

## Course Descriptions

Each course is identified by an 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.

Discipline/Department	Dept. Code
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

# SUNY Orange Catalog

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
Horticulture	HRT
Human Services	HMS
Humanities	HUM
Italian	ITA
Interdisciplinary Studies	IDS
Management	MGT
Marketing	MKT
Mathematics	MAT
Medical Laboratory Technician	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

## Courses Index

### ACCOUNTING (ACC)

#### (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 applications.

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 applications.

Prerequisite: ACC 101

#### **ACC 111—Personal Finance**

3 cr. (Spring)

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: Successful completion (DVP) of MAT 020 or successful completion (DVP) of MAT 040 or placement into MAT 092 or higher.

#### **ACC 153—Financial Accounting**

4 cr. (Fall/Spring)

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: Successful completion (DVP) of MAT 020 or successful completion (DVP) of MAT 040 or placement into MAT 092 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

# SUNY Orange Catalog

---

## **ACC 201—Intermediate Accounting 1**

4 cr. (Fall)

Special emphasis is placed on accounting standards. 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. (Spring)

Continued emphasis is placed on accounting standards. 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.

Prerequisite: ACC 201

## **ACC 205—Accounting with Spreadsheet Applications**

3 cr. (Spring)

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 budgeting, depreciation, debt amortization, cost/volume/profit analysis, financing, and profit 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)

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. Prerequisite: ACC 101 or ACC 153

## **ACC 214—Accounting Practice**

4 cr. (Spring)

Topics include issues related to new company configuration. 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 needed to assume an office bookkeeping position. QuickBooks Accounting software will be introduced in this course.

Prerequisite: 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.

Prerequisite: Permission of department chair and Prerequisite ACC 102 or ACC 153; Prerequisite ACC 205; a minimum CGPA of 2.5 is also required

Pre/corequisite: ACC 214

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.

---

# **ANTHROPOLOGY (ANT)**

## **(Behavioral Sciences Department)**

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

3 cr. (Fall/Spring)

A cross-cultural approach to human behavioral diversity, through the methods of cultural anthropology. This course will explore major dimensions of global human diversity, including language, subsistence, kinship, sexuality, gender, social structures, race, ethnicity, politics, religion, and economics through cross-cultural comparisons. Throughout, the course emphasizes a holistic perspective that highlights the many intersections between these topics and analyzes them according to several theories of social change. Fulfills Category C or Fulfills Category E. (G3A, G6A)

**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. (G3A)

**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. (G3A)

**ANT 104—Archaeological Field Experience**

1 lect., 6 lab, 3 cr.

This is a three credit class 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 100 hours over four weeks.

**ANT 105—Native Nations of North America**

3 lect., 3 cr.

This course presents an anthropological, archaeological, historical, and sociological examination of the Native Peoples of North America. Through the course, students will explore the ancient pasts of Native Peoples as revealed through indigenous oral history and archaeology. The course will also cover the many ways Native Peoples were impacted by European settler colonialism as well as their reactions and resistance to that process. The course will end with a survey of important social, political, and environmental issues facing Native communities in the present. Throughout the course, an emphasis will be placed on prioritizing the voices of Native scholars and writers. (G5A)

---

## ARCHITECTURE (ARC)

**(Science, Engineering, & Arch Department)****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.

**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

Pre/corequisite: WRT 040 or ENG 098 or tested into ENG 101

**ARC 106—Building Materials and Methods 2**

# SUNY Orange Catalog

---

2 lect., 1 lab, 3 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.

Prerequisite: 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.

Pre/corequisite: WRT 040 or ENG 098 or tested into ENG 101

## **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.

Prerequisite: 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.

Prerequisite: 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.

Prerequisite: 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. Architectural Technology 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

## **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.

Prerequisite: 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 throughout 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.

Prerequisite: 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. (G8A)

**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. (G8A)

**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, with a focus on sustainable mechanical and electrical systems.

---

**ART (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. (G8A)

**ART 103—Drawing 1**

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

This course is an introduction to the basic principles, aesthetics, and processes related to the practice of drawing. Students will complete a variety of exercises and projects emphasizing the development of perceptual, manual, and conceptual abilities. Objective drawing in line and tone leads the beginning student to understand structure, imaging, and execution. The course will also introduce basic perspective methods. Various drawing media and materials are used. (GE 8A) (G8A)

**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.

Prerequisite: ART 103

**ART 107—Design 1**

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

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. (G8A)

**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. (G8A)

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. (G8A)

**ART 113—Painting 1**

# SUNY Orange Catalog

---

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

Painting 1 is an introductory studio course designed to explore traditional and nontraditional concepts and processes of painting, and the development of style. Students will create various works including still life, landscape, abstraction, and representation. Safe studio practices and protocols will be emphasized. (GE 8A) (G8A)

## **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. 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. 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. 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. Note: 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 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. Prerequisite: ART 119  
Note: 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. (Fall/Spring/Summer)

This course provides the student with an introduction to the fundamentals of digital photography with an equal emphasis on technical, aesthetic, and conceptual skills sets. The convergence of photography and digital media is explored through projects, lectures, photographic practice, readings, videos, and class critiques. Topics covered include basic digital camera functions, the history of photography, manipulation of photographs, composition, and color correction. The class highlights developing personal intention and artistic vision with an emphasis on the elements and principles of art and design. Different careers in photography are explored. Students are required to have their own digital camera, either DSLR or cell phone with a high-resolution camera. (GE 8A) (G8A) Prerequisite: Successful completion (DVP) of MAT 010 or MAT 040 or placement into MAT 020 or placement into MAT 092 or higher.

## **ART 122—Digital Photography 2**

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

Students will continue to explore creative areas while building on more specific technical skills required for professional production of digital photographs. Projects will expand students' perceptions of digital imaging in both creative and applied areas. Students will gain a deeper understanding of editing processes, image manipulation, and will create a portfolio of images by the end of the semester. Students will develop skills for camera techniques that can be used in the field and on professional assignment to achieve their desired aesthetic goals. Students are required to have their own digital camera, either DSLR or cell phone with a high-resolution camera. (GE 8A) (G8A) Prerequisite: ART 121 or permission of instructor

## **ART 123—Visual Communications and 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, persuade, and entertain an individual. Learn about current Visual Communications theories, graphic design principles, elements, typography, influential persons, and contemporary digital media, including page layout, digital imaging, and illustration software. (G8A)

**ART 124—Visual Communications and 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.

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, web comics, and strong emphasis on comic book inking.

Prerequisite: ART 103 or permission of instructor

**ART 127—History of Art 1**

3 cr. (Fall/Spring)

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. (G7A)

**ART 128—History of Art 2**

3 cr. (Fall/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 religious context. Special attention will be paid to evolution of style, technique and medium. A museum trip may be included in this course. (G7A)

**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.

**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. (G7A)

**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.

# SUNY Orange Catalog

---

## **ART 207—Non-Western Art**

3 cr. (Fall/Spring)

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.

## **ART 213—Painting 3**

3 cr.

Intermediate-level problems in painting modes and media emphasizing conceptual development from preliminary studies.

Prerequisite: ART 114

## **ART 214—Painting 4**

3 cr.

Pictorial problems concentrating on the relation of spatial structure, morphology, and symbology. Work includes landscape painting done outdoors alla prima.

Prerequisite: ART 213

## **ART 215—Portrait Painting**

3 cr.

Studio course treating the portrait as an art form with emphasis on structure and likeness. Various media are employed. Models are used.

## **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.

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.

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, 3 cr. (Fall/Spring)

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., 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.

Prerequisite: Permission of instructor and department chair

Note: Students may repeat this course for a total of four credits

---

---

## ASTRONOMY (AST)

(Science, Engineering, & Arch Department)

### 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.

(G2A)

Prerequisite: Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 or higher or permission of instructor.

---

## BIOLOGY (BIO)

(Biology Department)

### 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.

(G2A)

### 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. (G2A)

Prerequisite: BIO 101

### BIO 110—Introduction to Biology

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

An 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. (G2A)

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. (G2A)

Prerequisite: BIO 110, or BIO 101 and BIO 102

### 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. 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. (G2A)

Prerequisite: BIO 111

### BIO 113—Neurobiology

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

# SUNY Orange Catalog

---

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. (G2A)

Prerequisite: BIO 110 or BIO 101

## **BIO 120—Biology for Today**

3 lect., 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 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 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. (G2A)

## **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. (G2A)

## **BIO 144—Birds of Orange County**

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

This course offers a survey of the bird diversity in Orange County & surrounding area with an emphasis on identification, basic anatomy, life history, and behavior. Other relevant topics such as role of birds in food chains, habitats in Orange County & surrounding area and environmental issues affecting birds will also be covered.

## **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. (G2A)

**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. (G2A)

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. (G2A)

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. (G2A)

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. (G2A)

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

---

**BUSINESS (BUS)**

(Business Department)

**BUS 101—Business Mathematics**

3 cr. (Fall/Spring)

# SUNY Orange Catalog

---

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.

Prerequisite: Successful completion (DVP) of MAT 020 or successful completion (DVP) of MAT 040 or placement into MAT 092 or higher.

Note: This course cannot be used to fulfill the math/science requirement for any degree

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

3 cr. (Fall/Spring)

In this analysis of current business practices, the following topics are examined: a comparison of economic systems, forms of ownership, small business, social responsibility, management and organization, finance and investment, marketing, human resources, and international business. Topical issues are used to reinforce terminology and concepts. It is advised that business students take this course in their first semester as it is designed to provide a foundation for other business courses.

## **BUS 105—Business and Contemporary Economic Issues**

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. (G3A)

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

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

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: Successful completion (DVP) of MAT 020 or successful completion (DVP) of MAT 040 or placement into MAT 092 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, and the law of agency.

## **BUS 202—Business Law 2**

3 cr. (Fall/Spring)

This course deals with negotiable instruments; partnerships and corporations; and real and personal property.

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. (G10A, G11A)

## **BUS 205—Business Statistics**

3 cr. (Fall/Spring)

This course is required for various AS degrees in business. The course concentrates on using statistics for business world applications. The following topics are covered: descriptive statistics including measures of central tendency, and measures of dispersion, probability theory including binomial probabilities and the normal curve, inferential statistics including sample size determination, confidence intervals and hypothesis testing. Correlation and regression are also discussed. Particular attention is given to the analysis of results using real-world tools such as spreadsheets.

Prerequisite: BUS 161 or permission from the department and successful completion of MAT 101 or successful completion (DVP) of MAT 092 or placement into MAT 102 or higher.

**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: Successful completion (DVP) of MAT 020 or successful completion (DVP) of MAT 040 or placement into MAT 092 or higher.

**BUS 209—Diversity in Business**

3 cr.

The course is designed to encourage students to think critically about workplace experiences and interactions and identify how the workplace context can perpetuate bias, discrimination, and inequality. Corporations, nonprofits, and public sector organizations are increasingly being called upon to increase diversity. Students will explore the barriers and potential solutions to creating and maintaining a diverse and inclusive workforce using a combination of pedagogical tools. Theory, research and current events will be used for the evaluation of diversity, equity, and inclusion. (G6A)

**CHEMISTRY (CHM)****(Science, Engineering, & Arch Department)****CHM 100—Introduction to Chemistry**

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

A survey of the fundamental principles of chemistry and related physical laws. Only elementary mathematics 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 chemistry and radioisotopes. (G2A)

Prerequisite: Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 or higher.

Note: This course is not open to students who have successfully completed CHM 101 (formerly CHM 105), CHM 102 (formerly CHM 106), CHM 201 or CHM 202

**CHM 101—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. (G2A)

Pre/Corequisite: MAT 121 or Math Placement test into MAT 131

**CHM 102—General Chemistry 2**

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

Topics include: Chemical equilibrium, acid-base theories and equilibrium, solubility equilibria, thermochemistry, thermodynamics, chemical kinetics, nuclear chemistry and kinetics, and electrochemistry. Laboratory work includes the above topics. The keeping of a laboratory notebook, the writing of formal reports, and the use of Excel is emphasized. An understanding of algebraic rearrangements, polynomials, the quadratic equation, logarithms, natural logarithms, and graphing functions is required. (G2A) (G2A)

Prerequisite: C or better in CHM 101 (previously CHM 105) or permission of department chair

**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. (G2A)

Pre/corequisite: MAT 092 or 101 or placement into MAT 102 or higher.

Note: This course is closed to students who have completed or are currently enrolled in CHM 101 (formerly CHM 105), CHM 102 (formerly CHM 106), CHM 201 or CHM 202

**CHM 104—Applied Chemistry 2**

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

## SUNY Orange Catalog

---

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. (G2A)

Prerequisite: CHM 103 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 100 (formerly CHM 120), or permission of department chair

### **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 stereo-chemistry. Spectroscopy will be introduced. Laboratory work includes basic characterization techniques, basic synthesis, and keeping a laboratory notebook. (G2A)

Prerequisite: C or better in CHM 102 (formerly 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. (G2A)

Prerequisite: CHM 201

---

## CHINESE (CHN)

### **(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. (G9A)

#### **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. (G9A)

#### **CHN 201—Intermediate Chinese 1**

3 cr. (Fall)

The Intermediate Chinese 1 course further develops the language and cultural foundations that were set in Elementary Chinese 1 & 2, including vocabulary, pronunciation, mastery of simple conversations, and use of Chinese in social situations. An interactive and multimedia approach continues to be a key part of the effort to improve students' ability in listening, speaking, reading, and writing Chinese. (G9A)

Prerequisite: CHN 102 or instructor placement

#### **CHN 202—Intermediate Chinese 2**

3 cr. (Spring)

Intermediate Chinese 2 is the second-semester continuation of Intermediate Chinese 1. It further develops language and cultural experiences through listening, speaking, reading and writing activities. An intensified interactive and multimedia approach will be used to enhance student conversational and reading skills. (G9A)

Prerequisite: CHN 201 or instructor placement

#### **CHN 211—Chinese Conversation and Composition**

3 cr. (Fall/Spring)

This course is designed for students who have completed CHN 201 and CHN 202. It further develops linguistic command of modern Chinese and cultural experiences through listening, speaking, reading, and writing activities.

Prerequisite: CHN 202 or instructor placement

## COLLEGE & CAREER SKILLS (CCS)

(English Department)

### 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 (COM)

(Arts & Communication Department)

### COM 100—Oral Communication

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

This one-credit course is devoted to the study of oral communication. Designed to provide the student with basic theories and skills that are essential to effective public speaking, emphasis is on audience analysis, research, organization of ideas, and delivery. In addition to developing their speaking abilities, students will also learn how to successfully reduce and manage their speaking apprehension. Upon completion, students will be able to apply these skills in a variety of public speaking situations whether in academic settings, in the workplace, or in the community. (G10A)

Prerequisite: ENG 098 or placement into ENG 101 without co-requisite. Note #1: COM 100 may not be substituted for COM 101 under any circumstances. Note #2: COM 100 is restricted to students in specific majors and fulfills the SUNY G10A (oral) requirement for only the following programs: AS Engineering Science, AAS Architectural Technology (Students may not concurrently take ENG 098 and COM 100)

### 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. (G10A, G11A)

Prerequisite: ENG 098 or placement into ENG 101 without co-requisite

Note: 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

# SUNY Orange Catalog

---

3 cr. (Fall/Spring)

This introductory course in voice and speech is intended for but not limited to students who want to develop effective voice and speech habits, students who seek refinement of speech skills, and students who are studying English as a second language. The course provides intensive study of the theoretical bases of speech production, along with a range of practical experiences in achieving optimum speech potential. Emphasis is placed on articulation; developing a pleasant vocal quality; building adequate loudness; achieving effective vocal variation, pitch, and speaking rate; correcting pronunciation; and recognizing regional dialects. (G8A)

## **COM 105—Media and Society**

3 cr. (Fall/Spring)

A survey of the types and functions of various means of mass communication, from traditional media such as newspapers, magazines, radio, television, and film to new media such as the Internet, mobile communication, and social media. Included is an examination of how mass communication technologies interact and influence each other, especially the relationship between traditional and new media formats. Through the study of how mass communication impacts society and individuals, students develop the media literacy skills needed by both informed citizens and media content producers. (G7A)

Prerequisite: ENG 101

## **COM 107—Introduction to Media Production**

3 cr. (Fall/Spring)

This course is an introduction to the fundamentals of video production and equipment with an emphasis on the development of technical and aesthetic skills. Specific areas of concentration include writing and development, composition and framing, visual storytelling and articulation, basic camera operations, production organization, lighting, and introductory video editing. Students will also learn to collaborate and work together as part of a production team. (GE 8A) (G8A)

## **COM 108—Digital Video Post-Production**

3 cr. (Spring)

Building on the basic post-production skills acquired in COM 107, students learn about and implement various editing techniques and styles. This includes learning about the history and development of the art of cinematic editing. Students will master advanced editing techniques and other skills to produce polished videos ready for publication or distribution. (GE 8A) (G8A)

Prerequisite: COM 107

## **COM 111—Digital Radio Production and Podcasting**

2 lect., 2 lab, 3 cr. (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 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. (G8A)

## **COM 113—Digital Storytelling**

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

This introductory course will examine both the history and practice of storytelling, beginning with an understanding of pre-digital storytelling as a foundation to exploring an array of digital formats. Students will acquire skills ranging across current storytelling practices, documentary formats, and journalistic practices. The convergence of still photography, videography, interviewing, and other media is explored through readings, critiques, and audiovisual projects. (GE 8A) (G8A)

## **COM 115—TV Studio Production**

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

In this course students are introduced to concepts and techniques for capturing video in a television studio environment. Students learn the elements of television production including audio, lighting, editing, directing, camera operation, graphics and roles of talent. Students apply their knowledge and work together as members of a production team in a studio setting to create high quality video productions.

## **COM 201—Oral Interpretation**

3 cr. (Fall/Spring)

Students will explore the analysis and performance of all types of literature. Materials are drawn from classical and modern poetry, prose, drama, and other literary forms. Students learn how to select and evaluate literary works for oral presentation, the methods of analyzing various literary genres, and practical performance techniques. Each student presents a final program performance. (GE 8A) (G8A)

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)

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. (G8A)

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.

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 221—Cinematography**

3 cr. (Fall/Spring)

Students will learn the art of Cinematography and how it relates to the "mise en scène" of a film. Specific areas of concentration include structuring a scene, lighting, video production, and editing.

Prerequisite: COM 107 or permission of instructor and department chair

**COM 223—Screenwriting**

# SUNY Orange Catalog

---

3 cr. (Fall/Spring)

This course provides a foundation for understanding the constructs of story, character, plot/theme, and script development. Students are exposed to methods of screenwriting for both television and film. The course will focus on the basics of structure and will offer opportunities to evaluate published work as well as original script development. (G8A)

Prerequisite: ENG 101, ENG 102

## **COM 225—Sound Design**

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

Students will gain experience in sound design and how it is incorporated into different media. Emphasis is placed on creation and manipulation of audio utilizing industry standard software.

Prerequisite: COM 107

## **COM 227—Visual Effects**

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

This course is designed to introduce the art and science of visual effects for broadcast and digital filmmaking. Emphasis is placed on visual effects workflow, video technology, image processing, creating mattes, tracking, and compositing using After Effects.

Prerequisite: COM 107, COM 108

---

# COMPUTER AIDED DRAFTING (CAD)

(Science, Engineering, & Arch Department)

## **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.

Prerequisite: Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 or higher.

