Course Descriptions

Descriptions of the college’s regular credit courses are listed on the following pages. The number of credit hours assigned to each course follows the description. Course numbers are designated as follows: 0000-0999 - imputed and developmental courses; 1000-1999 - freshman level courses; and 2000-2999 - sophomore level courses. Courses carrying imputed credit are not considered college level courses and may not be counted toward a degree or certificate program. Courses which presently carry imputed credit are:

- ELI 0500: ELI - Composition I
- ELI 0550: ELI - Composition II
- ELI 0600: ELI - Reading I
- ELI 0650: ELI - Reading II
- ELI 0700: ELI - Speak & Listen I
- ELI 0750: ELI - Speak & Listen II
- ENG 0190: Essential Reading Skills
- ENG 0410: Developing Reading Versatility
- ENG 0430: Essential Writing Skills
- HUM 0340: Student Development
- MAT 0300: Developmental Mathematics
- MAT 0400: General Mathematics
- MAT 0500: Elementary Algebra
- MAT 0600: Intermediate Algebra

All courses required to earn a specific associate degree are normally offered with such frequency that a full-time student can earn the degree in a two-year period.

Each course description has designations indicating which semester and on which campus (Jamestown - J, Cattaraugus County Campus - C, or Online) the college intends to offer the course. Certain courses do not have a designation indicating which semester they are offered; these courses may or may not be offered on the specified campus(es) during the period 2014-2015. The college reserves the right to cancel course offerings if enrollment is insufficient. Current course, degree, and certificate information can be found at www.sunyjcc.edu.

JCC also offers credit-free courses, seminars, and workshops. For more information, contact the Center for Continuing Education.

Course Requisites

These terms explain the course requirements found at the end of each course description:

**Prerequisite**
A course a student has already successfully completed, or a demonstration of competence by achieving a placement test score above a specific cutoff level.

**Corequisite**
A course which a student takes during the same semester as the class in question. If a student has already successfully completed a corequisite, he/she does not need to take the course again.

**Eligibility**
A reference to eligibility to take English courses. All students must be tested for placement in English courses. The placement tests indicate which English course the student is eligible to take. For example, a student is eligible to take ENG 1530 when he/she has scored an 80+ on the Accuplacer or a 40+ on the Asset and has demonstrated writing proficiency by successfully completing the college writing placement test with a score of 10-12 on the Writeplacer or a 7-9 on the Asset.

**Placement test**
JCC’s placement test assesses skills in mathematics, reading, and writing. If a student chooses to take any course for which there is a placement test prerequisite, he/she must take the appropriate test. As a rule, full-time students take the complete test after they have been accepted for admission to the college and prior to registration. New part-time students are strongly encouraged to take the test prior to registration. Part-time students must take the placement test prior to enrolling in any course which has a reading or writing prerequisite.

**Reading**
Some courses have as a course requirement the achievement of a certain score (e.g. an 80+ on the Accuplacer or a 40+ on the Asset) on the reading placement test. Full-time students can find out about placement scores from their advisors; part-time students can learn about their scores in the counseling centers.

**Permission of instructor**
A course with this notation requires the student to meet with the course instructor to receive permission to take the course.

**Waiver of Pre-/Corequisites**
If a student feels qualified to take a course for which he or she does not appear to have the formal pre-/corequisite background, the student should contact the faculty member teaching the course or the assistant dean for the area. If, in the estimation of the faculty member or assistant dean, the student meets the pre-/corequisites in some other way, the faculty member or assistant dean may sign a waiver form which the student can then present to his advisor and/or the registrar. Students cannot register for courses for which they do not have a pre-/corequisite or a signed waiver form.

Current course, degree, and certificate information can be found at www.sunyjcc.edu.
ANT 2500 Sex, Sexuality, and Gender Students will learn about sex, sexuality, or gender, practices and concepts both from around the world and here in the United States. Students will be able to compare and contrast people's understanding of the body and its development, how people come to understand their own sex and gender characteristics, and the place that each one of us occupies in terms of our sex, sexuality, and gender behaviors. Corequisite: ENG 1530. J occasionally. 3 credit hours.

