ampere's Law; resistance inductance and capacitance applied to circuits. Transient and steady state analysis of RC, RL and RLC circuits. Resonance, electromechanical analogues; Maxwell's equations, electromagnetic waves and light; geometric and physical optics, gratings and spectra, polarization. (GE 2)

Prerequisite: *completed or concurrent enrollment in MAT 207; minimum grade of C- in PHY 104*

#### PHY 204—Modern Physics

3 lect., 3 lab., 4 cr. (Spring)

Study of the development of physics since 1900. Study of waves in light and matter. Includes comparison of Galileo's and Einstein's relativity, relativistic kinematics and dynamics; wave-particle duality, black body radiation and Planck's constant; introduction to quantum theory and wave mechanics; introduction to molecular and solid state physics; atomic structure and the periodic table; nuclear reactions and energy. Elementary particles and the Standard Model; applications to cosmology. (GE 2)

Prerequisite: *PHY 102 or PHY 106 or PHY 203*

## Political Science

(Global Studies Department)

### **POL 101—Introduction to Political Science**

3 cr. (Fall/Spring)

The course introduces basic concepts used by political scientists such as power, authority, the state, and analyzes major political ideologies of the contemporary world. General types of political systems and components of political systems are explained and compared. Major policy issues, especially those with global significance, are covered in connection with international politics. *Fulfills category D.* (GE 3)

### **POL 102—U.S. Government—State and Local**

3 cr. (Fall/Spring)

The changing role of state and local governments in America is examined. An emphasis is placed upon what state governments actually do, how they are structured, and the problems they face. Part of the course is devoted to the study of cities and metropolitan areas. *Fulfills category A.* (GE 3)

### **POL 103—U.S. Government—National**

3 cr. (Fall/Spring)

A survey of the U.S. political system at the national level including treatment of the historical background, central concepts and revisions of the constitutional framework, examination of the presidency, congress, federal bureaucracy, judicial structure and process, political parties, interest groups, the media, and current public issues. *Fulfills category A.* (GE 4)

### **POL 221—International Relations**

3 cr. (Fall)

A study of the principles used to describe the political relations among nations. Topics include the growth of nationalism, imperialism, decolonization, the balance of power concept, the role of international organizations such as the U.N. *Fulfills category D.* (GE 3)

### **POL 220—Comparative Governments**

3 cr. (Spring)

An introduction to political processes in nations other than the United States. The course uses the comparative method to analyze such topics as political culture, developed vs. developing nations, the organization of governments, political parties, and the operation of interest groups. *Fulfills category D.* (GE 3)

## Psychology

(Behavioral Sciences Department)

### **PSY 100—Psychology of Adjustment**

3 cr. (Fall, Spring, Summer)

An introductory psychology course, with emphasis on understanding the elements of a healthy personality. Topics include dynamics of adjustment the problems that the individual faces in adjusting to family, school, peers and job, and the techniques of readjustment such as counseling and psychotherapy. *Fulfills category B.*

### **PSY 101—General Psychology 1**

3 cr. (Fall, Spring, Summer)

The foundations for a scientific understanding of human behavior are examined. Topics include scientific methods, statistical analysis, physiological aspects of behavior, growth and development, conditioning, memory, perception, motivation and emotion. *Fulfills category B.* (GE 3)

### **PSY 102—General Psychology 2**

3 cr. (Fall/Spring/Summer)

This course is a continuation of PSY 101. Topics include personality, consciousness, cognition, intelligence, tests and measurement, psychological disorders, therapies, social psychology and applied psychology. *Fulfills category B.*

Prerequisite: *PSY 101*

### **PSY 220—Developmental Psychology**

3 cr. (Fall/Spring/Summer)

A study of the stages of human development: prenatal, infancy, childhood, adolescence, adulthood, and old age which influence psychological growth and change. *Fulfills category B.*

Prerequisite: *PSY 101*

### **PSY 221—Child Psychology**

3 cr. (Fall/Spring/Summer)

A study of human development and behavior from conception to adolescence. Subjects considered are the interdependence of the emotional, intellectual, social, and physical growth of the child. *Fulfills category B.*

Prerequisite: *PSY 101*

### **PSY 222—Psychology of Adolescence**

3 cr. (Fall/Spring)

A study of growth and adjustment problems of young people and their struggle to attain maturity. Topics include health, personality, home and family, social status, sex and heterosexual relationships, and school problems. This course is designed for secondary education majors and adults working with adolescents. *Fulfills category B.*

Prerequisite: *PSY 101*

### **PSY 223—Psychology of Adulthood and Aging** 3 cr. (Spring)

This course examines the major adjustments faced by the individual from young adulthood through old age. Theories and research evidence concerning developmental changes are emphasized. Attention is given to clinical aspects of old age.