Pre/corequisite: ARC 101

## **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 FORENSICS (CFR)

(Computer Science & Technology Department)

## **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

---

---

## COMPUTER INFORM. TECH. (CIT)

(Computer Science & Technology 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: Successful completion (DVP) of MAT 010 or MAT 040 or math placement into MAT 020 or MAT 092 or higher

### **CIT 101—Microcomputer Applications**

3 cr.

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

### **CIT 103—Management Information Systems**

3 lect., 3 cr. (Spring)

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 and Introduction to Networking**

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

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: Successful completion (DVP) of MAT 020 or MAT 040 Or placement into MAT 092 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 include: Fundamental features of C++. Operators, Arrays and Loops, Pointers, Control Statements, Disk Files and Libraries, Structures for Lists, Sorting and Searching.

Prerequisite: Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 or higher

### **CIT 111—Internet and 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 Internet programming development environments.

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

3 lect., 3 lab, 4 cr. (Fall/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: Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 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 MAT 040 placement into MAT 101 or MAT 092 or higher

### **CIT 116—Networking 1**

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

# SUNY Orange Catalog

---

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 117—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: Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 or higher

## **CIT 118—Operating Systems**

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

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.

Prerequisite: CIT 100

## **CIT 203—Networking 2**

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

This course builds on the foundation developed in CIT 116 Networking 1 and extends the student's 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.

Prerequisite: CIT 116

## **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.

Prerequisite: 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.

Prerequisite: CIT 111, Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 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, Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 or 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 provides instruction in basic web site administration and management. Topics include contemporary web server architecture and operation, administration on a variety of different platforms and environments, and web site deployment. Assignments provide practical experience in the administration and management of web servers and services (2 lect., 2 lab, 3 cr.).  
Prerequisite: CIT 117, Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 or higher  
Pre/corequisite: CSC 138

**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 course will cover topics including general concepts, terminology, web standards and protocols, cryptography, and security for web services. Assignments provide experience in the use of scripting/programming languages to build secure enterprise web infrastructure and applications. (2 lect., 2 lab, 3 cr.)

Pre/corequisite: CSC 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 218—Systems Analysis and Design**

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

This course investigates the development of contemporary information systems. Emphasis is placed on feasibility studies and analysis of new system requirements, designing a new system, 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: Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 or higher.

Pre/corequisite: CIT 225

**CIT 225—Database Fundamentals and 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: Pre/Corequisite of either CIT 103 or CIT 105 or CIT 117, Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 or higher

**CIT 228—System Administration**

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

Introduces the students to Windows and Linux system administration and related topics, including installation, configuration, user management, file system management and security, hardware configuration, network configuration, firewalls, monitoring, and application installations. Students will participate in lecture as well as hands on labs to gain practical knowledge in various aspects of day to day system administration.

Prerequisite: CIT 117 (formerly CIT 217)

**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 (CSC)**

**(Computer Science & Technology Department)**

**CSC 101—Computer Science 1**

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

# SUNY Orange Catalog

---

This introductory course includes fundamental topics such as computer organization, control structures, input and output data, data types, arrays, strings, methods, and classes. Problem-solving techniques, algorithm design, and implementation strategies are introduced to demonstrate how these methods are used to attain solutions. Students will be introduced to object-oriented techniques.

Prerequisite: Math placement of MAT 121 or higher

## **CSC 102—Computer Science 2**

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

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 108—Web Programming 1**

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

This course introduces students to the basics of web site development. Topics include general concepts and terminology, client-side vs. server side programming, web protocols and standards, and developing interactive web sites using HTML forms and database integration. Assignments provide experience in the use of a contemporary web scripting/programming language to create dynamic web pages. (3 lect., 3 lab, 4 cr.)

Prerequisite: CIT 138, 215 Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 or higher

Pre/Corequisite: CIT 225

## **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 138—Introduction to Applied Logic Through Scripting**

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

Students will be introduced to basic coding and computational problem solving using a contemporary scripting language. Topics include the Python shell, the interpreter, problem solving techniques, variables and expressions, conditional branching, loops, objects, and basic data structures. Labs will present problems that require the student to clearly understand the task, analyze the relevant data, and develop critical thinking skills that will lead to the best possible programming solution. (G11A)

## **CSC 201—Data Structures**

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

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. (Fall)

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 101

## **CSC 205—Web Programming 2**

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

This course covers advanced web development, concentrating on database integration with a contemporary web development framework. REST interfaces will also be covered. Assignments provide experience in the use of the scripting/ programming languages to create interactive web pages. (3 lect., 3 lab, 4 cr.)

Prerequisite: CSC 108

## **CSC 227—JavaScript**

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

Students will be introduced to the JavaScript programming language. Topics include variables and expressions; conditional branching; loops; objects; and basic data structures. This class will concentrate on acquiring a working knowledge of the Document Object

Model (DOM), and develop interactive web components. JavaScript libraries will be reviewed. A JavaScript framework will also be introduced, and server-side JavaScript will be discussed. Laboratory assignments will concentrate on practical strategies for interactive website development.

Prerequisite: CIT 111, CSC 138

**CSC 232—Mobile Application Development**

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

This course introduces students to programming technologies, design, and development related to mobile applications for smartphones and tablets. Topics include mobile device architecture, programming languages, software engineering, user interface design, and app distribution. Students will learn how to build apps from start to finish, utilize tools that programmer teams use, proper version control, and collaborative programming. This is a project-based course.

Prerequisite: CSC 101

---

**COMPUTER SECURITY SYSTEM (CSS)**

(Computer Science & Technology Department)

**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

---

**CRIMINAL JUSTICE (CRJ)**

(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.

Pre/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 the social science and legal approach to controversial issues in the area of social justice, law, criminology and police studies. The course analyzes current societal issues such as diversity, inclusion and social justice. The course will analyze civil unrest, racial profiling, racial and gender bias in law enforcement hiring, hate groups, police response to diverse communities and police brutality. Fulfills Category C or Fulfills Category E. (G6A)

## **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. Fulfills Category C.

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

3 cr.

This course examines the European and American historical roots of penology as well as classic and contemporary corrections, probation and parole models. Rehabilitation, reintegration and alternatives to traditional correctional methods are evaluated. It also explores landmark legal cases involving prisoners' rights, terms and definitions germane to penal systems and issues related to race, ethnicity and gender.

Prerequisite: CRJ 101

## **CRJ 115—Constitutional Law and Criminal Procedure**

3 cr.

This course provides an analysis of the historical development of the relationship of the states to the Bill of Rights. The effect of the due process clause of the Fourteenth Amendment on the application of the Bill of Rights to the states is examined through a study of the leading Supreme Court decisions relating to criminal justice. The focus will be on the 1st, 4th, 5th, 6th, 8th and 14th Amendments to the U.S. Constitution, including their historical development and application to the states and their current effect on criminal procedure. Students will review selected court decisions to aid with their understanding of the law.

Prerequisite: CRJ 101

## **CRJ 210—Terrorism and Society**

3 cr. (Fall)

This course explores the origins and motivations of modern day terrorists and their activities. Students will examine the societal impact that terrorism has on individuals, communities and nations and will conduct assessments of contemporary terrorist threat levels. Institutional strategies to prevent, deter, mitigate, and respond to terrorist acts will also be scrutinized and students will critically assess the legal, financial, societal and logistical challenges that confront various counterterrorist efforts. Fulfills Category C.  
Prerequisite: CRJ 101 or SOC 101

**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. (Spring)

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.

Pre/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, hairs and fibers; and the microscopic examination of evidence.

Prerequisite: CRJ 101, CRJ 215

**CRJ 230—Criminal Justice Internship**

3 cr. (Spring)

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 CGPA of 2.5 or higher and have the permission of the department chair.

---

---

## DENTAL HYGIENE (DNT)

### (Dental Hygiene Department)

#### **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 patient 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 patients in the clinical setting. [R-1]

Corequisite: CHM 110, DNT 103, CPR certification

Pre/corequisite: BIO 115, ENG 101

#### **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 patients or patients 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, with emphasis on Treatment Planning. The clinical experience provides the student with the opportunity to further develop novice level instrumentation skills and assessment techniques. [R-1]

Prerequisite: CPR certification, BIO 115, CHM 110, DNT 101, DNT 103

Corequisite: DNT 104, DNT 106, DNT 108

Pre/corequisite: ENG 102, MLT 106

#### **DNT 103—Maxillofacial Anatomy and Oral Histology**

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

This course includes the study of the anatomy, embryology, histology and function of the structures of the orofacial complex and neck as foundational knowledge for the study of dental hygiene. Detailed anatomy of the teeth and periodontium and of local anesthesia is provided. Other topics include osteology, musculature, circulation, lymphatics, glands, and cranial nerves of the head and neck region.

Corequisite: CHM 110, DNT 101

Pre/corequisite: BIO 115, ENG 101

#### **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]

Prerequisite: BIO 115, CHM 110, DNT 101, DNT 103

Corequisite: DNT 102, DNT 106, DNT 108

Pre/corequisite: ENG 102, 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.

Corequisite: DNT 102, DNT 104, DNT 108

Pre/corequisite: 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. This course is designed to provide the dental hygiene student with the necessary knowledge of pharmacology to assess for medical

illnesses, adverse reactions and drug interactions that may interfere with dental treatment and oral health care. The dental hygienist will use this knowledge to work in concert with the dentist to provide appropriate therapy to the patient.

Corequisite: DNT 102, DNT 104, DNT 106

Pre/corequisite: ENG 102, MLT 106

**DNT 110—Pain Management in Dentistry**

2 lect., 2 lab, 2 cr. (Summer I)

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 treatment of possible complications and/or medical emergencies.

Prerequisite: 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] Corequisites: DNT 203, DNT 205, DNT 207

Pre/corequisite: BIO 125

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

1 lect., 15 lab, 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]

Corequisite: DNT 206

Pre/corequisite: COM 101, PSY 111, 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. Corequisites: DNT 201, DNT 205, DNT 207

Pre/corequisite: BIO 125

**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, nonsurgical periodontal instrumentation, and evaluation of the periodontium during supportive periodontal therapy. Corequisites: DNT 201, DNT 203, DNT 207

Pre/corequisite: BIO 125

**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.

Corequisite: DNT 202

Pre/corequisite: COM 101, PSY 111, SOC 101

**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

# SUNY Orange Catalog

---

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.

Corequisite: DNT 201, DNT 203, DNT 205

Pre/corequisite: BIO 125

---

## ECONOMICS (ECO)

(Global Studies Department)

### ECO 100—Introduction to Economics

3 cr. (Fall/Spring)

This is an introductory level survey course of basic economics for non-Business majors. The course will provide the foundation for higher-level economic courses. Concepts to be investigated include consumer and producer behavior; the relationship between supply, demand, and profit; the role of government in the economy; and the importance of market mechanisms in determining income and wealth distribution. International economic issues such as international trade; global warming; and global competition will also be discussed. Fulfills Category A.

Note: This course may be applicable to several programs. Consult your advisor and refer to the SUNY Orange catalog (which contains additional information relating to this course and to your program) to ensure that this course is applicable to your chosen program of study.

### 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. (G3A)

### 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. (G3A)

### 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 201 or ECO 202

---

## EDUCATION (EDU)

(Education Department)

### EDU 101—Child Development

3 cr. (Fall/Spring)

This course provides study of human development and behavior from infancy through early childhood. Topics include: physical, cognitive, social, emotional, and language development; biological and experiential influences on development; development exceptionalities; and relevant child 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 103—Introduction to Early Childhood / Childhood Education

3 cr. (Fall/Spring)

This course offers a broad look at intentional teaching and developmentally appropriate practice for pre-service teachers, focusing on teaching children from birth through sixth grade. Foundational information regarding child development, learning theories, appropriate environments and curricula, educational issues and trends, diversity, learning standards, family partnerships, and the

multi-faceted role of the early childhood/childhood professional will be addressed. Twenty (20) hours of observation outside of the college classroom are required. A grade of B- or better is required for SUNY New Paltz School of Education.

Pre/Corequisite: ENG 101

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

2 cr. (Fall/Spring)

This course is an introduction to the early childhood teaching profession, and explores the roles and responsibilities associated with classroom teaching. Emphasis is placed on fostering the development of the whole child through play experiences. Beginning lesson planning, strategies for communicating with families, positive classroom guidance, and the preparation of developmentally appropriate classroom environments are introduced. A grade of C or better is required to continue and graduate in the A.A.S./Certificate program.

**EDU 107—Protecting Children's Well-Being**

1 cr. (Fall/Spring)

This course encompasses three New York State training sessions necessary for New York State certification in several areas, including public school teaching. Upon successful completion of this course, students in attendance will receive certification in Identification and Prevention of Child Abuse, Schools Against Violence in Education (SAVE), and Dignity Act Training (DASA). Course assignments will foster deeper exploration of topics introduced in the trainings. In addition, other topics relating to the protection of children's well-being are covered in the course, such as discussions regarding Shaken Baby Syndrome and Fetal Alcohol Spectrum Disorder. 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/Spring)

This course focuses on the interaction between speaking, listening, reading and writing in the development of language and literacy in young children. Emphasis is placed on the educator's role in providing a supportive environment through the use of both small and large group instruction, play experiences, open-ended materials, storybook reading, thematic units, and print rich environments. A grade of C or better is required to continue and graduate in the A.A.S./Certificate program. A grade of B- or better is required for SUNY New Paltz School of Education.

Prerequisite: ENG 101

**EDU 111—Childhood Health and Safety**

3 cr. (Fall/Spring)

This course focuses on promoting the health, safety, and well-being of young children in partnership with their families and communities. Emphasis is placed on identifying, preventing, and managing common early childhood illnesses, safety hazards, and injuries. The USDA guidelines and recommended rules and practices of food preparation and safety will be explored in relation to meal and snack planning. A grade of C or better 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/Spring)

This course introduces developmentally appropriate and effective methods for observing, documenting, assessing, and communicating about children's development and learning. The importance of using assessment results to guide teacher decision-making will be stressed. Additionally, assessment of early childhood programs for developmentally appropriate practice will be introduced. Students will implement learned assessment methods outside the college classroom during field work experiences. Twenty-four (24) hours of field work are required. A grade of C or better is required to continue and graduate in the A.A.S. program. A grade of B- or better is required for SUNY New Paltz School of Education.

Prerequisite: EDU 101, PSY 111

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

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

This course will explore the diverse roles of the infant/toddler professional. The education and care of infants and toddlers, according to child development principles, will be discussed. Techniques to stimulate cognitive, language, physical, social, and emotional growth, and to create appropriate environments, curricula, and care will be studied. Thirty-two (32) hours of field work in diverse settings 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 105, PSY 111

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

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

This course is a combination of fieldwork and lecture. Students will gain experience in the early childhood classroom through supervised participation in a local early childhood setting where, over the course of the semester, they take on increasing responsibility in the various roles of an early childhood professional. In a weekly seminar/lecture, students discuss their field experiences

## SUNY Orange Catalog

---

and develop skills relating to the early childhood teaching profession. Emphasis will be placed on teacher discourse, classroom management, effective read alouds, developing learning centers, lesson planning, and fostering creativity and physical wellness. A grade of C or better is required to continue and graduate in the A.A.S. program.

Prerequisite: EDU 101, EDU 105, and permission of instructor/coordinator

Pre/Corequisite: EDU 109, EDU 201

Note: As per state regulations, students in EDU 203 and EDU 204 are required to provide documentation of a satisfactory physical examination, negative tuberculin test, fingerprinting through the Office of Children and Family Services, and clearance through the State Central Register.

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

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

This course is a continuation of EDU 203 and is a combination of fieldwork and lecture. Students will gain experience in the early childhood classroom through supervised participation in a local early childhood setting where, over the course of the semester, they take on increasing responsibility in the various roles of an early childhood professional. In a weekly seminar/lecture, students discuss their field experiences, ethical/professional behaviors, and develop skills relating to the early childhood teaching profession. Emphasis will be placed on managing both large and small groups, transitioning through a daily routine, planning and carrying out developmentally appropriate experiences fostering math, science, language and literacy skills, and communicating with families. Students participate in a lead teaching day, where full classroom responsibility is assumed. A grade of C or better is required to graduate in the A.A.S. program.

Prerequisite: EDU 203

Note: As per state regulations, students in EDU 203 and EDU 204 are required to provide documentation of a satisfactory physical examination, negative tuberculin test, fingerprinting through the Office of Children and Family Services, and clearance through the State Central Register.

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

3 cr. (Spring)

This course is designed to acquaint students with practical matters involved in establishing and maintaining an early childhood facility. Students will understand how to determine the need for and structure of an early childhood facility. Other topics covered include state regulations for child care centers and staff, staff recruitment, funding and budget management, center enrollment, interactions with families and community organizations, and an introduction to management techniques. A grade of C or better is required to graduate in the A.A.S. program.

Prerequisite: EDU 203

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

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

This course introduces the historical, sociological, and philosophical foundations of education. Students will examine the social purposes of education in historical and contemporary contexts, as well as the significance of social differences (socio-economic status, culture, race/ethnicity, gender, sexual orientation, religion) which have resulted in inequities in education. Students will begin to develop and express a personal philosophy of education; and examine the relationship of schooling to democratic practices and principles. Ten (10) hours of field observation outside of the college classroom are required. A grade of C or better is required for SUNY New Paltz School of Education.

Prerequisite: ENG 101

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

3 cr. (Spring)

This course introduces the importance of engaging families in reciprocal partnerships. Strategies to develop these partnerships and overcome barriers which can impede these relationships will also be emphasized. Major themes of the course include two-way communication, relationship-building, and culturally responsive teaching. Students will also reflect on the benefits of and strategies for fostering community connections. A grade of C or better is required to continue and graduate in the A.A.S./Certificate program.

Prerequisite: EDU 101, EDU 105

---

## **ELECTRICAL TECHNOLOGY (EET)**

**(Computer Science & Technology Department)**

### **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: Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 or higher

### **EET 110—Computer Applications and 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.

## **ENGINEERING SCIENCE (EGR)**

(Science, Engineering, & Arch Department)

### **EGR 101—Introduction to Engineering Design**

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.

Pre/corequisite: MAT 121 or higher

### **EGR 102—Programming for Engineers**

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.

Pre/corequisite: MAT 121 or higher

### **EGR 205—Statics**

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: C or better in PHY 104

Pre/corequisite: MAT 207

### **EGR 206—Dynamics**

3 cr. (Spring)

Study of Kinematics and Kinetics of particles and rigid bodies, absolute and relative motion, Newton's Second Law with variable accelerations in rectangular, normal-tangent and polar coordinate frames, Work and Energy, Impulse and Momentum, Mechanical Vibrations.

Prerequisite: C or better in EGR 205

Pre/corequisite: 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.

Prerequisite: PHY 104 (or PHY 105), MAT 206

### **EGR 216—Engineering Computations**

2 cr. (Spring)

## SUNY Orange Catalog

---

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.

Prerequisite: MAT 207

Pre/corequisite: 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 102 (previously CHM 106), 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 indeterminant problems. The concepts of principal stresses, principal strains and Mohr's Circle will be presented as well as well as shear and moment diagrams.