ANT 2600 Planet Earth: Critical Topics Students will examine critical issues affecting humanity and the global environment, from an in-depth, three-part perspective. Students will investigate the science of selected topics of global environmental significance, explore their causes and consequences within contemporary culture, and evaluate the impacts and importance of the mass media in public perception concerning these issues. Corequisite: ENG 1530 and a reading score of 80+. J occasionally. 3 credit hours.

ARABIC
ARA 1510 Introductory Arabic I Students will learn Arabic language vocabulary and grammar by completing a series of activities designed for realistic communication, both written and spoken. They will learn the reading and writing of the Arabic alphabet. Through reading, dialogue, and associated study, students will develop an understanding of the language and cultural distinctions of Arabic speakers worldwide. Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J, occasionally; C, occasionally; Online, occasionally. 4 credit hours.

ARA 1520 Introductory Arabic II Students will learn Arabic language vocabulary and grammar by completing a series of activities designed for realistic communication, both written and spoken. They will learn the reading and writing of the Arabic alphabet. Through reading, dialogue, and associated study, students will develop an understanding of the language and cultural distinctions of Arabic speakers worldwide. Prerequisites: ARA 1510; Eligibility: ENG 1510; must meet minimum college level reading score 80+. J occasionally. 3 credit hours.
visual arts from the prehistoric through medieval periods. An overview of art from non-European cultures is also presented. Students will explore artistic philosophies, styles, media, materials, and the evolving function of art in society. Students are introduced to the formal structure of works of art and will study new methods and materials. Links between technical evolution and its relationship to stylistic change are explored. The influence of major philosophical shifts in culture-at-large on the arts is also emphasized. Material is presented through slide lectures, videotapes, classroom discussions, and readings. Course requires extensive reading, some writing, and participation in discussion groups. Course requires extensive reading, some writing, and participation in discussion groups. Corequisite: ENG 1530. J fall; C occasionally. 3 credit hours.

ART 1560 Survey Visual Art: Renaissance-Contemporary Provides art majors and non-art majors with an overview of the historical evolution of the visual arts from the Renaissance through contemporary periods. Special lectures on technical development of the 19th and 20th centuries are integrated with a historical progression. Additional material that extends the discussion of contemporary art is introduced. Students explore artistic philosophies, styles, media, materials, and the evolution of art’s function in society. Material is presented through slide lectures, videotapes, classroom discussions, and assigned readings. Course requires extensive reading, some writing, and participation in discussion groups. Corequisite: ENG 1530. J spring; C occasionally. 3 credit hours.

ART 1570 Basic Black/White Photography Students will gain a working knowledge of the fundamental creative and technical base in photography. Students deal with developing, printing, and finishing techniques in the context of creative visual expression. Students are introduced to comparative studies of history and criticism in the medium. No prerequisites. J fall, spring. 3 credit hours.

ART 1590 Ceramics I Students will gain a working knowledge of fundamental and advanced studio work in clay preparation, hand building, throwing, mold making, slip casting, glaze preparation, decorating techniques, and firing techniques. No prerequisites. J fall, spring. 5 credit hours.

ART 1600 Creative Ceramics This course is designed mainly for intermediate level students and community members. Students will develop skills with potter’s wheel, hand building methods, glazing, decoration techniques, and kiln operations. Prerequisite: ART 1590; must meet minimum college level reading score: Accuplacer 80+. J occasionally. 1 credit hour.

ART 1610, 1620, 2610, 2620: Studio Problems-Ceramics Students will build upon previous studio course experiences in advanced studio production courses under art faculty supervision. Students who have completed the basic and intermediate (as applicable) courses in drawing, ceramics, photography, electronic arts, design or painting, may register for one, two, or three hours of credit per semester in a studio course in that medium. Prerequisite: permission of instructor required. J occasionally. 1 to 3 credit hours.