Prerequisite: *PSY 101 with a grade of "C-" or higher*

### **PSY 230—Abnormal Psychology** 3 cr. (Fall/Spring/Summer)

This course involves the study of past and present understandings of psychological abnormality. Contemporary psychological thinking relative to mental health and individual functioning reveals the range of forms of psychological abnormality. The diagnostic system that is utilized by mental health professionals in this country is examined. Social contexts and consequences of the diagnosis of psychological abnormality are identified.

Prerequisite: *completion of six college credits in psychology.*

### **PSY 240—Social Psychology** 3 cr. (Fall, Spring)

A study of group behavior and the influence of groups on the perception, thinking and behavior of the individual. Topics included are: socialization, conflict, attitudes, prejudice and leadership. *Fulfills category B.*

Prerequisite: *PSY 101*

### **PSY 250—Human Sexuality** 3 cr. (Spring)

The sexual aspects of human activity are studied through the disciplines of sociology, psychology, biology, and philosophy. Historical, cross-cultural, and current research form the basis for the development of an individual perspective on human sexuality.

Prerequisite: *PSY 101 or SOC 101*

## Radiologic Technology

### **(Diagnostic Imaging Department)**

*NOTE: Students must comply with all policies, procedures and regulations of the internship fieldwork site. Failure to do so may result in immediate removal from the internship site and failure of the course.*

*NOTE: An overall cumulative average of 2.00 with a minimum grade of 75% (C) in each Radiologic Technology course is required for progression within and graduation from the Radiologic Technology Program.*

### **RAD 101—Principles of Radiographic Exposure 1** 3 lect., 2 lab., 4 cr. (Fall)

Introduction to the radiographic environment is presented. Evaluating and viewing radiographs, controlling the quantity and quality of the x-ray beam, controlling scatter, film, screens and grids are presented. [R-1]

Prerequisite: *acceptance into the Radiography program*

Corequisite: *RAD 103, RAD 105, RAD 107*

### **RAD 102—Principles of Radiographic Exposure 2** 3 lect., 2 lab., 4 cr. (Spring)

Advanced concepts of radiographic technique are covered. Physical characteristics of x-ray film and film processing, geometry of the radiographic image, technique problems and principles of digital radiography are included. [R-1]

Prerequisite: *RAD 101, RAD 103, RAD 105, RAD 107*

Corequisite: *RAD 104, RAD 106, RAD 111, RAD 108*

### **RAD 103—Introduction to Radiography** 1 cr. (Fall)

The course provides an overview of radiography and its role in health care delivery. Students are oriented to the academic and administrative structure, key departments, and personnel, responsibilities as students, and to the profession as a whole. Time management learning styles, test-taking strategies, study skills, and other skills necessary to "survive" the freshman year are discussed. [R-1]

Prerequisite: *acceptance into the Radiography program*

Corequisite: *RAD 101, RAD 105, RAD 107*

### **RAD 104—Radiation Protection** 1 cr. (Spring)

The course presents general methods in radiation protection when exposing patients to ionizing radiation. Skills and knowledge critical to the safety of the patient and radiographer are emphasized. Demonstration of such is required of all students. [R-1]

Prerequisite: *RAD 101, RAD 103, RAD 105, RAD 107*

Corequisite: *RAD 102, RAD 103, RAD 105, RAD 107*



**RAD 105—Radiographic Positioning 1**

3 lect., 2 lab., 4 cr. (Fall)

Basic concepts of positioning. Nomenclature of positioning, instruction and practice in positioning of extremities, shoulder girdle, hip joint, pelvic girdle, chest and abdomen. [R-1]

Prerequisite: *acceptance into the Radiography program*  
Corequisite: *RAD 101, RAD 103, RAD 107*