Prerequisite: EGR 205, MAT 207

---

## ENGLISH (ENG)

### **(English Department)**

#### **ENG 098—Support Module for ENG 101**

2 units (Fall/Spring/Summer)

This module is designed to provide support for students with this placement to be successful in ENG 101. Students will spend class time working in a small group context as well as individually with the instructor and have the opportunity through skill review, peer workshops, and writing assignments for additional practice in writing and research processes as well as in techniques of effective reading. A required maximum of 10 completed hours in the Reading and/or Writing Support Centers will be required based on the instructor's assessment.

Note: Students eligible to take this course must meet this criteria: (1) English placement: WRT 040 only, RDG 080 only, WRT 040/ENG 091, or both WRT 040 and RDG 080; or (2) Successful completion of both WRT 030 and RDG 070. Students enrolled in ENG 098 must pass this course in order to pass ENG 101, but passing ENG 098 does not guarantee that a student will also pass ENG 101.

#### **ENG 101—Freshman English 1**

3 cr. (Fall/Spring/Summer)

This first course in the Freshman English composition 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. (GE10 when combined with COM 101). (G10A, G11A)

Prerequisite: Placement by the English Department OR successful completion of developmental reading and/or writing coursework

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. (G12A, G7A)

Prerequisite: ENG 101

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

3 cr.

This course introduces 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, such as Homer's *The Odyssey* and Ovid's *Metamorphoses*. In addition, the course provides interdisciplinary background valuable for further courses in literature, history, the visual arts, and philosophy, as well as increases cultural literacy in general. Some research required. (G7A)

Pre/corequisite: ENG 101

#### **ENG 130—Writing for Media**

3 cr.

This introductory course familiarizes students with the basic principles and techniques of writing for the media, including TV news, commercials, public relations, and magazine and newspaper reporting.

Prerequisite: ENG 101 with a C or better  
Note: This course counts as a general elective.

**ENG 160—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 corequisite 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.

**ENG 161—Technical Writing Module**

1.5 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 corequisite 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.

**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. (G7A)

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. (G7A)

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. (G7A)

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. (G7A)

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. (G7A)

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. (G7A)

Prerequisite: ENG 101 and ENG 102

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

# SUNY Orange Catalog

---

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. (G7A)

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. (G7A)

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. (G8A)

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. (G8A)

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. (G7A)

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 stagecraft. Some research required. (G7A)

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, and 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, and Lowry. Group and individual projects further explore the field. Some research required. (G7A)

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 and analyze and support their findings as film criticism. Some literary research required. (G7A)

Prerequisite: ENG 101 and ENG 102

## **ENG 218—Latin American Literature**

3 cr.

Presented on the sophomore level, this 200-level literature course introduces students to Latin American literature. All readings, from the colonial through the contemporary periods, are in English and from several Latin American nations, including (but not limited to) Colombia, Peru, Cuba, Argentina, Mexico, Brazil, El Salvador, Honduras, Ecuador, Puerto Rico, Dominican Republic, and Chile. Representative texts examine the historical and contemporary societal factors that shape the development of Latin American identity involving race, class, and gender from various critical perspectives. Additional topics may be added by the department. Some literary research is required. (G6A, G7A)

Prerequisite: ENG 101, ENG 102

**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. (G7A)

Prerequisite: ENG 101 and ENG 102

**ENG 221—Contemporary Short Story**

3 cr.

Careful reading, analysis, and interpretation of short stories published since World War II, emphasizing varied approaches, characteristics, and styles, with some attention to development of the form. Some literary research required. (G7A)

Prerequisite: ENG 101, 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 since World War II. Some literary research required. (G7A)

Prerequisite: ENG 101, ENG 102

**ENG 223—Contemporary Poetry**

3 cr.

Careful reading, analysis, and interpretation of poetry, emphasizing varied approaches, characteristics and styles. Some research required. (G7A)

Prerequisite: ENG 101, ENG 102

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

3 cr.

A survey of the works of representative writers from Oceania, Asia, Middle East and African continent, Latin America and the Caribbean. Readings explore human relationships and individuals' place in society as well as the social structures and systems that create and perpetuate dynamics of power, privilege, oppression and opportunity that have shaped the people and writings of the regions. Some research required. (G6A, G7A)

Prerequisite: 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. (G7A)

Prerequisite: ENG 101, ENG 102

**ENG 230—African-American Literature**

3 cr.

A survey of the works of representative African American folktales and African American writers. Readings explore the construction of African American identities, communities, and social roles, as well as the societal structures and systems that create and perpetuate dynamics of power, privilege, oppression, and opportunity that have shaped African American experiences and literature. Some research is required. (G6A, G7A)

Prerequisite: ENG 101 and ENG 102.

**ENG 297—Special Studies in Literature: Science Fiction**

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. (G7A)

Prerequisite: ENG 101, ENG 102

---

---

## ENGLISH-READING (RDG)

### (English Department)

#### **RDG 060—ESL Reading**

3 lect., lab, 3 units

This course is specifically designed to offer low-intermediate to intermediate ESL students the opportunity to develop efficient reading 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 be able to practice and acquire those reading skills and strategies presented in the course.

Corequisite: RDG 061

Note: In addition to three lecture class meetings each week, students will register for a one-hour per week support module

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

#### **RDG 061—Support Module**

1 unit

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., 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 that help to increase students' potential for academic success. Much of the course is individualized. A grade of Pass (DVP) indicates that the student is ready for ENG 101/ENG 098.

Prerequisite: Placement by the English Department in RDG 070

Note: An individually scheduled weekly lab hour is required in the Reading and Writing Center

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

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

3 lect., 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*

#### **RDG 090—Integrated Reading and Writing**

4 lect., 0 lab, 4 units (Fall/Spring)

In this course, students develop critical reading, writing, and thinking skills necessary for success in college-level courses. In academic paragraphs and essays, students develop ideas in relation to challenging and complex texts.

Prerequisite: Placement by the English Department in RDG 080 and WRT 040, or successful completion of RDG 070 and WRT 030

Note: Students are required to attend the Reading and Writing Center throughout the semester for a total of 13 50-minute sessions

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

---

---

## ENGLISH-WRITING (WRT)

### (English Department)

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

3 lect., 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., 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 ENG 101.

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

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

---

**FIELD STUDIES (FLD)****(Global Studies Department)****FLD 110—Field Studies**

3 cr.

This course is designed to be taken in conjunction with International Trips offered in the Fall, or Spring terms. The course is comprised of 1 credit of seminar/lecture and 2 lab credits of in-country activity and experience. In lecture/seminar, students will gain deeper appreciation of the destination country, including, but not limited to: study of the history, culture, politics, and intellectual traditions. In the field through such activities as museums and site visits, performances, and lectures students will engage in direct experience with the cultural expressions, traditions, politics, and history of the region.

---

**FIRE SCIENCE (FIR)****(Interdisciplinary Studies Department)****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 111—Fire Hazard Properties of Materials**

3 cr.

This course will introduce the student to various chemical and physical properties of solid, liquid, and gaseous materials that contribute to their potential for fire and explosion. Reactivity and health hazards will also be examined. The student will review basic

## SUNY Orange Catalog

---

combustion chemistry and chemical terminology. The student will be introduced to identification systems for hazardous materials, transportation practices, storage practices, and fire control strategies for a wide range of flammable and combustible substances.

### **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.

Prerequisite: FIR 101 or permission of discipline coordinator

### **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.

Prerequisite: FIR 101

### **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.

---

## FIRST YEAR EXPERIENCE (FYE)

### **(First Year Experience Department)**

#### **FYE 100—First Year Experience**

1 lect., 1 cr. (Fall/Summer)

This course is designed to help students in their academic community develop skills to support academic success and degree completion. Students are encouraged to take a section that corresponds with their community, as participation provides an opportunity for students to build a connection to the college, faculty and other students with similar career goals. Students will learn about the resources available at the college, how to navigate critical technology, and develop information literacy skills. Students will be introduced to the numerous job opportunities in the field as they are guided through setting educational goals, explore discipline-specific issues, and learn about a variety of topics including the transfer and advising processes, careers, scholarships, and campus expectations. Students successfully completing the course will leave with a toolbox of skills to support their academic and professional success as well as with a stronger connection to their academic community. (G12A)

---

## FRENCH (FRE)

### **(Global Studies Department)**

#### **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. (G9A)

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.

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.

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.

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.

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.

Prerequisite: FRE 203 or placement by the instructor

**GEOGRAPHY (GEO)****(Behavioral Sciences Department)****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.

Note: 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 or Fulfills Category E. (G3A, G6A)

**GEOLOGY (GLG)****(Science, Engineering, & Arch Department)****GLG 101—Earth Science**

2 lect., 2 lab, 3 cr.

A first course for students interested in planet Earth. The four basic areas of study are: geology, meteorology, oceanography and astronomy with particular emphasis on the physical processes of the planet. Discussions include the composition of the Earth and its structure, terrestrial processes, resources, and geologic hazards such as earthquakes. Laboratory work is supplemented by field trips and self-guided research. (G2A)

**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. (G2A)

**GLG 210—Historical Geology**

## SUNY Orange Catalog

---

3 lect., 3 lab, 4 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. (G2A)

Prerequisite: GLG 101 or GLG 110

### **GLG 220—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 or GLG 210 or (GLG 101 with permission of the chair)

---

## GERMAN (GER)

(Global Studies Department)

### **GER 101—Elementary German 1**

3 cr.

For beginners or those who have no more than one year of high school German. 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.

### **GER 102—Elementary German 2**

3 cr.

This course continues the course material from GER 101. Since this section is designed to help students learn how to communicate in German in a meaningful way, the primary language of communication will be German. Students are, therefore, asked to refrain from using English (unless it becomes absolutely necessary) and should rather make use of the rare opportunity of speaking in another language and learning more about the culture of a foreign country.

Prerequisite: GER 101

---

## GREEN BUILDING (GRB)

(Interdisciplinary Studies Department)

### **GRB 1100—Introduction to Green Buildings**

3 cr.

In this course, students study the principles, methods, and equipment associated with sustainable building systems and design. Topics include ecological design, energy efficiency, passive and renewable energy, water conservation and treatment, sustainable site selection, green building materials, indoor and outdoor environmental quality, and building assessment tools.

### **GRB 1200—Introduction to Renewable Energy Systems**

3 cr.

In this course, students study the principles, methods, and equipment associated with renewable energy systems. Topics include solar, wind, biomass and biofuels, fuel cells, hydropower, oceanic energy, geothermal, and energy storage. Nonrenewable energy sources, climate change, and the economics and politics of energy are also discussed.

### **GRB 2100—Building Automation and Controls**

3 cr.

In this course, students learn the basic principles of building automation and controls for energy management. Topics include control devices, signals, logic, and applications for various systems, such as electrical, lighting, HVAC, plumbing, fire protection, security, access control, voice-data-video, and elevator systems.

### **GRB 2200—Solar and Wind Systems**

3 cr.

In this course, students learn the basic principles of photovoltaic and wind generated power, with an emphasis on how to maintain and manage these technologies, as well as the buildings with which they are associated. The key components and principles, site issues, and economic considerations of solar and wind systems are covered.

Prerequisite: GRB 1100

---

---

**GRB 2300—Commercial Electrical**

3 cr.

In this course, students learn about the essential components of the electrical systems of commercial buildings. Topics include reading commercial building plans and specifications, computing electrical loads, branch circuits and components, and electronic service equipment. Electrical considerations specific to renewable energy systems are also covered.

---

**HEALTH (HLT)****(Physical Therapist Assistant Department)****HLT 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 (HIS)****(Global Studies Department)****HIS 101—United States History 1**

3 cr. (Fall/Spring)

This course is designed to introduce students to the study of the major social, political, economic, and intellectual developments that shaped American history from the Age of Discovery through the close of the Civil War. Topics may include the emergence of the slave trade; race, class, and gender in the colonial and early National eras; the struggle for American independence; the development of the Early American Republic; territorial expansion; and the coming of the American Civil War. Special attention will be paid to the topics of diversity, agency, political participation, and the development of systems and institutions. Students will also be introduced to historiography and historical methodology. Fulfills Category A. (G4A)

**HIS 102—United States History 2**

3 cr. (Fall/Spring)

This course is designed to introduce students to the study of the major social, political, economic, and intellectual developments that shaped American history from the Reconstruction Era through Modern Day. Topics may include the emergence of the surveys the Reconstructions Era within the context of the 13, 14, and 15 Amendments, their impacts and interpretations; race, class, and gender in the in the close of the Nineteenth Century as well as in the Twentieth and Twenty-first Centuries; the change from an agrarian to an industrial society, immigration, and the labor movement. An assessment of twentieth century/twenty-first century U.S. participation in world events, as well as the balance of power between the superpowers and Third World nations are included. The Civil Rights Movement, as well as other various social movements will be discussed. Special attention will be paid to the topics of diversity, agency, political participation, and the development of systems and institutions. Students will also be introduced to historiography and historical methodology. Fulfills category A. Fulfills Category A. (G4A)

**HIS 107—Diversity and Inclusion: The American Experience**

3 cr. (Fall/Spring)

This course is about experiences and is presented as a social history of diversity and inclusion in the United States. As such, it seeks to accomplish two tasks. First, it seeks to provide students with a deeper understanding of the historical, political, cultural, and theoretical bases of diversity, inclusion and exclusion. Second, and more importantly, the course aims to have students (re)consider the history of the United States from the perspective of groups traditionally excluded, marginalized or written out of the American narrative. We will also seek to recognize those actors, movements, and forces who have worked toward inclusion. Fulfills Category A or Fulfills Category E. (G4A, G6A)

**HIS 121—World History 1**

3 cr. (Fall/Spring)

This course serves as an introduction to the historical and cultural heritage bequeathed to us from the societies of the ancient Near East, Greece, Rome, Africa, the Americas, and the ancient civilizations of eastern and southern Asia. Our primary focus will be on the acquisition of the basic skills needed to evaluate, analyze, and understand the principle events and the most important historical

---

# SUNY Orange Catalog

---

figures of these periods. We will also become familiar with the essential chronology, geography, and the political/social institutions of the various societies we will encounter. While the structure of the course is essentially chronological, our main emphasis will be on several key themes that will guide our exploration of Western history. These themes are: 1) the relationship between society and notions of the divine world, 2) the relationship between society and the natural world, 3) the forms and varieties of political, social, military, and religious organization, 4) the shaping of individual and collective identity, and 5) the interaction and competition between states, religious authorities, and/or cultures. We will also gain some familiarity with the variety of sources – both material and literary – from which historians construct interpretations of the past. We will learn how to evaluate, analyze, and interpret those historical sources. There are no prerequisites for this course, although an interest in history, healthy curiosity, and a willingness to think carefully about these societies and cultures would be an advantage. Regular attendance, participation and a commitment to complete reading assignments, quizzes, papers, and exams is essential. Fulfills Category D. (G5A)

## **HIS 122—World History 2**

3 cr. (Fall/Spring)

This course traces major developments in World History since 1500, including European expansion, colonialism and imperialism and the responses of other peoples and regions, the Trans-Atlantic Slave Trade and the Enlightenment, the Industrial Revolution, the French Revolution and other social upheavals, liberalism, nationalism and socialism, World War I, World War II, the Cold War and de-colonization, and contemporary economic, social and environmental crises and responses up to the present time. Fulfills Category D. (G5A)

## **HIS 203—History of African-Americans**

3 cr. (Fall/Spring)

This course offers a survey of the history of Africans and African-Americans in the British North American colonies and the United States, from the beginnings of the forced migration of enslaved Africans to the Americas to the present day. The course will address the many political, cultural, social, labor, and literary events and movements that shaped African and African-Americans, & that Africans & African Americans helped to shape. Fulfills Category A. (G4A)

## **HIS 204—The American Civil War and Reconstruction**

3 cr. (Fall/Spring)

This course will examine American history from the mid-1840s to the late 1870s, with a primary focus on the Civil War and Reconstruction. Emphasis will be placed on issues of race, gender, politics, economics, society, and military matters. The institution of slavery will be analyzed in the context of the section rift it caused among the American population and how it was a major factor in bringing about the Civil War. In addition, the Reconstruction Era as well as the impact of the 13th, 14th, and 15th Amendments in the United States and what that meant—and didn't mean—for the American people will be explored. Fulfills Category A. (G4A, G6A)

## **HIS 205—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. Fulfills Category D.

## **HIS 219—Ancient Asia**

3 cr. (Spring)

This course provides a historical introduction to the ancient civilizations of India, China, and Japan. The great empires and dynasties of these countries will be explored along with the religious, philosophical, and cultural traditions that developed in ancient India, China, and Japan. Fulfills Category D. (G5A)

## **HIS 220—Modern East Asia: China, Japan and Korea**

3 cr. (Fall)

A study of the histories of China, Japan and Korea, focusing on the modern period. Topics include religion, social, political and cultural traditions and transformations, international relations and the role of these countries in our contemporary world. Fulfills Category D. (G5A)

## **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 include religion, social, political and cultural traditions and transformations, international relations and the role of this region in our contemporary world. Fulfills Category D. (G5A)

## **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. (G5A)

**HIS 223—Latin American 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. (G5A)

**HIS 224—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. (G5A)

**HIS 230—The Greek and Roman World**

3 cr. (Fall/Spring)

This class examines the history, culture, and significance of ancient Greece and Rome, from the first Neolithic villages in Greece and Italy through to the collapse of Roman political institutions. Particular attention will be paid to the formation and development of Greek and Roman political, social, military, and cultural institutions, such as the city-state, Athenian democracy, the Roman Republic and Principate, ancient theater, philosophy, warfare, and the origins and development of early Christianity. Along the way, we will gain considerable familiarity with the interpretation of a variety of sources – both material and literary. There are no prerequisites for this course, although an interest in history and culture, healthy curiosity, and a willingness to think carefully about human societies and cultures would be an advantage. Fulfills Category D. (G5A)

**HIS 231—Medieval and Renaissance Europe**

3 cr. (Spring)

This course serves as an introduction to the historical and cultural heritage bequeathed to us from the societies of Europe from the collapse of the Roman Empire (ca. 500) to the beginning of the European age of Discovery (ca. 1500). Our primary focus will be on the acquisition of the basic skills needed to evaluate, analyze, and understand the principle events and the most important historical figures of this period. We will also become familiar with the essential chronology, geography, and the political/social institutions of the various societies we will encounter. While the structure of the course is essentially chronological, our main emphasis will be on several key themes that will guide our exploration of medieval history. These themes are: 1) the growth and development of Christianity 2) the creation of “medieval” culture out of its Roman, Germanic, and Christian roots 3) the evolution of political and religious authority 4) the (re) shaping of individual and collective identity, and 5) the interaction and competition between the Catholic Church and secular authorities. We will also gain some familiarity with the variety of sources – both material and literary – from which historians construct interpretations of the past. We will learn how to evaluate, analyze, and interpret those historical sources. There are no prerequisites for this course, although an interest in history, healthy curiosity, and a willingness to think carefully about these societies and cultures would be an advantage. Fulfills Category D. (G5A)

**HIS 232—The Age of Revolutions**

3 cr. (Fall)

This course examines the social, political, and economic revolutions that shook the Early Modern Atlantic World (c. 1450-1850) through the lenses of race, class and gender, and from the perspectives of those traditionally written out of the historical narrative. Focusing on topics of power, rights, inclusion, exclusion, and agency, the course will examine the ways in which common people shaped and experienced moments of upheaval and transformation. By exploring the histories and historiographies of revolutions, the course will consider the ways in which marginalized groups impacted and were impacted by existing and emerging structures of inequality, privilege, oppression, and opportunity. Fulfills Category D or Fulfills Category E. (G5A, G6A)

**HIS 233—Modern Europe**

3 cr. (Fall/Spring)

This course is a survey of the political, economic, social, and cultural history of the European nations starting with the Congress of Vienna to the modern day. The changes in political, social, cultural, and economic events, inclusive of the industrialization of society, and the national, class, ethnic, race, and gender conflicts that dominated this time period, inclusive of their ideological aspects, will be explored. Some topics considered are nationalism, imperialism, Communism, Fascism, the two World Wars, the Cold War, the post USSR nations and a united Europe with an emphasis on humanity’s disillusionment with the promises of earlier generations. Students will also be introduced to historiography and historical methodology. Fulfills Category D. (G5A, G6A)

**HIS 234—The History of Russia and Eastern Europe**

3 cr. (Fall-evening)

## SUNY Orange Catalog

---

This course surveys Russian and Eastern European history from the late Roman Era to the present, including the migrations of Slavs, Hungarians, Jews, and others, tensions between Catholic, Orthodox and Protestant Christianity, the development of a distinctive Jewish culture and its eventual destruction in the Holocaust, the situation of other minorities such as the Roma (Gypsies), Tatars and Karaites, the effects of nationalism, wars and invasions on the region, and the rise and fall of the empires of Lithuania, Poland, Austria-Hungary, Tsarist Russia, and the Soviet Union, ending with the current state of post-Soviet Russia and Eastern Europe. Fulfills Category D. (G5A)

---

## HONORS (HON)

### (Honors Department)

#### **HON 120H—Honors Service Learning**

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

This one semester service course, required of all Honors Program students, provides an opportunity for students to gain service learning experience, both within the college and in the broader community. Plenary meetings and course materials overview volunteering opportunities and instruction on developing a record of experiences. Students propose and/or organize service activities, maintain logs, and provide a presentation of activities and learning experiences. The course may be taken twice for credit.

#### **HON 201H—Honors Seminar**

1 cr.

Cross disciplinary in nature, the honors seminar provides students an opportunity to study various topics from at least four different academic perspectives. Students participate in class discussions, maintain journals and complete projects. Completion of three one-credit seminars is required.

#### **HON 290H—Honors Capstone I: Planning and Research**

1.5 cr. (Fall)

This course (the first half of a two-semester capstone sequence required of all Honors Program students) provides an opportunity to synthesize information and skills acquired in the program. Students choose argument topics or conduct original research. Class sessions help develop the skills and process necessary to complete their project and presentation. Weekly meetings with assigned faculty mentors provide discipline-based knowledge, guidance, and support. This course focuses on the planning, research, and elements needed to complete the initial stages of the capstone.

Prerequisite: ENG 101, ENG 102; cumulative CGPA of 3.2 and/or permission of the Honors Program Coordinator

#### **HON 291H—Honors Capstone II: Writing and Presentation**

1.5 cr. (Spring)

This course (the second half of a two-semester capstone sequence required of all Honors Program students) continues the process of synthesizing information and skills acquired in the program. Students complete their argument topics or original research from Capstone I. Class sessions focus on revising to create a final paper and transforming that paper into a public presentation. Weekly meetings with assigned faculty mentors provide discipline-based knowledge, guidance, and support. This course focuses on the completion of the capstone project.

Prerequisite: HON 290H, cumulative CGPA of 3.2 or permission of Honors Program Coordinator

---

## HORTICULTURE (HRT)

### (Biology Department)

#### **HRT 101—General Horticulture**

3 cr. (Fall)

The course covers essential information required for a basic understanding of horticulture. Subjects range from those necessary to describe plants (morphology and anatomy), understand elementary soil science, metabolism, flowers, fruits, reproductive methodologies, growth substances, photoperiods, plant nutrition, weed management, pest management, plant propagation, organic farming and gardening, sustainable landscapes, urban forestry, applied ecology and related horticultural subjects. The course provides practical experiences from lecture, lab, and field trips. The course provides experience in: observation, hypothesis development, data collection, experimentation, evaluation of evidence, and mathematical modeling/data analysis. This course is designed for students with little or no academic background in horticultural sciences. (G2A)

#### **HRT 150—Horticultural Cannabis**

3 cr. (Spring)

The course covers essential information required for a basic understanding of the horticulture of *Cannabis sativa*. Subjects range from those necessary to describe plants (morphology and anatomy), understand elementary soil science, metabolism, flowers, fruits, reproductive methodologies, growth substances, plant nutrition, pest management, plant propagation, organic farming, and related horticultural subjects. The course discusses the history and classification of *Cannabis* and its horticulture, focusing on primary production and processing technologies, chemistry (e.g., THC, CBD, fatty acids, fiber content, adulteration), legal and regulatory issues, and agricultural commercialization of *Cannabis* crops. This course will provide students with a foundation of the scientific and technical background to understand how cannabis is grown and made into consumer products. (G2A)

Prerequisite: HRT 101 with a grade of C or Better

### **HRT 220—Horticulture Internship**

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

An internship is a 90 hour 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 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.

Prerequisite: C or better in HRT101 and HRT150

---

## **HUMAN SERVICES (HMS)**

### **(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. Fulfills Category E. (G3A, G6A)

Note: 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. (Fall)

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.

Prerequisite: C or better in HMS 101, PSY 111, and SOC 101 or 120. Overall CGPA of 2.0 or higher. Completion of departmental orientation. Permission of department chair or coordinator.

Corequisite: ENG 160

#### **HMS 202—Field Experience 2**

2 cr. (Spring)

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.

Prerequisite: C or better in HMS 201; permission of department chair or coordinator

Corequisite: ENG 161

---

---

## HUMANITIES (HUM)

### (Interdisciplinary Studies Department)

#### **HUM 201—Introduction to Humanities: Ancient to Early Renaissance**

3 cr.

This course is a survey of the development of Western culture from early humans to the early, including a study of other important influences from Africa, Asia, the Middle East, and the Americas, on social, economic and cultural development. It examines the ideas, theories and cultural artifacts (including the arts, literature, philosophy, religion and law) that helped define these times, peoples, and places, with attention paid to topics of race/ethnicity, gender/sexuality, nationality and class, noting stories and artifacts that are highlighted and excluded from general discussion and narratives of power and culture. (G6A, G7A)

Prerequisite: ENG 101

Note: class field trips may be required. Students are responsible for transportation and fees. GE 7A & GE 6A

#### **HUM 202—Intro to Humanities 2: Renaissance to the 1900**

3 cr.

This course is a survey of the development of Western culture from the Renaissance to 1900, including a study of other important influences from Africa, Asia, the Middle East, and the Americas, on social, economic and cultural development. It examines the ideas, theories and cultural artifacts (including the arts, literature, philosophy, religion and law) that helped define these times, peoples and places, with attention paid to topics of race/ethnicity, gender/sexuality, nationality and class, noting stories and artifacts that are highlighted and excluded from general discussion and narratives of power and culture. (G6A, G7A)

Prerequisite: ENG 101.

Note: class field trips may be required; students are responsible for transportation and fees.

#### **HUM 203—Introduction to Humanities 3: 1900 to the Contemporary**

3 cr.

This course is a survey of the development of Western culture and society from 1900 to the present. It also considers the important influences of contemporary non-Western societies. Topics include history, the arts, the sciences, social sciences, literature, philosophy, religion, and law.

Prerequisite: ENG 101

Note: Class field trips are required, students are responsible for transportation and fees

---

---

## INTERDISCIPLINARY STUDIES (IDS)

### (Interdisciplinary Studies Department)

#### **IDS 114—American Civil Rights Movements**

3 cr.

This interdisciplinary course explores the historic and ongoing struggles on the part of minority and marginalized groups to dismantle the social, cultural, political and economic barriers that prevent them from fully enjoying the promise of American democracy. Using African Americans' struggle for freedom and rights as a framework, the course considers similar movements by women, LGBTQIA + persons and other marginalized groups seeking recognition, rights, and equality. Additionally, the course assesses the sources and consequences of racism, discrimination, prejudice, misogyny, homophobia, and other ideas of difference that create and foster inequality. Fulfills Category A or Fulfills Category E. (G4A, G6A)

#### **IDS 115—Introduction to Gender**

3 cr.

This is an introductory and foundational course on the key concepts, themes, theories and methods of the study of gender and sexuality. It examines gender as an outcome of biological, social and cultural systems and introduces students to basic concepts such as gender, sex, sexuality, gender differences and gender socialization. It explores how gender concepts and behaviors shape and are shaped by larger social institutions, including, but not limited to, class divisions, race, ethnicity, media, philosophy/religions, educational and economic systems, and governments. Special attention is paid to the role that social structures and systems play in the creation and perpetuation of the dynamics of power, privilege, oppression, and opportunity related to gender. Prerequisite ENG 101 Fulfills Category C or Fulfills Category E. (G3A, G6A)

#### **IDS 151—Introduction to Sustainability**

3 cr.

This course will explore meanings of sustainability, including its historical context and application to contemporary global society.

---

---

## ITALIAN (ITA)

### (Global Studies Department)

#### **ITA 101—Elementary Italian**

3 cr.  
For beginners. A basic course in grammar, punctuation, conversation, and reading. Contemporary Italian culture is discussed.

#### **ITA 102—Elementary Italian**

3 cr.  
For beginners. A basic course in grammar, punctuation, conversation, and reading. Contemporary Italian culture is discussed.

#### **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

---

---

## JAPANESE (JPN)

### (Global Studies Department)

#### **JPN 101—Elementary Japanese 1**

3 cr.  
A first year, introductory level course in spoken and written Japanese for students who have not previously studied the language. The class utilizes an interactive approach to develop students' listening, speaking, reading and writing skills, as well as basic vocabulary. The class also explores cultural and historical factors that are relevant to understanding the language.

---

---

## MANAGEMENT (MGT)

### (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: Successful completion (DVP) of MAT 020 or successful completion (DVP) of MAT 040 or placement into MAT 092 or higher.

#### **MGT 203—Entrepreneurship**

3 cr. (Fall/Spring)  
This course is designed for individuals who wish to start a business, for those who are already in business for themselves, and for those who seek entrepreneurial opportunities in an established company. Emphasis is placed on strengthening the organizational skills of the business manager. The issues of business entrepreneurship are analyzed through discussions and business plan development.  
Prerequisite: Successful completion (DVP) of MAT 020 or successful completion (DVP) of MAT 040 or placement into MAT 092 or higher.

#### **MGT 205—Human Resource Management**

# SUNY Orange Catalog

---

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: Permission of department chair and prerequisites MGT 201, MGT 205; a minimum CGPA of 2.5 is also required

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 (MKT)**

### **(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: Successful completion (DVP) of MAT 040 or successful completion (DVP) of MAT 010 or placement into MAT 020 or placement into MAT 092 or higher.

#### **MKT 115—E-Marketing Principles**

3 cr. (Fall)

This course explores how web-based applications, services, and social networks are used to identify and target customers. E-Marketing integrates online and offline strategies. Students will learn data mining techniques and develop a social media marketing campaign.

#### **MKT 201—Principles of Advertising**

3 cr. (Fall)

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: BUS 103 and MKT 101 are the recommended pre- or co-requisite courses for Business majors

#### **MKT 202—Salesmanship**

3 cr. (Spring)

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 (MAT)

### (Mathematics Department)

#### **MAT 010—Fundamentals of 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, decimals, and percents. Areas 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: Placement in MAT 010

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

#### **MAT 020—Fundamentals of 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.

Prerequisite: Successful completion (DVP) of MAT 010 or placement in MAT 020

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

#### **MAT 030—Fundamentals of Mathematical Reasoning**

4 units (Fall/Spring)

Designed for students who are non-STEM majors. This course focuses on math for everyday life. Topics include fluency with numbers, proportional reasoning, data interpretation, algebraic reasoning, modeling, and communicating quantitative information. Mathematical concepts are investigated through group problems and class discussions based on real-life contexts of citizenship, personal finances, and medical literacy. This course is not intended for students who plan to major in math, science, engineering, technology or business. This course does NOT satisfy the prerequisite for MAT 101.

Prerequisite: Successful completion (DVP) of MAT 010 or placement in MAT 020 or MAT 030

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

#### **MAT 040—Beginning Algebra**

4 units (Fall/Spring/Summer)

This course is designed for students who need a review of arithmetic and basic algebra. Topics include operations on rational numbers, exponents, order of operations, evaluating and simplifying variable expressions, solving linear equations and inequalities, analyzing linear equations with two variables, and solving systems of linear equations. This course is intended to help students alleviate mathematics anxiety and develop self-confidence to continue studying mathematics.

Prerequisite: Placement of MAT 040

Note:

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

#### **MAT 092—Corequisite Support Module for Intermediate Algebra**

2 units (Fall/Spring/Summer)

This is a mandatory corequisite course in conjunction with MAT 102 (Intermediate Algebra) for students who place into MAT 102 with corequisite support or who successfully complete MAT 040. This course is designed to provide the necessary support for students to be successful in MAT 102. Topics include operations on rational numbers, evaluating and simplifying variable expressions, solving linear equations, polynomial operations, and exponent rules.

Prerequisite: Successful completion of MAT 040 or placement into MAT 092 or higher

Corequisite: Corequisite: MAT 102

Note: Passing MAT 092 does not guarantee that a student will also pass MAT 102.

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

#### **MAT 094—Corequisite Support Module for Introduction to Statistics**

1 unit (Fall/Spring)

# SUNY Orange Catalog

---

This is a mandatory corequisite course in conjunction with MAT 120 (Introduction to Statistics) for students who place into MAT 120 with corequisite support or who successfully complete MAT 040 or MAT 030. This course is designed to provide the necessary support for students to be successful in MAT 120. Topics include translating verbal phrases into variable expressions, operations on real numbers, study skills, and supplemental instruction in statistics

Prerequisite: Successful completion (DVP) of MAT 040 or MAT 030 or placement into MAT 094 or higher

Corequisite: Corequisite: MAT 120

Note: Passing MAT 094 does not guarantee that a student will also pass MAT 120

*\*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 linear 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: Successful completion (DVP) of MAT 020 or placement in MAT 101

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

## **MAT 102—Intermediate Algebra**

3 cr. (Fall/Spring/Summer)

This course is designed for students who need to develop the skills necessary for further study of algebra. Topics include factoring, rational expressions, radical expressions, complex numbers, and quadratic equations and applications. This course is intended for students who are on a STEM path. (G1A)

Prerequisite: C or better in MAT 101 or successful completion (DVP) of MAT 040 or MAT 092 or placement into MAT 092 or placement into MAT 102. Students who have successfully completed MAT 040 or who place into MAT 092 are eligible to take MAT 102, but must also take the mandatory MAT 092 corequisite course Not open to students who have successfully completed MAT 121 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*

## **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 a clear understanding of and ways of communicating the major concepts and skills taught in elementary school math. Concepts covered include problem solving; set theory; logic; different base number systems; whole numbers, integers, rational numbers, and real numbers; and number theory. This course is for those students interested in pursuing teaching certification in early childhood or childhood education. (G1A)

Prerequisite: C or better in MAT 102 or placement in MAT 121 or higher

## **MAT 113—Mathematics for the Liberal Arts**

3 cr. (Fall/Spring)

A liberal arts mathematics survey course. Topics are drawn from the areas of sets, logic, rational and real numbers, numeration systems, statistics, probability, patterns of numbers, and modular systems. (G1A)

Prerequisite: Successful completion (DVP) of MAT 030 or MAT 040, C or better in MAT 101 or placement in MAT 092 in higher

Note: 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 120—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, and 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; chi-square test; confidence intervals, hypothesis testing; and linear regression. (G1A)

Prerequisite: Successful completion (DVP) of MAT 030 or MAT 040 or MAT 094 or successful completion (D- or higher) of MAT 102 or C or better in MAT 101 or placement into MAT 102 or higher or placement into MAT 094. Students who have successfully completed MAT 030 or MAT 040 or who place into MAT 094 are eligible to take MAT 120, but must also take the mandatory MAT 094 corequisite course.

Note: If a student passes MAT 092, but does not successfully complete MAT 102, that student will need to take MAT 094 as a mandatory corequisite to MAT 120

**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 and conic sections. (G1A)

Prerequisite: C or better in MAT 102 or placement in MAT 121

Note: MAT 121 and MAT 122 together form a pre-calculus sequence. MAT 121 is not open to students who have completed MAT 131.

**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, and oblique triangles. (G1A)

Prerequisite: C or better in MAT 121

Note: MAT 121 and MAT 122 together form a pre-calculus sequence. MAT 122 is not open to students who have completed MAT 131.

**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. (G1A)

Prerequisite: Placement in MAT 131

Note: MAT 131 is not open to students who have completed MAT 121 or MAT 122

**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, or MAT 122.

**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. (G1A)

Prerequisite: C or better in MAT 122 or MAT 131, or Placement of MAT 205

**MAT 205—Calculus 1**

4 cr. (Fall/Spring/Summer)

Analytic geometry topics are introduced as needed to carry out the orderly development of the calculus. Topics include limits, continuity, derivatives & differentiation, implicit differentiation, Rolles' Theorem and Mean Value Theorem, applications of differentiation (related rate problems, optimization problems), First & Second Derivative Tests (relative extrema and increasing/decreasing intervals), points of inflection and concavity, limits at infinity (horizontal asymptotes), curve sketching, differentials, antidifferentiation, area of bounded region using summations, Riemann Sums, the definite integral and the Fundamental Theorem of Calculus. (G1A)

Prerequisite: C or better in MAT 122 or C or better in MAT 131, or placement in MAT 205

# SUNY Orange Catalog

---

## **MAT 206—Calculus 2**

4 cr. (Fall/Spring/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. (G1A)

Prerequisite: C or better in MAT 205.