**RAD 106—Radiographic Positioning 2**

3 lect., 2 lab., 4 cr. (Spring)

Radiographic lines and points of the skull; instruction and practice in positioning of cranium, facial bones, mandible, nasal bones, paranasal sinuses, spine, digestive, urinary systems and mammography. [R-1]

Prerequisite: *RAD 101, RAD 103, RAD 105, RAD 107*  
Corequisite: *RAD 102, RAD 104, RAD 111, RAD 108*

**RAD 107—Methods of Patient Care 1**

2 lect., 2 lab., 2 cr. (Fall)

An introduction to the care of patients in the clinical setting. This course includes: patient assessment, history taking; body mechanics, patient transfer techniques, medical emergencies, vital signs, infection control, non-aseptic techniques, preparation of medications, injection, patient interactions, and development of the professional self. [R -1]

Prerequisite: *acceptance into the Radiography program*  
Corequisite: *RAD 101, RAD 103, RAD 105*

**RAD 108—Methods of Patient Care 2**

1 lect., 1 lab., 1 cr. (Spring)

This course is a continuation of RAD 107 Methods of Patient Care 1. This course includes: medical charting, venipuncture, assisting in the administration of contrast materials, sterile gowning, gloving, patient interaction skills, human diversity, and an overview of medical ethics and law. In addition, patient preparation and placement of EKG leads along with a basic EKG interpretation. [R - 1]

Prerequisite: *RAD 101, RAD 103, RAD 104, RAD 107*  
Corequisite: *RAD 102, RAD 104, RAD 106, RAD 111*

**RAD 111—Clinical Practicum 1**

1 lect., 15 lab., 1 cr. (Spring)

This course gives the student an opportunity to apply those concepts learned in lecture and lab in the clinical setting. Students have a chance to participate in general, barium enema, upper gastrointestinal, intravenous pyelogram, mobile, and trauma radiographic procedures. [R-1]

Prerequisite: *RAD 101, RAD 103, RAD 105, RAD 107*  
Corequisite: *RAD 102, RAD 104, RAD 106, RAD 108*

**RAD 112—Clinical Practicum 2**

1 lect., 39 lab., 2 cr. (Summer)

A continuation of Clinical Practicum 1 plus operating room. [R-1]

Prerequisite: *RAD 102, RAD 104, RAD 106, RAD 111, RAD 108*

**RAD 209—Radiographic Physics**

4 cr. (Fall)

The course focuses on the principles of x-ray generation, properties of x-rays, x-ray tube, and circuitry. In addition, advanced concepts of image production, are covered. [R-1]

Prerequisite: *RAD 112*

Corequisite: *RAD 213, RAD 217, RAD 221*

**RAD 210—Quality Assurance**

1 lect., 1 lab., 1 cr. (Spring)

The course provides an introduction to the evaluation of radiographic systems to assure consistency in the production of quality images. [R-1]

Prerequisite: *RAD 213, RAD 217, RAD 221, RAD 209*

Corequisite: *RAD 112, RAD 216, RAD 214, RAD 219*

**RAD 213—Clinical Practicum 3**

1 lect., 23 lab., 1.5 cr. (Fall)

A continuation of Clinical Practicum 2 plus Computed Tomography and special radio-graphic procedures. [R-1]

Prerequisite: *RAD 112*

Corequisite: *RAD 217, RAD 221, RAD 209*

**RAD 214—Clinical Practicum 4**

1 lect., 23 lab., 1.5 cr. (Spring)

A continuation of Clinical Practicum 3. [R-1]

Prerequisite: *RAD 213, RAD 217, RAD 221, RAD 209*

Corequisite: *RAD 210, RAD 112, RAD 216, RAD 219*

**RAD 215—Clinical Practicum 5**

1 lect., 39 lab., 2 cr. (Summer)

A continuation of Clinical Practicum 5. [R-1]

Prerequisite: *RAD 210, RAD 218, RAD 216, RAD 214, RAD 219*

**RAD 216—Advanced Imaging Modalities**

3 cr. (Spring)

The course deals with different modes of imaging the human body. Special attention is given to fluoroscopy, tomography, mamography, computed tomography and magnetic resonance imaging. In addition, this course introduces students to sectional human anatomy in the transverse, sagittal and coronal planes. [R-1]