## **MAT 207—Calculus 3**

4 cr. (Fall/Spring/Summer)

Covers three areas of discourse: vector analysis, partial differentiation and multiple integration. Specific topics include: conic sections, analysis of vectors in two and three space as well as their development as vector functions, directional derivatives, gradients, tangent planes, surface extremes, exact differentials, volume, surface area, moments, Green's theorem, and line integrals. (G1A)

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  $R^2$ ,  $R^3$ , and  $R^n$ , systems of linear equations, determinants and matrices, vector spaces, linear independence and basis, linear transformations, eigenvalues and eigenvectors, and diagonalizations. (G1A)

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, and an introduction to partial differential equations. (G1A)

Prerequisite: C or better in MAT 207

---

# **MEDICAL LAB TECHNOLOGY (MLT)**

## **(Clinical Laboratory Science Department)**

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

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

Overview of the 10 systems of the human body in health and disease with emphasis on the physiology of the human. Introduction of terminology relative to each system will be discussed. Laboratory exercises relate structure to function. Human materials and models are used. [R-1]

Corequisite: MLT 103, MLT 105

Note: MLT 101 (with laboratory) can be applied to the liberal arts science requirement for associate degrees or the Medical Laboratory Technology program

### **MLT 102—Urinalysis and Body Fluids**

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

This course provides a study of the urinary system, its structure and function and the processes that result in the formation of urine. The course will explore the collection and analysis of urinary samples with regard to physical, chemical and microscopic components. The clinical significance of urinary test results will be discussed as well as their correlation with disease states. The course will also explore body fluids and the analysis methods used in the laboratory. [R-1]

Prerequisite: MLT 101, or BIO 111 and BIO 112

### **MLT 103—Immunology**

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

The study of the immune system including its components and their functions. Lecture topics will cover antibody and antigen structure and function, humoral immunity, cell-mediated immunity, and the complement system. Lab topics include pathological conditions and the test methods used to help diagnose them. [R-1]

Corequisite: MLT 101, MLT 105

### **MLT 104—Hematology**

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

Lecture topics include blood cell formation and function, the coagulation system, and the corresponding laboratory tests. Both normal and pathological states including anemias, leukemias, hemoglobinopathies and coagulopathies will be covered. Laboratory exercises focus on manual, semi-automated and automated techniques with an emphasis on the CBC and manual differentials. [R-1]

Prerequisite: MLT 101, MLT 103, MLT 105

**MLT 105—Introduction to Laboratory Science**

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

An overview of the clinical laboratory profession with emphasis on basic skills. Topics discussed include lab safety, venipuncture procedure, specimen collection and handling, basic instrumentation, solutions/dilutions, quality control/quality assurance, ethics, accrediting agencies, laboratory departments and laboratory operations. [R-1]

Corequisite: MLT 101, MLT 103

**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]

Pre/corequisite: BIO 110 or BIO 111

**MLT 109—Phlebotomy**

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

A 15-week, 210-hour certificate course where the student is trained in drawing and handling blood samples for laboratory testing in hospitals, doctors' offices, and large service laboratories. Training includes a minimum of 120 hours of clinical experience and a minimum of 100 successful unaided collections. Students learn a variety of collection techniques, have contact with various patient types, and learn in a variety of settings. Approved methods, safety, medical terminology, anatomy, laboratory procedures, and professional conduct are discussed in lecture. Students are eligible to sit for the ASCP National Certification Examination upon successful completion of the NAACLS-approved course of study. See Medical Laboratory Technician course sequence pages for NAACLS address and phone number.

**MLT 110—Fundamentals of Medical Physiology**

3 lect., 3 cr. (Spring)

Overview of the ten systems of the human body in health and disease with emphasis on the physiology of humans. Introduction of terminology relative to each system will be discussed. [R-1]

Note: This course does not include a laboratory component but fulfills the liberal arts science requirement for associate degrees

**MLT 200—Clinical Applications and Review**

2 lect., 2 cr. (Spring)

This course is designed to be a capstone course that allows the student to apply the knowledge gained in the program and review pertinent material for the licensure/certification examinations. The student will research and present various case studies related to all of the laboratory disciplines, statistics, instrumentation and ethics. The student will review mock certification exams which will be discussed in class. [R-1]

Prerequisite: MLT 101, MLT 102, MLT 103, MLT 104, MLT 105, MLT 203, MLT 207, MLT 209, MLT 251

Corequisite: MLT 208, MLT 212, MLT 252 or completion of all MLT courses

Note: This course is open to students in the MLT program only

**MLT 203—Immunohematology**

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

Detailed study of the theory and practice of blood banking with respect to human blood group antigens and antibodies. Lecture topics to include safety in the lab, basic principles and applications of blood bank, the major blood group systems, essentials of pretransfusion testing, clinical considerations including hemolytic disease of the newborn, adverse reactions, blood component preparation and therapy, and donor selection and screening. Laboratory exercises focus on accurate blood group typing, antibody screening and identification, DAT, and crossmatching. [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 assays of blood and 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, proteins and other analytes are discussed and studied in detail in lecture. [R-1]

Prerequisite: CHM 101 (formerly CHM 105), CHM 102 (formerly CHM 106) or CHM 103, CHM 104

# SUNY Orange Catalog

---

## **MLT 208—Clinical Chemistry 2**

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

Continued study of the composition and methods of assay of blood and body fluids. Lecture topics include lipids, enzyme kinetics, liver function tests, renal function, cardiac assessment, therapeutic drugs and toxicology. Laboratory emphasizes analytic methodologies of selected analytes. [R-1]

Prerequisite: MLT 207

## **MLT 209—General Microbiology**

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

Topics of study include classification, nomenclature, taxonomic relationships and identification of microorganisms. The physiology of microbes, pathogenic organisms and organisms of economic importance are considered. Laboratory exercises stress sterile technique, staining methods, culture of microbes, biochemical tests used in identification of microorganisms, as well as a culminating project involving the identification of an unknown organism. [R-1] (G2A)

Prerequisite: BIO 101, BIO 111, or permission of the MLT department chair

Note: This is a required course for the MLT program; this course may be used in place of MLT 106 for nursing/pre-nursing students who intend to transfer to a Bachelor's program after graduation

## **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**

lect., 6 lab, 2 cr. (Fall)

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

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

Corequisite: MLT 207

## **MLT 252—Clinical Training 2**

lect., 15 lab, 5 cr. (Spring)

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 208 and MLT 212, or completion of all MLT courses

---

# MUSIC (MUS)

## **(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. (G7A)

### **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. (G7A)

**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. (G7A)

**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. (G7A)

**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. (G7A)

**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. (Fall/Spring)

This is a hands-on course designed to give students a basic working knowledge of sound technologies in the 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 113—Introduction to Audio Recording**

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

Introduction to the basic tools and techniques used in audio recording. Areas of study include signal path; microphone characteristics and application; Pro Tools software; outboard equipment; and the practical application of studio procedures in tracking, mixing, and editing a recording.

**MUS 121—Fundamentals of Music**

3 cr. (Fall/Spring/Summer)

This course provides thorough groundwork in the rhythmic, melodic, and harmonic elements of music. Topics include pitches in different clefs, accidentals, rhythm, simple and compound meter and meter signatures, major and minor scales and key signatures, the circle of fifths, intervals, chords, and chord progressions. (G8A)

Note: This course is not required for and cannot be counted toward the A.A.S. Performing Arts: Music degree, but does prepare students for that program. May be used toward fulfillment of the SUNY Arts or elective credit requirements for A.A. and A.S. degrees.

**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. (G8A)

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. (G8A)

Prerequisite: MUS 123

Corequisite: Enrollment in a piano course

**MUS 131—Elementary Piano 1**

# SUNY Orange Catalog

---

2 cr. (Fall/Spring)

Class instruction for beginners with no previous musical training and for those wishing a refresher in piano fundamentals. Emphasizes understanding of basic music notation, the development of basic keyboard skills, and the use of simple chord patterns. (G8A)

## **MUS 132—Elementary Piano 2**

2 cr. (Fall/Spring)

A continuation of MUS 131 concentrating on understanding of more advanced notation, development of technique, and performance of more advanced rhythms and repertoire. (G8A)

Prerequisite: MUS 131 or departmental placement

## **MUS 141—Group Voice 1**

2 lect., 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.

## **MUS 142—Group Voice 2**

2 lect., 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.

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.

Note: Students may repeat course for a total of four credits

## **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.

Prerequisite: Audition and permission of instructor

Corequisite: MUS 151

Note: Students may repeat course for a total of four credits

## **MUS 155—Orchestra**

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

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.

Prerequisite: Audition and permission of instructor

Note: Students may repeat course for a total of four credits

## **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.

Prerequisite: Audition and permission of instructor

Note: Students may repeat course for a total of four credits

## **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.

Prerequisite: Audition and permission of instructor

Note: Students may repeat course for a total of four credits

## **MUS 160—Vocal Jazz Ensemble**

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

Students will study and perform compositions in the vocal jazz idiom. Principles of group performance are presented with emphasis on balance, intonation, dynamics, articulation, phrasing, expression, interpretation and stage presence. Participation in all performances is mandatory. Students may repeat course for a total of four credits.

Prerequisite: 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.

Prerequisite: Audition and permission of instructor

Note: Students may repeat course for a total of four credits

**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.

**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.

Prerequisite: MUS 163 or permission of instructor

**MUS 165—Jazz Keyboard Harmony**

2 lect., 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 231 or permission of instructor

**MUS 167—Jazz/Commercial Guitar 1**

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

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., 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—Private Instruction: Strings**

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.

Prerequisite: Music major or permission of course coordinator or department chair

**MUS 171—Private Instruction: Woodwinds**

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.

Prerequisite: Music major or permission of course coordinator or department chair

# SUNY Orange Catalog

---

## **MUS 172—Private Instruction: Brass**

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.

Prerequisite: Music major or permission of course coordinator or department chair

## **MUS 173—Private Instruction: Percussion**

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.

Prerequisite: Music major or permission of course coordinator or department chair

## **MUS 174—Private Instruction: Piano/Organ**

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.

Prerequisite: Music major or permission of course coordinator or department chair

## **MUS 175—Private Instruction: Guitar**

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.

Prerequisite: Music major or permission of course coordinator or department chair

## **MUS 176—Private Instruction: Voice**

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.

Prerequisite: Music major or permission of course coordinator or department chair

## **MUS 177—Private Instruction: Theory/Composition**

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.

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. (G8A)

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. (G8A)

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.

Corequisite: MUS 224

**MUS 231—Intermediate Piano 1**

2 cr. (Fall/Spring)

This course strengthens technical skills, understanding of style, and expressive performance. Materials include music by Classical, Romantic, and contemporary composers. (GE 8A) (G8A)

Prerequisite: MUS 132 or departmental placement

**MUS 232—Intermediate Piano 2**

2 cr. (Fall/Spring)

A continuation of Intermediate Piano 1 building on previous work with an emphasis on technique, sight reading, pedaling, phrasing, and interpretation. Students perform more challenging compositions in various styles. (GE 8A) (G8A)

Prerequisite: MUS 231 or departmental placement

**MUS 233—Advanced Piano 1**

2 cr. (Fall/Spring)

This course includes more advanced technical studies, repertoire, and development of memorization. (GE 8A) (G8A)

Prerequisite: MUS 232 or departmental placement

**MUS 234—Advanced Piano 2**

2 cr. (Fall/Spring)

Materials of increasing difficulty for solo and ensemble.

Prerequisite: MUS 233

---

**NURSING (NUR)****(Nursing Department)****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: NUR 101

*\*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 2: 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: NUR 102

**NUR 030—Support Module for Nursing 3**

1 unit

# SUNY Orange Catalog

---

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: NUR 201

## **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: NUR 202

## **NUR 101—Nursing 1: Fundamentals**

4 lect., 9 lab, 7 cr.

This course 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]

Corequisite: 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]

Prerequisite: 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.

Prerequisite: Tested into MAT 101 or by permission of 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 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]

Prerequisite: ENG 101, ENG 102, BIO 112 with C or higher, MLT 106 with C or higher, and grade of 75% (C) or higher in NUR 102

Pre/corequisite: NUR 205, PSY 111

## **NUR 202—Nursing 4: Physical and Mental Illness**

6 lect., 12 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]

Prerequisite: PSY 111 and grade of 75% (C) or higher in NUR 201 and NUR 205

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). This course runs 13 weeks to allow time for students to take NUR 203 at the end of the semester.

**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: Grade of C or higher in NUR 101, NUR 102, NUR 201, NUR 202, NUR 205

**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.

Prerequisite: Grade of C or higher in NUR 101

Pre/corequisite: Grade of C or higher in BIO 112

**NUR 207—Advanced Clinical Calculations for Medication Administration**

1 lect., 1 cr.

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.

Prerequisite: NUR 112 or NUR 102 or permission of instructor

---

**OCC THERAPY ASSISTANT (OTA)****(Occupational Therapy Department)****OTA 101—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 settings. Students must pass both Level I field observation evaluations in order to pass this course. (Malpractice insurance fee applied) [R-1]

Prerequisite: Admission to OTA program

Corequisite: OTA 103, OTA 105, OTA 107

Pre/corequisite: BIO 111

**OTA 102—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. (Lab fee applied) [R-1]

Prerequisite: BIO 111, OTA 101, OTA 103, OTA 107

Corequisite: OTA 104, OTA 106

Pre/corequisite: BIO 112, PSY 220

**OTA 103—Occupational Performance I**

3 lab, 1 cr. (Fall)

The emphasis of this course 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. (Lab fee applied) (R-1)

Prerequisite: Admission to the OTA program

# SUNY Orange Catalog

---

Corequisite: OTA 101, OTA 105, OTA 107

Pre/corequisite: BIO 111

## **OTA 104—Occupational Performance II**

3 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 service learning community projects, problem-based learning and evidence-based practice research projects. (Lab fee applied) [R-1]

Prerequisite: BIO 111, OTA 101, OTA 103, OTA 105, OTA 107

Corequisite: BIO 112, OTA 102, OTA 106

Pre/corequisite: PSY 220

## **OTA 105—Skills Practice Lab**

lect., .5 lab, .5 cr.

This course is an introductory skills practice lab with hands-on training and treatment techniques. Emphasis is on the introduction of skills needed as an OTA, such as range of motion, manual muscle testing, physical agent modalities, pulse oximetry, blood pressure testing, dressing skills, manipulation and handling of wheelchairs, and standard precautions. The skills course will complement other lecture classes related to treatment for activities of daily living (ADL's), instrumental activities of daily living (IADL's), education, work, play, leisure, rest, sleep, and social participation. {R-1}

Prerequisite: Admission to OTA Program

Corequisite: OTA 101, OTA 103, OTA 107

## **OTA 106—Medical Conditions**

3 cr. (Spring)

This course presents the etiology and symptoms of medical and psychological clinical conditions across the lifespan that are commonly referred to occupational therapy services. Course content emphasizes the effects of trauma, disease, and congenital conditions on the biological, psychological, and social domains of occupational behavior. An exploration of cultural perspectives on disease and wellness will be included. [R-1]

Prerequisite: BIO 111, OTA 101, OTA 103, OTA 105, OTA 107

Corequisite: OTA 102, OTA 104

Pre/corequisite: BIO 112, PSY 220

## **OTA 107—Principles of Occupational Therapy in Geriatrics and Gerontology**

2 cr. (Fall)

This course gives the student an understanding of the unique developmental, social, psychological, environmental, and physical needs of older adults. Students learn about such topics as ageism, health care services/settings for older adults, normal aging processes, community agencies serving older adults, pathological conditions associated with aging, falls prevention, environmental safety and modification, occupation and older adults, health promotion, dementia care, depression, low vision, and death and dying. Students also attend a nursing home field visit and conduct an interview with an older adult resident. [R-1]

Prerequisite: Admission to OTA program

Corequisite: OTA 101, OTA 103, OTA 105

## **OTA 110—Introduction to Assistive Technology**

3 lect., 3 cr. (Fall)

This project-based and experiential course will introduce students to the field of Assistive Technology and the various tools/supports and resources available. Students will engage in assignments that will help to broaden their understanding of how technology may be used to improve function and independence in people with various disabilities. Students will be expected to attend face-to-face classes as well as participate in weekly on-line learning activities. This is a hybrid course involving classroom and online lecture and learning activities. [R-1]

## **OTA 201—Principles of OT in Pediatrics and Developmental Disabilities**

3 cr. (Fall)

The student is introduced to the various conditions that interfere with normal development, and the occupational therapy treatment techniques used with the developmentally and intellectually disabled. Students are presented with a problem based learning case study and client to develop throughout the semester. This project culminates in the development of an individualized intervention plan, as well as an adapted/assistive technology application designed to meet the needs of the client. (Malpractice insurance fee applied) [R-1]

Corequisite: OTA 203, OTA 205, OTA 207, OTA 209, Pre/ Corequisite: PSY 230

**OTA 203—Clinical Reasoning Skills**

3 lab, 1 cr. (Fall)

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. Group process is an integral component as students are assigned to community connections project groups. The community outreach projects, problem-based learning and evidence-based practice research projects initiated in OTA 104 (OP II) are continued in this course. (Malpractice insurance fee applied) [R-1]

Corequisite: OTA 201, OTA 205, OTA 207, OTA 209

Pre/Corequisite: PSY 230

**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 DSM-V 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. (Malpractice insurance fee applied) [R-1]

Corequisite: OTA 201, OTA 203, OTA 205, OTA 209

Pre/Corequisite: PSY 230

**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. (Malpractice insurance fee applied) [R- 1]

Corequisite: OTA 201, OTA 203, OTA 205, OTA 209

Pre/Corequisite: PSY 230

**OTA 209—Documentation in Occupational Therapy**

1 cr. (Fall)

OTA 209 Documentation in Occupational Therapy 1 cr.- Fall This course will provide knowledge of documentation and the quality assurance process used in occupational therapy practice, with a focus on electronic health records. Modules will address legal and ethical issues related to documentation and reimbursement. Students will review various documentation formats that are used in practice and how the appeals process works when claims are denied. The role of the OTA in case management will also be described. (R-1)

Corequisite: OTA 201, OTA 203, OTA 205, OTA 207

Pre/Corequisite: PSY 230

**OTA 217—Clinical Practice I**

25 lab, 7.5 cr. (Spring)

This course provides a supervised eight week clinical experience in an occupational therapy treatment setting. The student may elect to work with the physically challenged, emotionally challenged, developmentally challenged population or an emerging area of practice. The student is expected to use knowledge and skills, acquired through previous course work, to carry out prescribed treatment programs in different treatment settings. Evaluation, treatment intervention and documentation are the major components of the fieldwork experience. (Malpractice insurance fee applied) [R-1]

Prerequisite: OTA 201, OTA 203, OTA 205, OTA 207, OTA 209, all academic coursework

**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 client population than the first clinical course. Evaluation, treatment intervention and treatment documentation are the major components of the field work experience. The student is expected to apply knowledge and skills acquired through course work and the preceding clinical experience. (Malpractice insurance fee applied) [R-1]

Prerequisite: OTA 217

*\*See Tuition and Fees section for current lab and malpractice insurance fees*

---

---

## OFFICE TECHNOLOGIES (OFT)

### (Business Department)

#### **OFT 103—Medical Coding**

3 cr. (Spring)

This course will introduce students to the characteristics and conventions of the current CPT and ICD-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: Successful completion (DVP) of MAT 040 or successful completion (DVP) of MAT 010 or placement into MAT 020 or placement into MAT 092 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 108—Introduction to Keyboarding and Office Applications**

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

This course teaches students to master the "touch" (without looking at the keys) method of alphabetic, numeric, and symbol keys. Professional competency is developed in keying business documents using Microsoft Word software. Students learn to format memorandums, letters, tables, reports, and other business documents. Emphasis is placed on correct keyboarding, formatting, and proofreading techniques. For a grade of C, the student must achieve minimum speed on straight-copy, five-minute writings of 35 words per minute with a maximum of 3 errors.

#### **OFT 109—Advanced Office Applications**

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

Emphasis is placed on learning advanced details and building production skills on letters, tables, reports, and other business documents using Microsoft Word 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.

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. (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: Successful completion (DVP) of MAT 040 or successful completion (DVP) of MAT 010 or placement into MAT 020 or placement into MAT 092 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 or placement by department and successful completion (DVP) of MAT 040 or successful completion (DVP) of MAT 010 or placement into MAT 020 or placement into MAT 092 or higher.

**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 and successful completion (DVP) of MAT 020 or successful completion (DVP) of MAT 040 or placement into MAT 092 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 and successful completion (DVP) of MAT 020 or successful completion (DVP) of MAT 040 or placement into MAT 092 or higher.

**OFT 220—Office Internship**

1 lect., 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.

Prerequisite: Permission of department chair and BUS 203, OFT 108, OFT 209; a minimum CGPA of 2.0 is also required

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 (PHL)****(English Department)****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. (G7A)

**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. (G7A)

**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. (G7A)

Prerequisite: ENG 101 and 102

**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. (G7A)

Prerequisite: ENG 101 or 102

# SUNY Orange Catalog

---

## PHL 230—Concepts of World Religions

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. (G7A)  
Prerequisite: ENG 101 and 102

---

## PHYS ED ACTIVITY MAJORS (PEM)

### (Movement Sciences Department)

#### PEM 160—Aerobic Fitness

1 cr. (Spring)  
Principles and theory of aerobic & endurance conditioning and body composition for athletic and sedentary populations across the lifespan will be taught. The course will be based on the principles, concepts and guidelines for aerobic endurance conditioning according to the American College of Sports Medicine (ACSM). Students will be prepared to apply the proper training and conditioning protocols for all populations based on goals, indications, contraindication, and physical evaluation of the individual. Students will actively participate in movement and assessment throughout the semester.

#### PEM 161—Racquet Sports 1

1 cr.  
The purpose of this course is to provide students with a basic knowledge of racquet sports with application to understanding of rules, proper skill to demonstrate, safety and effectiveness.

#### PEM 162—Team Sports

1 cr.  
This course is designed for those students majoring in Exercise Studies or Liberal Arts, PE. The course will provide students with a basic knowledge of the Team Sports of Basketball and Baseball with application to the understanding of rules and strategy, the proper skills to demonstrate, safety issues and teaching effectiveness.

#### PEM 163—Studio Fitness

1 cr.  
This course provides the student with the skills, knowledge, and abilities to instruct others and see measurable improvement in his/her personal physical fitness levels as preparation for the physical demand of daily living. Emphasis is placed upon activities/movements taught in yoga, Pilates, and Barre, that provide training in strength and mobility conditioning for various movement patterns. Spinal stability is a key focus point in this course as well as the mind-body-breathe connection.

#### PEM 164—Dance

1 cr.  
This course will provide students with basic knowledge in various aspects of dance as a performing art. The psychomotor aspect will focus on body alignment, dance technique, flexibility, execution, and recollection of short dance combinations. The cognitive aspect will cover dance history and culture. Proper dance attire is required for dance performances.

#### PEM 165—Beg-Int/Adv-Learn to Swim

1 cr. (Fall)  
This class is for those who can swim across a 50-yard pool. In this class you will learn how to: breathe effectively, tread water, dive in from the edge and use swimming equipment (kick boards, pull buoys, hand paddles, fins). You will be introduced to and gain further development of the 4 competitive swimming strokes (Freestyle, Backstroke, Breaststroke & Butterfly). An introduction to flip turns and intervals (50 yard repeats) will be taught. Underwater videotaping and stroke review and analysis will occur.  
Prerequisite: Ability to swim across a 50-yard pool continuously. You MUST be comfortable in deep water. Please take this course as preparation for Water Safety Instructor.

#### PEM 166—Golf/Badminton

1 cr.  
Course is designed for individuals interested in teaching/coaching golf/badminton. Consists of rules, equipment, essential offensive, defensive and special situation strategies, factors in seasonal planning and basic skill analysis as well as conditioning principles.

#### PEM 167—Weight Training

1 cr. (Fall)

This course is designed to provide students with a basic knowledge of strength training with application to muscular strength, muscular endurance and body composition. It is designed to instruct students who are interested in pursuing a degree in an area of exercise science how to properly perform and instruct others utilizing different modes of resistance training with respect to proper set up, form, safety and effectiveness. This course introduces scientific theories in combination with engagement of multiple muscle group activities. Students are required to construct a portfolio and complete a student teaching experience. This course is restricted to Exercise Studies majors.

**PEM 168—Alpine Ski/Boarding**

1 cr.

Course is intended to introduce participants to basic skills and practices, safety issues, knowledge and skills specific to incorporating outdoor recreation into the physical education and recreational pursuits. Activities are applied and analyzed experiential education, rappelling, rock climbing, orienteering, geocaching, hiking and backpacking, camping, mountain biking, and kayaking and others as appropriate. The entire class will be taught outdoors and on a variety of outdoor locations. Participants should expect to meet on location at 8:00 am on each of the designated Saturday mornings. Overnight camping skills will be learned and practiced each weekend. No experience is necessary.

**PEM 169—Leadership Skills/Group Games**

1 cr.

This course will give students an opportunity to gain leadership skills in the coaching and physical education field. Throughout the class students will use critical thinking skills, learn new games to improve individual, team sports and cooperative games. Each student will use physical concepts applied to sports.

**PEM 170—Water Exercise**

1 cr.

This class offers knowledge and skills to keep fit for life. It teaches safe performance of movement and exercise in a progressive approach and offers an opportunity to improve and/or maintain a high level of fitness through application of aerobic training principles in an aquatic environment. Swimming skills are not required. This class is designed for all fitness levels. Students are encouraged to understand their own limitations and work within their bounds. Students will be able to design and teach a 60-minute base-level class. This class will offer instruction and practice in proper aquatic exercise conditioning techniques and safety procedures. The comprehensive workout incorporates aerobic conditioning, muscular strengthening, abdominal toning, and tension-release stretching sections to improve aerobic capacity, strength, and flexibility without the negative effects of gravity. Students will be encouraged to exercise at their own comfort level and engage in a variety of low-impact movements from low to high intensity. This water conditioning class will focus on improving the cardiovascular and muscle systems, but also cover basic principles of exercise science, nutrition, cardiovascular and muscle endurance programming. Workouts will include warm-up, cardio-, muscle-, and core-conditioning, and range of motion exercises both in the shallow and deep pools. Classes might incorporate use of flotation equipment for buoyancy and water resistance, and a mini lecture at the start and/or end of class. Class activities include basic water aerobics, intervals, circuits, games, and other styles of upright water workouts.

**PEM 172—Coaching Skills**

1 cr.

The skills courses are designed for students majoring in exercise studies or Liberal Arts/physical education. Department Chair approval is needed for students not in these majors to take this course. This course will give students the opportunity to explore different coaching skills and theories including: team preparation, playing time, roster management, club/travel teams, parent involvement, training principles, and program management.

**PEM 173—Officiating**

1 cr.

This course will give students an introduction to sports officiating. Students will learn rules of major sports, how to position them to make correct calls on courts, and fields. Students will develop style and mechanics of officiating. Students will have a chance to do some live officiating and evaluations of other officials. Students will explore how one becomes an official.

---

**PHYS ED ACTIVITY REGULAR (PES)**

**(Movement Sciences Department)**

**PES 100—Concepts of Physical Wellness**

1 lect., 1 lab, 1 cr. (1/2 semester each)

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

## SUNY Orange Catalog

---

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.

### **PES 170—Aerobic Fitness**

.5 cr. (1/2 semester each)

This is an introduction of fundamental techniques of aerobics. Routines of rhythmic exercise are designed to develop or maintain cardio-respiratory endurance and body flexibility. The course is designed for students at all levels of fitness. Types of exercise will vary. Exercises, like running and jumping rope, in intervals that will challenge you to your max. This is a no-nonsense approach to total body training that helps you reach your potential.

### **PES 171—Step Aerobics**

.5 cr. (1/2 semester each)

This course emphasizes low impact activities designed to improve cardio-respiratory function, muscle tone, strength and flexibility. Rhythmic aerobic sessions are performed with a small platform used to step up and down. The platform or step provides an extra boost of aerobic capacity that has less stress on joints than running or jogging.

### **PES 172—Body Shaping**

.5 cr. (1/2 semester each)

This course is designed to involve students in a low impact aerobic activity program that is structured to increase cardiovascular fitness, build muscular strength and endurance. This is an overall body sculpting class that will be using free weights and resistance tubing. Some cardio classes may be introduced such as walking and basic stepping.

### **PES 173—Cardio Kick Box**

.5 cr. (1/2 semester each)

This is a physical education activity course designed to provide a fun, energetic, and safe workout for students focusing on techniques of self-defense and karate in an aerobics atmosphere for better health, strength and cardiovascular abilities. During this powerful high intensity workout, participants will utilize kicking, boxing, aerobic movements and martial-art type actions for a challenging total body conditioning experience. Learn proper techniques for kicking, punching and various self-defense moves from a Certified Fitness Professional. The techniques and training methods from the sport of kickboxing will be used to enhance the students exercise experience. Students need no prior training or experience in kickboxing.

### **PES 174—Exercise and Weight Management**

.5 cr. (1/2 semester each)

Designed for students who are interested in changing lifestyle, eating and exercise habits, this course emphasizes the practical application of current information relating to weight loss, physical fitness improvement, weight control and proper nutritional habits. A physical assessment is given at the beginning and end of the course and includes the following components: flexibility, cardiovascular endurance, height, weight, body-fat percentage, grip strength, girth, body density and an individualized exercise prescription.

### **PES 175—Zumba**

.5 cr. (1/2 semester each)

This is a physical education activity course that uses the principles of fitness interval training and resistance training to maximize caloric output, fat burning, and total body toning. It mixes body sculpting movements with easy-to-follow dance steps. Zumba is a fitness program inspired by Latin dance and combines Latin rhythms with cardiovascular exercise to create an aerobic routine that is fun and easy-to-follow.

### **PES 180—Jogging**

.5 cr. (1/2 semester each)

This course is designed to aid the student in the development and maintenance of cardiorespiratory endurance and helps to improve and/or maintain cardiovascular and muscular endurance. It also gives students an understanding of, and the ability to establish an exercise program that may be maintained throughout life through the use of jogging. Jogging helps, to enhance the student's practical and cognitive knowledge in fitness and nutrition concepts, and to establish a sound, individual exercise program. This course also introduces practical skills and principles of running, providing practical experience with running under different conditions, and providing a background of knowledge to train (jog/run) in the future. Local street jogging routes will be encouraged, dependent upon instructor preference and weather conditions. Specific runs for particular classes will be planned to match the students' progress. There will be a lot of running at an easy to moderate intensity.

**PES 181—Walking for Wellness**

.5 cr. (1/2 semester each)

This course is designed to give the student a practical understanding of cardiovascular fitness produced by walking. This course is designed to educate and improve in the areas of body composition, cardiovascular fitness, flexibility, muscular endurance, and aids in weight loss. Content includes brisk walking for several miles outdoors (extreme weather permitting: torrential rain or thunder and lightning), preceded by stretching exercises. Experiences are provided to help the student understand the benefits, organization, implementation, and evaluation of a balanced aerobic fitness program utilizing walking as the primary activity.

**PES 183—Spinning**

.5 cr. (1/2 semester each)

Indoor cycling is a group exercise class performed on stationary bikes. This course will incorporate indoor cycling for both the novice and the experienced cyclist. Rides are tailored to meet the needs and abilities of every person enrolled. The instructor will encourage each participant to customize their ride to fit their individual needs and fitness level. This class will encompass the fundamentals of proper biomechanics and cycling techniques as well as safety associated with indoor cycling classes. An outdoor ride is simulated; students travel on flat roads, climb hills, sprint, and race. The workout is non-impact and provides every fitness level an excellent workout. This class will burn calories, improve endurance, strengthen the lower body, and relax the mind.

**PES 200—Volleyball**

.5 cr. (1/2 semester each)

This course is designed to teach fundamental skills to include passing, setting, spiking, serving, game play (rotation, substitution), rules, safety, scoring, & basic strategy. The course will familiarize students with rules, terminology, strategies, and team play concepts. Students will develop basic skills, as well as learn the rules, regulations, and terminology associated with volleyball. Specifically, the course covers the following skill areas: forearm passing, overhead passing, spiking, blocking, serving, serve reception, digging and transition. , Students will also learn strategies for offense and defense while continuing to improve individual skills. Students will refine volleyball specific skills, improve their strength and conditioning, and develop team concepts. Students will be expected to participate in moderate to vigorous activities when in class.

**PES 201—Basketball (coed)**

.5 cr. (1/2 semester each)

This course provides the fundamental skills of basketball such as dribbling, passing, shooting, faking, footwork, and defensive skills. Content includes skills, rules, and strategy of basketball. The course will familiarize students with the rules, terminology, offensive and defensive strategies, and the physical activity benefits of recreational basketball. The course will provide opportunities for individuals to develop skills, techniques, and proper conditioning for basketball. Various team building strategies will be implemented. Content includes teaching techniques for developing competitive basketball skills.

**PES 202—Basketball (men)**

.5 cr. (1/2 semester each)

This course provides the fundamental skills of basketball such as dribbling, passing, shooting, faking, footwork, and defensive skills. Content includes skills, rules, and strategy of basketball. The course will familiarize students with the rules, terminology, offensive and defensive strategies, and the physical activity benefits of recreational basketball. The course will provide opportunities for individuals to develop skills, techniques, and proper conditioning for basketball. Various team building strategies will be implemented. Content includes teaching techniques for developing competitive basketball skills.

**PES 203—Floor Hockey (coed)**

.5 cr. (1/2 semester each)

Introduction to the basic fundamentals of floor hockey such as stick handling, passing, shooting, and more advanced concepts such as face-offs, goaltending, offensive and defensive tactics. Skills tests, drills/practices, games and tournaments will be conducted during the semester.

**PES 204—Floor Hockey (men)**

.5 cr. (1/2 semester each)

Introduction to the basic fundamentals of floor hockey such as stick handling, passing, shooting, and more advanced concepts such as face-offs, goaltending, offensive and defensive tactics. Skills tests, drills/practices, games and tournaments will be conducted during the semester.

**PES 205—Baseball**

.5 cr. (1/2 semester each)

This physical education activity course is designed to introduce the student to the rules of baseball, proper mechanics for throwing, hitting and catching, analyze and assist in the correction of baseball skills, understand the various options in game situations, learn coaching strategy. Content includes rules, strategy, and teaching methods. Game playing is emphasized.

# SUNY Orange Catalog

---

## **PES 206—Soccer**

.5 cr. (1/2 semester each)

This course is an introduction to the skills, rules and strategies of soccer. A progression begins with basic drills and continues through intermediate play. Play includes both full field and the indoor game. The course is designed for all levels of ability. The soccer skills of dribbling, ball control, heading, shooting, tackling, and passing are introduced and practiced. Principles of attack and defense are examined and drilled.

## **PES 207—Golf**

.5 cr. (1/2 semester each)

This course gives students an understanding of and a proficiency in golf skills, rules, and etiquette. Basic fundamentals are emphasized pertaining to grip, stance, posture and swing and the importance of teamwork, honesty, and integrity as it relates to golf. This course combines instruction and practice for skill development. The program is designed to provide benefits in flexibility, balance, and speed that are critical for golf improvement and healthy living. Students will be able to successfully hit golf balls, play a round of golf, and understand more clearly the game of golf (rules, etiquette, course management, etc.) Golf is a game for everyone.

## **PES 208—Archery**

.5 cr. (1/2 semester each)

This course introduces basic skills and techniques of archery. Topics include stringing the bow, handling bow and arrow, shooting, safety, and care of equipment. Students will gain an understanding of the rules, scoring and safety considerations of archery. This course enables the student to practice and acquire proper techniques, strategies, and safety procedures associated with archery and gain knowledge of proper archery etiquette.

## **PES 209—Tennis**

.5 cr. (1/2 semester each)

A course designed to introduce to novices the basic skills, rules, playing strategy, and etiquette involved in the sport of tennis. Singles and doubles are played. The emphasis of this course is on beginning fundamentals of forehand drive, backhand drive, serve, and volley.

## **PES 210—Racquetball**

.5 cr. (1/2 semester each)

This course is an introduction to racquetball as a recreational sport, designed to assist students in acquiring basic skills, rules, serve, offensive shots, defensive shots, and game strategy. This is a physical education activity course designed to teach the beginning racquetball player the proper racquetball strokes and how to use them offensively and defensively. The student will also learn court and service strategies and rules of the game. Safety and on-the-court etiquette will be stressed. The fundamentals and theory of racquetball will be taught in this class. Students will develop basic skills and learn the rules and regulations of the game.

## **PES 211—Badminton**

.5 cr. (1/2 semester each)

This course is designed to teach the student the basic fundamentals of badminton including rules and game strategy. Students will learn to perform the fundamental strokes, understand the basic rules and strategy. Specifically, the course covers the following badminton areas: rules, singles play, doubles play, fundamental skills and techniques, and badminton etiquette. Students will learn the rules and theory of badminton and develop basic skills and strategies needed to play the sport. The course promotes health, fitness, and enjoyment of the game of badminton.

## **PES 300—Weight Train**

.5 cr. (1/2 semester each)

The purpose of this course is to provide students with a basic knowledge of strength training with application to muscle strength, muscular endurance and body composition. This course introduces scientific theory of resistance training in combination with engagement of multiple muscle group activities with respect to safety and effectiveness. This course introduces the fundamental principles of weight training and provides students with the basic knowledge of strength training with application to muscular strength, muscular endurance and body composition. This course introduces scientific theory of resistance training in combination with engagement of multiple muscle group activities with respect to safety and effectiveness.

## **PES 301—Circuit Train**

.5 cr. (1/2 semester each)

This activity course is designed to increase flexibility, muscular strength/endurance, and cardiovascular fitness through the practical application of circuit training. This is a beginning level course that emphasizes fitness, proper lifting technique, safety and correct identity of exercises and muscle groups that improves strength and appearance with the use of weight training machines, rope jumping, walking, jogging, circuit training, isotonic and isometric exercises. Emphasis is on fitness and proper conditioning techniques.

**PES 302—Strength Training**

.5 cr. (1/2 semester each)

This course is designed to provide a comprehensive overview of strength and conditioning to promote individual participation that will maintain or increase personal levels of muscular strength and power. This course focuses on muscular strength and endurance through resistance training with Nautilus and Cybex machines and free-weights. Emphasis is placed on the exercise sciences (including anatomy, exercise physiology, and biomechanics) and nutrition, exercise technique, program design, organization and administration, and testing and evaluation. Safe and effective resistance training principles and muscular strength and endurance are emphasized.

**PES 303—Physical Fitness**

.5 cr. (1/2 semester each)

This course is designed to give students a basic understanding and knowledge of physical fitness and how it is achieved through a variety of exercise modalities. Students will explore the components of physical fitness including-cardiorespiratory endurance, muscular fitness: endurance & strength, flexibility, balance, and body composition. Exercise sessions may include but are not limited to~ body weight training, Pilates, yoga, aerobic conditioning, circuit training, and HITT or Mitt training.

**PES 304—Boot Camp**

.5 cr. (1/2 semester each)

Boot Camp is designed to resemble a military boot camp in that participants are encouraged to push themselves harder than they normally would if working out alone in a gym. This course combines cardiorespiratory, strength, flexibility and core training into a back-to-basics approach to fitness. Body weight exercises, like sit ups, pushups, leg and abdominal strengthening, will be combined with cardiorespiratory

**PES 400—Self Defense (coed)**

.5 cr. (1/2 semester each)

This is a basic introduction to build self-defense techniques, tactics, and awareness. This course is designed to introduce the student to the principles and concepts of personal safety and self-defense. This class aids students in developing basic skills in self-defense. Emphasis is placed on stances, blocks, punches, and kicks as well as non-physical means of self-defense. Students will learn the importance of maintaining fitness levels, recognizing, assessing, and responding to potentially dangerous situations. Various forms of self-defense are introduced. The history and philosophy of the martial arts are explored. The student should progress from no previous experience in self-defense to an adequate skill level covering basic self-defense situations. Both mental and physical aspects of the arts are stressed. Development of self-protective awareness will be emphasized. The philosophy, history, legality, and psychology of self-defense will be presented. Upon completion, students should be able to demonstrate basic self-defense techniques of a physical and non-physical nature.