Prerequisite: *RAD 213, RAD 217, RAD 221, RAD 209*

Corequisite: *RAD 210, RAD 112, RAD 214, RAD 219*

**RAD 217—Radiographic Positioning 3**

2 cr. (Fall)

Introduction to contrast studies including myelography, angiography, bronchography, hysterosalpingography, arthrography and sialography. In addition, advanced skull radiography is included. [R-1]

Prerequisite: *RAD 112*

Corequisite: *RAD 213, RAD 221, RAD 209*

## Radiologic Technology - Sociology

### **RAD 218—Radiation Biology**

2 cr. (Spring)

The biological effects of ionizing radiation and the basic mechanism of short-term and long-term effects of ionizing radiation are covered. [R-1]

Prerequisite: *RAD 213, RAD 217, RAD 221, RAD 209*  
Corequisite: *RAD 210, RAD 216, RAD 214, RAD 219*

### **RAD 219—Medical Terminology**

1 cr. (Spring)

This course is designed to provide terminology for those in the health professions including medical: personnel, transcriptionists, librarians, insurance examiners and the layperson.

Prerequisite: *Placement in ENG 101*

### **RAD 221—Radiographic Pathology**

3 cr. (Fall)

The disease processes of the body systems and related radiographic techniques are emphasized. Cross-sectional anatomy is included. [R-1]

Prerequisite: *RAD 112*

Corequisite: *RAD 213, RAD 217, RAD 209*

### **Physical Examination**

Physical examination is required upon admission to the program within a six-month period prior to the beginning of classes in radiologic technology and at the beginning of classes in radiologic technology of the second year. Students will not be allowed in the clinical area without a completed physical examination on file with the College.

### **Clinical**

Radiologic technology clinical courses are competency based and combine classroom theory with practical application. Students complete a series of over 50 competency evaluations as they progress through the program. Completion of these evaluations are required for graduation.

A detailed description of the clinical education requirements, pregnancy policy and costs are available upon request from the program office.

In Clinical Practicums 4 and 5, a one week evening rotation is required.

### **Transportation Costs**

Students must make their own arrangements, at their own expense, for transportation on days when classes are held off campus at hospital clinical sites.

### **Uniforms**

Radiologic technology student uniform must be worn whenever class meets off campus. The cost of uniforms is the student's responsibility.

## Sociology

(Behavioral Sciences Department)

### **SOC 101—Introduction to Sociology**

3 cr. (Fall/Spring/Summer)

This course explores those forces in our culture and social structure that lie beyond the individual's control or direct awareness, but which shape what we are, how we behave, and what we think.

Basic sociological concepts are used to develop insights and understanding. Topics such as culture, social structure, socialization, social control, groups, stratification, research methods and statistical analysis are discussed. *Fulfills category C. (GE 3)*

### **SOC 120—Social Problems**

3 cr. (Fall/Spring/Summer)

Using primarily a scientifically and statistically based sociological perspective, a variety of American social problems are examined. Included are the increasing levels of interpersonal violence and other types of deviant behavior, racism and sexism, threat of war, poverty and the welfare system, and the consequences of economic inequality. Analysis of these problems includes description, causative relationships, individual and societal dimensions, and alternative social policy responses. *Fulfills category C.*

### **SOC 220—Race, Ethnicity and Society**

3 cr. (Fall/Spring)

This course will explore the basic dynamics and processes of race and ethnic relations from a sociological perspective. Such topics as dominant-minority relations, prejudice, discrimination, assimilation, racism and antisemitism will be explored. The primary focus will be upon American society but examples from other societies will be explored as well; i.e., Brazil, Canada and Eastern Europe.

Prerequisite: *one course in sociology*

### **SOC 231—The Family**

3 cr. (Spring)

Using a sociological perspective, the institution of the family is analyzed in terms of its relationship to the changing society in which it exists. Of special interest is how these changes affect individuals within families. Topics such as mate selection, sex roles, romance and love, sexuality, communication, conflict violence, divorce and remarriage are discussed. *Fulfills category C.*

Prerequisite: *one course in sociology*

## Spanish

(Global Studies Department)

### SPN 101—Elementary Spanish 1

3 cr.