**PES 401—Self Defense (women)**

.5 cr. (1/2 semester each)

This is a basic introduction to build self-defense techniques, tactics, and awareness. This course is designed to introduce the student to the principles and concepts of personal safety and self-defense. This class aids students in developing basic skills in self-defense. Emphasis is placed on stances, blocks, punches, and kicks as well as non-physical means of self-defense. Students will learn the importance of maintaining fitness levels, recognizing, assessing, and responding to potentially dangerous situations. Various forms of self-defense are introduced. The history and philosophy of the martial arts are explored. The student should progress from no previous experience in self-defense to an adequate skill level covering basic self-defense situations. Both mental and physical aspects of the arts are stressed. Development of self-protective awareness will be emphasized. The philosophy, history, legality, and psychology of self-defense will be presented. Upon completion, students should be able to demonstrate basic self-defense techniques of a physical and non-physical nature.

**PES 410—Pilates**

.5 cr. (1/2 semester each)

This is a physical education activity course that provides instruction in and practice of basic Pilates mat-work techniques. Pilates conditioning is designed to develop long, lean muscles along with flexibility and a healthy mind and body. Students will be introduced to the practice of Pilates techniques for the mind, body and spirit that can be incorporated into daily life. Students will practice Pilates mat techniques and techniques using equipment to improve the mind, and body. The course will include basic exercise physiology concepts specific to core strength development posture and gait. Pilates includes background knowledge of the activity and the application of appropriate basic floor techniques. This course will allow the student to increase their strength, flexibility, stamina, and concentration through the use of floor mats.

**PES 411—Yoga**

.5 cr. (1/2 semester each)

This is a physical activity course designed to familiarize the student with the basic yoga asanas (postures) and breathing techniques of Hatha Yoga. Yoga is a slow stretching and toning activity designed to help release stress while elongating muscles to give them a

longer, leaner look. This class introduces the student to the basic principles and practices of yoga, including breathing, positioning, and a holistic approach to a healthy mind and body. This course combines yoga and fitness principles in a unique blend that develops muscle endurance, strength, balance, flexibility and core stability through a series of exercises and traditional yoga poses. Students will experience how yoga can be used to improve health and well-being of mind and body. Students will learn the role yoga and meditation play in the two-way relaxation response between mind/body and body/mind. Students will learn how to consciously use their breathing to move safely into different yoga postures.

### **PES 412—Tai Chi**

.5 cr. (1/2 semester each)

Tai Chi is an ancient Chinese form of self-cultivation which originated as a martial art and is now studied primarily to develop and maintain physical and psychological well-being. Benefits may include stress reduction, increased stamina, and injury prevention through an improvement in joint stability and broader range of motion. This is a balanced system with dual aspects of mental and physical components. It is based on principles of physics and human physiology. This system is composed of 37 postures which are connected together by smooth transitions. This results in a series of fluid, rounded movements which are then referred to as the Form.

### **PES 413—Stretch For Wellness**

.5 cr. (1/2 semester each)

This course is designed to enhance one's knowledge of the benefits of stretching, various types of stretching and when and what stretching exercise are appropriate for different exercise and sport activities. This class focuses on the role of flexibility as an important health-related component of physical fitness, and an integral part of a wellness program. Students will learn a variety of stretching techniques that may promote increased flexibility and a range of motion, improved performance, reduces risk of injury, improved posture, and stress management/reduction. Students are provided with the basic knowledge of flexibility training: principles, applications, programs and proper technique.

### **PES 414—Aerial Yoga**

.5 cr. (1/2 semester each)

Our introduction to Aerial Yoga lets students get comfortable using the yoga hammock. You'll learn the basics regarding grip and weight distribution as you gain confidence on how to get into poses safely. Time is taken so that you can build the trust needed to create roots for an aerial yoga practice. No prior Aerial experience is necessary - this class is designed for all levels of fitness and flexibility. Class begins with centering, warm-up, posture focus, core and upper body work, as well as intro to inversions and Savasana. This classic Vinyasa flow style class links body movement with breath and focuses on three main parts of yoga - breath, body, and mind. You will learn the main yoga postures, some basic sequencing, proper alignment, and pranayama, which is also known as breath work, all with the assistance of your hammock.

### **PES 420—Ballet**

.5 cr. (1/2 semester each)

This course develops physical proficiency in the performance of basic ballet vocabulary while promoting an understanding of the principles, practices, and vocabulary common to ballet. Ballet training enables the students to gain strength, balance, and dexterity with an emphasis on correct anatomical alignment. Barre exercises condition and prepare the musculature to anticipate the execution of virtually all movements of the classical vocabulary. Knowledge acquired at the barre is tested in the center through adagio and allegro sections of the class.

### **PES 421—Jazz Dance**

.5 cr. (1/2 semester each)

This course is designed to give students a basic understanding and knowledge of Jazz Dance including warm up, across the floor movement and combination and terminology. The course covers the basic steps, vocabulary, and variations of dance in jazz, which is a common form of dance used in musical theater, commercial and entertainment industries, with its roots in social dance and heavily influenced by African-American traditions. Students learn basic techniques based on ballet and modern dance. Through daily warm-ups and exercises, students gain strength, flexibility, endurance, and coordination. Musicality and performance skills are taught through a series of dance combinations. The basic skills of jazz dance are introduced. Emphasis is on technique and development, rhythm awareness, jazz styles, and rhythmic combinations of movement. Students will learn variations of basic leaps and turns, stretching, toning and choreography techniques.

### **PES 422—Modern Dance**

.5 cr. (1/2 semester each)

This course is designed to give students a basic understanding and knowledge of Modern Dance including warm up, center floor combinations, across the floor movement and terminology. This course explores basic modern techniques. Emphasis is on technique development, and familiarity with contemporary dance meters and rhythms. This course is designed to enable the student to experience modern dance as an art form. The student will learn basic technique, elementary choreographic fundamentals, and an appreciation of dance.

**PES 423—Modern Dance 2**

.5 cr. (1/2 semester each)

This course is designed to continue Modern Dance but with longer and more challenging movement combinations. Emphasis is on technique development, and familiarity with contemporary dance meters and rhythms. This course is designed to enable the student to experience modern dance as an art form.

**PES 424—Ballroom Dance**

.5 cr. (1/2 semester each)

This course is an introduction to ballroom dancing, including basic steps in some of the most popular European, Latin, and American ballroom dance rhythms. Rhythms taught include Rumba, Cha-Cha, Mambo, Tango, Waltz, Foxtrot, Jitterbug (Swing), Jive, and Polka. Additional rhythms may be chosen from Salsa, Samba, Paso Doble, Viennese Waltz, Merengue, Charleston, etc., based on student interest.

**PES 425—Social Dance**

.5 cr. (1/2 semester each)

Social Dance is designed to allow students an opportunity to learn multiple contemporary social dances while participating in moderate intensity physical activity. Students will actively participate in various contemporary social dances. Students will develop fundamental knowledge and skills to the intermediate level through participation in a variety of developmentally appropriate teaching progressions relating to contemporary social dance.

**PES 426—Latin Dance**

.5 cr. (1/2 semester each)

An introductory course in Latin dance styles designed to teach cha-cha, merengue, tango, salsa, and other Latin dances. Course will emphasize steps, styling, partnering, rhythm, cultural background materials. The beginning level is appropriate for students of all ages and training.

**PES 427—Theatre Dance**

.5 cr. (1/2 semester each)

This course emphasizes dance terminology and basic techniques necessary at an introductory level. Executing basic dance terminology will be the focus of this course along with attention to injury prevention. Students will apply terminology in basic floor combinations in a variety of musical theatre dance styles. Each class session will include strengthening exercises to improve flexibility, conditioning and technique in ballet, jazz and tap.

**PES 500—Outdoor Adventure**

.5 cr. (1/2 semester each)

As educational programming progresses beyond traditional classrooms into the outdoors, new skill sets must be learned. This course aims to introduce students to participation in Hiking, Top-Rope Rock Climbing, Backpacking and Leave No Trace (LNT) wilderness ethics while learning associated hard skills and soft skills. Technical gear setups, storage, and operation specific to the scope of our involvement with these disciplines will be emphasized. Soft skills will focus on the facilitative and interpretive components. This course will require off-site meetings.

**PES 501—Basic Wilderness Skills**

.5 cr. (1/2 semester each)

This course teaches basic wilderness safety and survival to outdoor recreationists, as well as to those who are considering a career as a tour guide or in another related field. The purpose of this course is to provide an in-depth beginner or entry-level education on wilderness safety and survival.

**PES 504—Hiking For Fitness**

.5 cr. (1/2 semester each)

Students enjoy the benefits of aerobic exercise while experiencing the beauty of the outdoors. This course aims to give the student the basic techniques of hiking as well as knowledge of map and compass reading. This course aims to give the student a basic knowledge of how to conduct one's self in the wilderness to achieve mental and physical betterment, while remaining safe and promoting respect for nature.

**PES 505—Alpine Boarding/Ski**

.5 cr. (1/2 semester each)

Instruction in the proper techniques of alpine skiing and/or snowboarding with skill development and progression compatible with the ability level of the participant. Various equipment trends and safety concerns will be addressed. The course content rests primarily with extended day or evening trips.

# SUNY Orange Catalog

---

## **PES 508—Indoor Rock Climbing**

.5 cr. (1/2 semester each)

Learn the basics and fundamentals of indoor climbing. Rock climbing is a great way to relieve stress, build muscle tone and improve self-efficacy. Start acquiring the skills necessary to climb outside! Learn how to fit your harness, tie the figure-eight knot, proper belay technique and basic climbing movement. Physical and mental aspects involved in climbing will be related to skills critical to success in school, the workplace and life.

## **PES 600—Begin Swim (coed)**

.5 cr. (1/2 semester each)

Beginning swimming is open only to non-swimmers or novice with no deep-water experience. The course focuses on buoyancy, breath control, introduction of swimming strokes, water games and activities. The course follows American Red Cross Swim Levels and will accomplish a minimum of Levels I and II.

## **PES 601—Int/Adv swim**

.5 cr. (1/2 semester each)

A lap swimming course for the average to advanced swimmer. The course focuses on stroke refinement, beginning diving, forms of rescue, water games and activities.

## **PES 602—Fit Swim**

.5 cr. (1/2 semester each)

A lap swimming course for the average to advanced swimmer. (American Red Cross Level III minimum.) Workouts are custom designed to enhance cardio-respiratory endurance, muscular strength & endurance, flexibility and a positive body composition. Students will improve stroke mechanics, rhythm, power and stamina for distance swims. This program allows for varying degrees of fitness and geared to the individual.

## **PES 603—Aqua Aerobics**

.5 cr. (1/2 semester each)

This course helps develop cardiovascular endurance, strength and flexibility in a comfortable setting and provide a relatively safe environment for injury-free exercise participation. Jumping, jogging and other calisthenics movements are incorporated into this well-monitored aerobic workout in the shallow end of the pool. Water aerobics provide as much resistance as lifting weights, but is safer. It has as much cardiovascular benefits as aerobics, but less impact than low impact aerobics in a gym. Knowing how to swim is not required.

## **PES 605—Deep H2O Jog**

.5 cr. (1/2 semester each)

Water Jogging is a non-impact aerobic deep-water aquatic exercise course. Water jogging is a total body workout that strengthens the muscles in the back, legs, and arms. You should be comfortable in deep water in order to take this class. Aqua jog is performed with a belt that is worn around student's waists with the addition of several resistance devices throughout the semester. Proper body alignment will be stressed and the balance of working opposing muscle groups will be introduced.

## **PES 606—Water Polo**

.5 cr. (1/2 semester each)

This is an activity course designed to teach and practice the team sport of water polo. The knowledge of rules, terminology, strategies, skills, and techniques will be emphasized. The course will improve fitness through the required conditioning exercises. The course is open to anyone who can swim 300 yards without stopping.

## **PES 800—Varsity Basketball (women)**

.5 cr. (1/2 semester each)

Students who participate in intercollegiate varsity teams may earn PES 800 courses after the Fall or Spring seasons conclude. Student-athletes will receive .5 credit of PE for varsity participation for each season of participation. Maximum participation credit per student will be 1.0 credit (two seasons).

Note: Criteria is as follows: 1. academically eligible student-athlete; 2. must put in a minimum of 16 practice/game physical activity hours; 3. must complete the season on the roster and in good standing. Coaches will sign off on their athletes' participation and status at the end of each season. A list of athletes receiving credit will be provided to the Registrar's office for posting.

## **PES 801—Varsity Basketball (men)**

.5 cr. (1/2 semester each)

Students who participate in intercollegiate varsity teams may earn PES 800 courses after the Fall or Spring seasons conclude. Student-athletes will receive .5 credit of PE for varsity participation for each season of participation. Maximum participation credit per student will be 1.0 credit (two seasons).

Note: Criteria is as follows: 1. academically eligible student-athlete; 2. must put in a minimum of 16 practice/game physical activity hours; 3. must complete the season on the roster and in good standing. Coaches will sign off on their athletes' participation and status at the end of each season. A list of athletes receiving credit will be provided to the Registrar's office for posting.

**PES 802—Varsity Tennis (women)**

.5 cr. (1/2 semester each)

Students who participate in intercollegiate varsity teams may earn PES 800 courses after the Fall or Spring seasons conclude. Student-athletes will receive .5 credit of PE for varsity participation for each season of participation. Maximum participation credit per student will be 1.0 credit (two seasons).

Note: Criteria is as follows: 1. academically eligible student-athlete; 2. must put in a minimum of 16 practice/game physical activity hours; 3. must complete the season on the roster and in good standing. Coaches will sign off on their athletes' participation and status at the end of each season. A list of athletes receiving credit will be provided to the Registrar's office for posting.

**PES 803—Varsity Tennis (men)**

.5 cr. (1/2 semester each)

Students who participate in intercollegiate varsity teams may earn PES 800 courses after the Fall or Spring seasons conclude. Student-athletes will receive .5 credit of PE for varsity participation for each season of participation. Maximum participation credit per student will be 1.0 credit (two seasons).

Note: Criteria is as follows: 1. academically eligible student-athlete; 2. must put in a minimum of 16 practice/game physical activity hours; 3. must complete the season on the roster and in good standing. Coaches will sign off on their athletes' participation and status at the end of each season. A list of athletes receiving credit will be provided to the Registrar's office for posting.

**PES 804—Varsity Golf**

.5 cr. (1/2 semester each)

Students who participate in intercollegiate varsity teams may earn PES 800 courses after the Fall or Spring seasons conclude. Student-athletes will receive .5 credit of PE for varsity participation for each season of participation. Maximum participation credit per student will be 1.0 credit (two seasons).

Note: Criteria is as follows: 1. academically eligible student-athlete; 2. must put in a minimum of 16 practice/game physical activity hours; 3. must complete the season on the roster and in good standing. Coaches will sign off on their athletes' participation and status at the end of each season. A list of athletes receiving credit will be provided to the Registrar's office for posting.

**PES 805—Varsity Baseball**

.5 cr. (1/2 semester each)

Students who participate in intercollegiate varsity teams may earn PES 800 courses after the Fall or Spring seasons conclude. Student-athletes will receive .5 credit of PE for varsity participation for each season of participation. Maximum participation credit per student will be 1.0 credit (two seasons).

Note: Criteria is as follows: 1. academically eligible student-athlete; 2. must put in a minimum of 16 practice/game physical activity hours; 3. must complete the season on the roster and in good standing. Coaches will sign off on their athletes' participation and status at the end of each season. A list of athletes receiving credit will be provided to the Registrar's office for posting.

**PES 806—Varsity Softball**

.5 cr. (1/2 semester each)

Students who participate in intercollegiate varsity teams may earn PES 800 courses after the Fall or Spring seasons conclude. Student-athletes will receive .5 credit of PE for varsity participation for each season of participation. Maximum participation credit per student will be 1.0 credit (two seasons).

Note: Criteria is as follows: 1. academically eligible student-athlete; 2. must put in a minimum of 16 practice/game physical activity hours; 3. must complete the season on the roster and in good standing. Coaches will sign off on their athletes' participation and status at the end of each season. A list of athletes receiving credit will be provided to the Registrar's office for posting.

**PES 807—Varsity Soccer**

.5 cr. (1/2 semester each)

Students who participate in intercollegiate varsity teams may earn PES 800 courses after the Fall or Spring seasons conclude. Student-athletes will receive .5 credit of PE for varsity participation for each season of participation. Maximum participation credit per student will be 1.0 credit (two seasons).

Note: Criteria is as follows: 1. academically eligible student-athlete; 2. must put in a minimum of 16 practice/game physical activity hours; 3. must complete the season on the roster and in good standing. Coaches will sign off on their athletes' participation and status at the end of each season. A list of athletes receiving credit will be provided to the Registrar's office for posting.

**PES 808—Volleyball**

.5 cr. (1/2 semester each)

# SUNY Orange Catalog

---

Students who participate in intercollegiate varsity teams may earn PES 800 courses after the Fall or Spring seasons conclude. Student-athletes will receive .5 credit of PE for varsity participation for each season of participation. Maximum participation credit per student will be 1.0 credit (two seasons).

Note: Criteria is as follows: 1. academically eligible student-athlete; 2. must put in a minimum of 16 practice/game physical activity hours; 3. must complete the season on the roster and in good standing. Coaches will sign off on their athletes' participation and status at the end of each season. A list of athletes receiving credit will be provided to the Registrar's office for posting.

## **PES 809—Varsity Cross Country**

.5 cr. (1/2 semester each)

Students who participate in intercollegiate varsity teams may earn PES 800 courses after the Fall or Spring seasons conclude. Student-athletes will receive .5 credit of PE for varsity participation for each season of participation. Maximum participation credit per student will be 1.0 credit (two seasons).

Note: Criteria is as follows: 1. academically eligible student-athlete; 2. must put in a minimum of 16 practice/game physical activity hours; 3. must complete the season on the roster and in good standing. Coaches will sign off on their athletes' participation and status at the end of each season. A list of athletes receiving credit will be provided to the Registrar's office for posting.

---

## **PHYS ED THEORY (PED)**

### **(Movement Sciences Department)**

#### **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 effect 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**

1 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/Spring)

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 CPR/AED is granted upon successful completion of requirements.

**PED 151—Lifeguard Training**

1 cr. (Spring/Summer)

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 pre-course written and skills tests

Note: 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/corequisite: BIO 111

**PED 202—Basic Exercise Physiology**

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

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.

Corequisite: 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)

# SUNY Orange Catalog

---

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.

Corequisite: PED 203 and PED 204 MUST be taken together

## **PED 205—Personal Training**

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

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/corequisite: BIO 111, PED 201

## **PED 224—Introduction to Exercise Principles**

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

This course provides a broad-based introduction of fitness testing & assessment and the science of exercise prescription. The components of health-related and skill-related fitness will be investigated, including measurement procedures, interpretation of results, and application toward recommendations for exercise programs. Various exercise modalities will be explored, practiced & modified. Students will practice proper physiological supports and external spotting techniques. Additionally, the course will present the components of personal wellness including: positive stress management techniques, a positive self-image, quality sleep patterns, and a balanced nutritional program.