For beginners or those who have no more than one year of high school Spanish. Emphasis is placed on the language as spoken and heard. Grammar study deals mainly with the formation and use of verbs in the present tense. Situational dialogues serve as the basis for learning pronunciation, vocabulary and idioms. (GE 9)

*Note: Students who are proficient in Spanish may be placed in a more advanced course.*

### SPN 102—Elementary Spanish 2

3 cr.

Additional vocabulary and tenses of verbs are introduced until all basic constructions, including the subjunctive, have been examined. (GE 9)

Prerequisite: *SPN 101 or two years of high school Spanish or placement by instructor*

### SPN 201—Intermediate Spanish 1

3 cr.

Study of the language through a continuation of audio-lingual learning, with emphasis on review of basic grammatical patterns, improvement of reading and writing skills. Reading exercises offer insights into Spanish and Spanish-American culture. (GE 9)

Prerequisite: *SPN 102 or instructor placement*

### SPN 202—Intermediate Spanish 2

3 cr.

Emphasis is given to advanced grammatical patterns, such as the subjunctive mood and the passive voice. Conversation based on everyday vocabulary is encouraged, to help students develop further their listening and speaking abilities. (GE 9)

Prerequisite: *SPN 201 or instructor placement*

### SPN 203—Spanish Conversation and Composition

3 cr. (Fall)

Conversation based on readings chosen for their contemporary colloquial usage of active vocabulary. Students write compositions based on models of Spanish prose or poetry. (GE 9)

Prerequisites: *SPN 201-SPN 202 or three years of high school study or instructor placement*

### SPN 204—Introduction to Spanish Literature

3 cr. (Spring)

Masterworks of Spanish and Spanish-American literature are read and discussed in Spanish. (GE 9)

Prerequisite: *SPN 203 or instructor placement*

## Theatre Arts

(Arts & Communication Department)

### THE 101—Introduction to Theatre

3 cr. (Fall/Spring)

This course explores the process of theatrical creation. Lecture-demonstrations introduce the student to contemporary and historical modes of production. Class projects focus on the collaborative work of the Director, Actor, Designers and support staff. Attendance at theatre events is required. (GE 8)

### THE 103—Acting Fundamentals

3 cr. (Fall/Spring)

Study and practice in principles and techniques of acting; developing the actor's instrument. Exercises, improvisation, scene study, monologues, and audition methods are among the areas studied. (GE 8)

### THE 105—Improvisation for the Theatre

3 cr. (Fall/Spring)

This course is an examination of the theory and practice of improvisation as a performing art. Students will learn improvisational theatre games and exercises intended to develop the principles of improvisation, particularly in the tradition of Keith Johnstone. The course is intended to develop skills that supplement the techniques of scripted performance.

### THE 107—Theatre Workshop

3 cr. (Fall/Spring)

A workshop in stage play production. The emphasis is on the "hands on" application of stage craft techniques including stage lighting, stage carpentry, costuming, publicity and house management. Students crew for the department-sponsored play production by putting in 15 hours in addition to regularly scheduled class time. Attendance at three outside play performances is required. Students may repeat the course one time, with the recommendation of the instructor, for a total of six credits. (GE 8)

### THE 109—Stage Make-Up

2 lect., 2 lab., 3 cr. (Fall/Spring)

Beginning course in principles, techniques, and materials of theatre make-up. Students must purchase a basic stage make-up kit. Play production hours outside of class will be required. (GE 8)

### THE 117—Puppetry/Object Performance Theatre

2 lect., 2 lab., 3 cr. (Spring)

An introductory performance lab for puppetry and object theatre. The course covers world puppet history, object performance and ritual (mask, puppet, shadow, object), and exposes students to mature theatre works that incorporate puppet and object theatre as a powerful visual vocabulary in live

## Theatre Arts

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performance art. Traditional puppetry disciplines will be explained and explored, and students will work on all facets of puppet theatre creation (writing, design, construction, scoring, manipulation, direction), culminating in a public performance showcasing their work in group projects and individual performances. Videos of performances by master puppeteers and contemporary object theatre artists will be shown to inform and inspire students. Course may be repeated once for a total of six credits.