## **PED 226—Theory/Application of Exercise Principles, Fitness Modalities, Wellness Concepts**

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

A practical approach to assessing, analyzing, and prescribing appropriate exercise modalities to multiple populations including athletic, healthy, and special populations. Students will explore each of the components of the Fitness Education Framework: technique, knowledge, physical activity, health-related fitness, responsible, personal, and social behaviors, values and advocates, nutrition, stress management, and consumerism using current research-based best practices to create training programs for both personal client goals. Coerequisite: PTA 102 and PTA 104

## **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.

Prerequisite: PED 201, PED 202, PED 203 (can be taken concurrently). CGPA 2.5 or higher, or chair permission

## **PED 280—Exercise Studies Capstone**

2 cr. (Fall)

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.

Prerequisite: ENG 101, ENG 102, permission of department chair

---

# PHYS THERAPIST ASSISTANT (PTA)

## **(Physical Therapist Assistant Department)**

### **PTA 010—Clinical Applications for the PTA**

1 lect., 1 unit (Fall)

This course is designed to assist the student in understanding the concepts presented in first semester Physical Therapist Assistant courses. Discussion, demonstrations, worksheets, and small group activities are used to reinforce the information provided in Intro to Physical Therapy, Medical Conditions for the PTA and PTA I.

Corequisite: PTA 101, PTA 103, PTA 105

Pre/corequisite: BIO 111, ENG 101

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

### **PTA 012—Kinesiology Support Module**

lab, 1 unit (Spring)

This course is designed to assist the student in understanding the concepts presented in Kinesiology (PTA 104). Discussion, demonstrations, worksheets, and small group activities are used to reinforce the information provided in Kinesiology.

Prerequisite: PTA 101, PTA 103, PTA 105

Corequisite: PTA 102, PTA 104, PED 224

Pre/corequisite: BIO 112, ENG 102

*\*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: universal precautions, infection control, basic first aid and safety procedures, monitoring of vital signs, basic wounds care and bandaging techniques, proper body mechanics, patient positioning and transfers, spinal cord injuries, amputees, CVA, and gait training. [R-1]

Corequisite: PTA 103, PTA 105

Pre/corequisite: BIO 111, ENG 101

### **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; practice of specific skills includes various techniques of massage, hot and cold packs, paraffin, whirlpool, contrast baths, ultrasound, diathermy, electrical stimulation, ultraviolet, infrared and cold laser therapy. Principles and procedures related to the Hubbard tank, therapeutic pool, intermittent compression, spinal traction and wound healing are also presented. An overview of pharmacology as it relates to rehab completes the course. [R-1]

Prerequisite: PTA 101, PTA 103, PTA 105

Corequisite: PTA 104, PED 226

Pre/corequisite: BIO 112, ENG 102

### **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 & PTA, role of other health care providers, communication skills, documentation, ethical and legal principles, structure and organization of health care systems, and cultural diversity. [R-1]

Corequisite: PTA 101, PTA 105

Pre/corequisite: ENG 101, BIO 111

### **PTA 104—Kinesiology**

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

A study of basic human motion, including biomechanics, emphasizing the nervous, muscular and skeletal systems with particular emphasis on joint structure, movements, and muscle position in relationship to the joint. Course will also include the analysis of normal and pathological gait patterns. [R-1]

Prerequisite: PTA 101, PTA 103, PTA 105

Corequisite: PTA 102, PED 226

Pre/corequisite: BIO 112, ENG 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: PTA 101, PTA 103

Pre/corequisite: BIO 111, ENG 101

### **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]

# SUNY Orange Catalog

---

Prerequisite: PTA 102, PTA 104, PED 226

Corequisite: PTA 205, PTA 207

Pre/corequisite: PSY 111

## **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 student defines, discusses, and demonstrates advanced Physical Therapy treatment techniques. Topics include: joint mobilization, proprioceptive neuromuscular facilitation, lumbar stabilization, pediatrics, cardiopulmonary rehab, head trauma rehab, amputee rehab, women's health issues, and geriatric rehab. [R-1]

Prerequisite: PTA 201, PTA 205, PTA 207

Corequisite: PTA 206, PTA 208

Pre/corequisite: PSY 220

## **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, PED 226

Corequisite: PTA 201, PTA 207

Pre/corequisite: PSY 111

## **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: PTA 201, PTA 205, PTA 207

Corequisite: PTA 202, PTA 208

Pre/corequisite: PSY 220

## **PTA 207—Test and Measurement for the PTA**

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

The principles and techniques of appropriate assessment, test, 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: PTA 102, PTA 104, PED 226

Corequisite: PTA 201, PTA 205

Pre/corequisite: PSY 111

## **PTA 208—Contemporary Practice for the PTA**

3 lect., 3 cr. (Spring)

This course is 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.

Prerequisite: PTA 201, PTA 205, PTA 207

Corequisite: PTA 202, PTA 206

Pre/corequisite: PSY 220

## **PTA 220—Clinical Education 3**

16 lab, 3 cr. (Summer I/Summer II)

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

---



---

## PHYSICAL SCIENCES (PSC)

(Science, Engineering, & Arch Department)

### 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. (G2A)

Prerequisite: Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 or higher

### 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. (G2A)

Prerequisite: Successful completion (DVP) of MAT 020 or MAT 040 or placement into MAT 092 or higher.

---

## PHYSICS (PHY)

(Science, Engineering, & Arch Department)

### 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. (G2A)

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. (G2A)

Prerequisite: C or better in PHY 101

### PHY 103—Physics for Science and 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. (G2A)

Pre/corequisite: MAT 205

### PHY 104—Physics for Science and 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. (G2A)

Prerequisite: C- or better in PHY 103

Pre/corequisite: MAT 205

### 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. (G2A)

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. (G2A)

Prerequisite: C or better in PHY 105

Pre/corequisite: MAT 206

# SUNY Orange Catalog

---

## **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. (G2A)

Prerequisite: MAT 092 or MAT 101 or placement into MAT 102 or higher or by permission of instructor

## **PHY 111—Architectural Physics**

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

An algebra based introductory course for students interested in architecture and building design. Topics include vectors, kinematics, stress and strain, statics, dynamics, energy, heat measurement, fluids, waves, electricity and sound. (G2A)

Prerequisite: MAT 107 or MAT 121 or higher is required.

## **PHY 203—Physics for Science and 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. (G2A)

Prerequisite: C- or better in PHY 104

Pre/corequisite: MAT 207

## **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. (G2A)

Prerequisite: PHY 102 or PHY 106 or PHY 203

---

# POLITICAL SCIENCE (POL)

## **(Global Studies Department)**

### **POL 101—Introduction to Political Science**

3 cr. (Fall/Spring)

If politics can be defined as the often uneven and unequal distribution of resources, rights and power, political science represents the systematic analysis of that distributive process through either normative or empirical questions. Normative political scientists examine politics through the lens of ethics; they use reason and logic to ask, “what should be?” Empirical political scientists are concerned not with ideal forms, but with “the way things are.” Employing the methods of science, empirical political scientists seek to develop probabilistic generalizations about how politics works. This course will engage with both normative and empirical questions about politics and will include discussion of: terminology, theory, and method; political philosophy and ideology; governmental systems; democratic and non-democratic regimes; comparative analysis; the interactions between politics and people; public policy; international relations; and revolutions and state breakdowns. Fulfills Category C. (G3A)

### **POL 102—U.S. Government - State and Local**

3 cr. (Fall/Spring)

This course examines the changing role of state and local governments in the United States. In addition to providing students with an overview of the theories and methods of political science, the course will engage students in the discussion of three topics. First the course addresses the nature of state governments, and examines what they do, how they are structured, and the problems they face. Second, the course considers nature and structure of local government—especially, cities and metropolitan areas. Finally, the course will consider issues surrounding democracy at the state and local level, including critical questions of inclusion, democracy and participation. Fulfills Category A. (G4A)

### **POL 103—U.S. Government - National**

3 cr. (Fall/Spring)

This course offers a survey of the U.S. political system at the national level, and explores the social, political, and economic forces that have and continued to shape the development of the US national government, including: the historical background; political theories; the evolution of legislative, executive and judicial branches; the formation and role of political parties; the role of interest groups, and the media; and longstanding public policy debates. In addition to offering insights into the formation, function, structure,

and relationships among and between the branches, levels, and actors, the course seeks to explore critical questions of political participation. In so doing, the course will engage students in an examination of role and mechanisms for individual participation, as well as the ways in which institutions, parties, groups, the media, and deep-rooted inequalities have and continue to shape such participation. Fulfills Category A. (G4A)

**POL 104—Introduction to Political Thought**

3 cr.

An introductory course in the history of political theory with an emphasis on understanding political ideas and concepts and applying them to perennial issues of political life. Students will read selected original texts by theorists such as Plato, Aristotle, Machiavelli, Hobbes, Rousseau, Adam Smith, Marx, Nietzsche, and Max Weber. Fulfills Category D.

**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. (G3A)

**POL 221—International Relations**

3 cr. (Fall)

This course introduces students to the theory, methods, and analysis of international relations, an important subfield of political science. The course will examine the historical and contemporary foundations of modern international relations, the international system, relations theories, and the methods for analyzing and describing the political relations among nations. Fulfills Category C. (G3A)

---

**PSYCHOLOGY (PSY)****(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 111—Introduction to Psychology**

3 cr.

The foundations for a scientific understanding of human behavior are examined. Topics include: scientific methods, statistical analysis, physiological aspects of behavior, growth and development, learning and memory, sensation and perception, motivation and emotion, personality, gender and sexuality, and psychological disorders and treatment. Fulfills Category B. (G3A)

**PSY 220—Developmental Psychology**

3 cr. (Fall/Spring/Summer)

A study of psychological growth and change over the course of the lifespan: prenatal development, infancy, childhood, adolescence, adulthood, and old age. Cultural differences that affect psychological development are considered, along with the effects of individual and group identity, socioeconomic status, and access to opportunities as they relate to psychological development. Fulfills Category B or Fulfills Category E. (G3A, G6A)

Prerequisite: PSY 111

**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 111

**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.

# SUNY Orange Catalog

---

Prerequisite: PSY 111

## **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. Fulfills Category B. (G3A)

Prerequisite: PSY 111

## **PSY 240—Social Psychology**

3 cr. (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 111

## **PSY 250—Human Sexuality**

3 cr.

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 111

## **PSY 260—Introduction to Counseling**

3 cr.

The foundations for an integrated approach to counseling for the helping professional are introduced, as well as the nature of the helping process. Basic communication skills and interviewing, as well as an examination of the therapeutic relationship, formation of healthy professional boundaries, and importance of maintaining professionalism are covered. In addition, students will be exposed to a variety of theoretical approaches to counseling, including the psychodynamic, humanistic, cognitive-behavioral, and existential orientations. Integrated and trans-theoretical models will also be examined, including stage-wise theory of human change, motivational interviewing, and multimodal therapy models.

Prerequisite: PSY 111

---

# **PUBLIC HEALTH (PBH)**

## **(Movement Sciences Department)**

### **PBH 101—Introduction to Public Health**

3 cr. (Fall/Spring/Summer)

A general introduction to what public health is, its importance for everybody's health, and how it functions as a combination of science and politics. The role of the public health system will be illustrated by describing issues confronting New York State and what is being done about them.

### **PBH 102—Promoting Healthy People and Communities**

3 cr. (Fall/Spring)

This course focuses on how health promotion strategies influence healthy behaviors, healthy people, and healthy communities. Current public health issues will guide us in examining key health promotion concepts, health concerns at different ages, and the causes of different health behaviors. Health inequalities and mass media's role will also be highlighted.

### **PBH 203—Concepts of Epidemiology**

3 cr. (Fall/Spring)

This course is designed to introduce students to the science of epidemiology. Specific subjects will include causal thinking, the epidemiologic framework, and study designs used in epidemiologic studies and the role of epidemiology in public health. Examples of famous studies will be discussed, including outbreak investigations and major studies that have identified risk factors for the more common diseases in the country and world today.

Pre/corequisite: MAT 120

### **PBH 204—Global Health**

3 cr. (Fall/Spring)

The environment affects our health, economics, and quality of life. Globalization has made the earth a much smaller place so that we can no longer focus merely on issues in the United States. This course will address global environmental concerns and their impact on human health. Students will discuss various affecting factors (e.g. urbanization, population pressure, climate change, atmospheric pollution, sanitation, etc.) within the context of their impacts on population throughout the world.

**PBH 205—U.S. Health Care System**

3 cr. (Fall/Spring)

This course will introduce the students to important issues underlying the US Health Care System - including issues of contemporary importance such as health care cost, health care quality, access to care, increasing number of uninsured, patient safety, prescription drugs policies, physician-patient interaction, adoption and use of health care technologies, and end-of-life care. The course is intended to provide students with an understanding of the various actors, stakeholder interactions, and functions of the US health care system, through a case-based approach interweaving real world events, practice experience, and research on the above issues.

---

**RADIOLOGIC TECHNOLOGY (RAD)****(Diagnostic Imaging Department)****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 and the x-ray tube are covered. Physical characteristics of image receptors and the production of digital images. Factors that influence image quality and processing are discussed. Introduction to Portable X-ray units, Tomography, and Fluoroscopy) [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 106, RAD 108, RAD 111

**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 positioning of the cranium, facial bones, mandible, nasal bones, paranasal sinuses, spine, bony thorax, digestive system, pediatric and geriatric imaging.

# SUNY Orange Catalog

---

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 interaction, human diversity, patient history taking, patient assessment, proper body mechanics, patient transfer techniques, vital signs, infection control, non-aseptic techniques, and medical emergencies.

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 Patient care 1. This course includes: medical charting, preparation of medications, injections, venipuncture, assisting in the administration of contrast materials, sterile gowning and gloving, patient interaction skills, and an overview of medical ethics and law. In addition, patient preparation and placement of 12 leads EKG.

Prerequisite: RAD 101, RAD 103, RAD 105, 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**

2 cr. (Fall)

This course focuses on the properties of x-rays and other waves in the electromagnetic spectrum, fundamentals of magnetism and electromagnetism as it pertains to x-ray circuitry, and advanced concepts of digital imaging in the medical field. [R-1]

Prerequisite: RAD 112

Corequisite: RAD 213, RAD 217, RAD 221

## **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 209, RAD 217, RAD 221

## **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 112, RAD 222, 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 222, RAD 214, RAD 216, RAD 218, 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 222, RAD 112, RAD 214, RAD 219

**RAD 217—Radiographic Positioning 3**

2 cr. (Fall)

Introduction to contrast studies including, myelography, arthrography, vascular imaging, urology and hysterosalpingography. In addition, operating room exams, mobile imaging, mammography, vertebroplasty, and kyphoplasty are described.

Prerequisite: RAD 112

Corequisite: RAD 213, RAD 221, RAD 209

**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 209, RAD 213, RAD 217, RAD 221

Corequisite: RAD 222, RAD 214, RAD 216, 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

**RAD 222—Medical Imaging Ethics & Law**

1 cr. (Spring)

This content provides a foundation in ethics and law related to the practice of medical imaging. An introduction to terminology, concepts and principles will be presented. Students will examine a variety of ethical and legal issues found in clinical practice especially pertaining to digital imaging procedures.

Prerequisite: RAD 209, RAD 213, RAD 217 & RAD 221

Corequisite: RAD 214, RAD 216, & RAD 218

---

**SOCIOLOGY (SOC)****(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 or Fulfills Category E. (G3A, G6A)

**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 or Fulfills Category E. (G3A, G6A)

# SUNY Orange Catalog

---

## **SOC 202—Social Inequality**

3 cr. (Fall/Spring/Summer)

This sociology course examines the tensions and conflicts generated by the struggle for power and between the defenders of tradition and the forces of change, research evidence and statistical analysis are used to see how race, class, and gender are used as fundamental reference points for understanding how power and resources are distributed in American Society. While a cross-cultural perspective is sometimes used for comparative purposes, the primary focus is on the surging changes that have swept through American institutions since World War II. The American family, schools, economy, political life, military, sports world and religious life will be studied.

Fulfills Category C or Fulfills Category E. (G3A, G6A)

## **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. Fulfills Category E. (G6A)

Prerequisite: SOC 101

## **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 or Fulfills Category E. (G3A, G6A)

Prerequisite: One course in sociology

## **SOC 242—Sociology of Religion**

3 cr.

This course is an introduction to the sociological study of religion, exploring religious beliefs, practices, and institutions in different societies through the lens of sociological theories that examine religion as a social phenomenon. This entails attending to society's impact on religion as well as religion's effect on society. Examining the social dynamics of religion in other societies will help us better understand the nature and function of religion in American society. Fulfills Category C.

Prerequisite: 3 Credits in Sociology or Anthropology

---

# SPANISH (SPN)

## **(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. (G9A)

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. (G9A)

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. (G9A)

Prerequisite: SPN 102 or instructor placement

### **SPN 202—Intermediate Spanish 2**

3 cr.

This course provides students the opportunity to develop further their listening and speaking abilities. The course places emphasis on intermediate grammatical patterns, such as the subjunctive mood and the passive voice. Conversation based on everyday vocabulary is encouraged. (G9- A) (G9A)

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. (G9A)

Prerequisite: SPN 201 and 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. (G9A)

Prerequisite: SPN 203 or instructor placement

---

## **THEATER (THE)**

**(Arts & Communication Department)****THE 101—Introduction to Theatre**

3 cr. (Fall/Spring)

This course is designed to provide introductory knowledge and greater appreciation of dramatic production, performance, and literature. Readings and lectures will focus on the relationship between theatrical theory and practice, the predominant artists and movements throughout theatrical history, and the diverse creative/production roles fundamental to theater. Students will analyze major works of dramatic literature, as well as attend a live theatrical performance. (G7A, G8A)

**THE 103—Acting 1: Fundamentals**

3 cr. (Fall/Spring)

Acting 1 is an introduction to the art of acting. This course lays the foundation for studying the theory and process of acting through exercises, improvisation, reading, discussion, monologues, scene study, and analysis. Basic voice, speech, and movement training will be emphasized. The course will also explore the practical conventions of acting such as ensemble work, memorization, working with scripts, auditioning, and rehearsal etiquette. Attendance at productions outside of the classroom will be required. (GE 8A) (G8A)

**THE 104—Acting 2: Text and Scene**

3 cr. (Spring)

Acting 2 involves further exploration and training in the techniques and processes essential to the actor's craft with an emphasis on critical analysis of character and text. Students will develop more advanced means of analyzing a script for effective acting choices that are firmly grounded in text. The goal of the course is to deepen appreciation of the actor's craft and the art of theater. Students will perform in every class and selected students will appear in a performance showcase at the end of the semester. Attendance at productions outside of the classroom will be required. (GE 8A) (G8A)

Prerequisite: THE 103 or permission of instructor.

**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.

Note: Students may repeat the course one time, with the recommendation of the instructor, for a total of six credits

**THE 109—Stage Make-Up**

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

## **SUNY Orange Catalog**

---

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. (G8A)

### **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 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.