ART 1611, 1621, 2611, 2621: Studio Problems-Computer Graphics Students will build upon previous studio course experiences in advanced studio production courses under art faculty supervision. Students who have completed the basic and intermediate (as applicable) courses in drawing, ceramics, photography, electronic arts, design or painting, may register for one, two, or three hours of credit per semester in a studio course in that medium. Students are expected to spend two hours in studio work each week for each credit hour anticipated. Studio problem courses are student initiated with each student, together with the faculty member, creating an acceptable course outline and evaluation process for the work of the semester. Prerequisite: permission of instructor required. J occasionally. 1 to 3 credit hours.

ART 1612, 1622, 2612, 2622: Studio Problems-Painting Students will build upon previous studio course experiences in advanced studio production courses under art faculty supervision. Students who have completed the basic and intermediate (as applicable) courses in drawing, ceramics, photography, electronic arts, design or painting, may register for one, two, or three hours of credit per semester in a studio course in that medium. Students are expected to spend two hours in studio work each week for each credit hour anticipated. Studio problem courses are student initiated with each student, together with the faculty member, creating an acceptable course outline and evaluation process for the work of the semester. Prerequisite: permission of instructor required. J occasionally. 1 to 3 credit hours.

ART 1613, 1623, 2613, 2623: Studio Problems-Photography Students will build upon previous studio course experiences in advanced studio production courses under art faculty supervision. Students who have completed the basic and intermediate (as applicable) courses in drawing, ceramics, photography, electronic arts, design or painting, may register for one, two, or three hours of credit per semester in a studio course in that medium. Students are expected to spend two hours in studio work each week for each credit hour anticipated. Studio problem courses are student initiated with each student, together with the faculty member, creating an acceptable course outline and evaluation process for the work of the semester. In some cases, a group studio problem experience may be initiated by visual arts faculty. Students achieving 12 credit hours in art studio problems must obtain permission from the arts and humanities assistant dean to take additional coursework (for credit) in art. Prerequisite: permission of instructor required. J occasionally. 1 to 3 credit hours.

ART 1670 Digital Photography I Students in this fine arts and media arts studio course will establish a foundation in digital photography techniques, digital darkroom use, and manipulation, output, and presentation techniques. Students will create images using digital cameras, enhance and manipulate images in the computer, manage and archive digital image files, and assemble a portfolio. Corequisite: ENG 1510 or Eligibility ENG 1530. J occasionally. 3 credit hours.

ART 1730 Introduction to Computer Art/Design Students will be introduced to techniques and processes of creating artwork and graphic design using the computer. Students will get an overview of electronic image manipulation, illustration, and page layout and design. This course is a prerequisite to other computer art/graphic courses. No prerequisite. J fall, spring. 3 credit hours.

ART 1740 Graphic/Design/Layout/Publishing Students will focus on the development of graphic design, computer, and presentation skills needed to produce professional looking layouts suitable for print and web publishing for the student’s portfolio. Concepts are worked out and visually organized stressing the use of type and image through sketches. The artwork is recreated and refined on the computer in a page layout program such as Adobe InDesign, then is printed to create three-dimensional or mounted prototypes. Typography basics and course concepts are taught through projects that include problem solving exercises, software tutorials, lecture, review of work in progress, and critiques. Prerequisite: ART 1730. J spring. 3 credit hours.

ART 1750 Graphic Design Applications Students will work on developing graphic design skills through exercises and projects. The creative process will be a main focus with artwork produced for the student’s portfolio using Adobe Photoshop and Adobe Illustrator. Technical skills required to run these software programs will also be learned, and an aesthetic understanding will be developed by incorporating design and color tips and theories into the assignments. Students enrolling in the course must have prior experience with Photoshop and Illustrator and must be able to further develop their computer skills in creating and manipulating artwork. Prerequisite: ART 1730. J fall, spring. 3 credit hours.

ART 2010 Art Internship Students receive on-the-job experience consisting of between 45 and 135 hours of supervised activity in a local business or industry. Students work in conjunction with a faculty mentor and a supervisor at the job site. All guidelines in the original college internship policy will be followed. Prerequisite: At least a 2.0 GPA and either sophomore standing or one semester completion in an appropriate certificate program.
ART 2510 Painting I Students will create paintings in a variety of media and concepts as well as gain understanding of the potential of a visual creator. Students work in watercolor, gouache, acrylic, and oil on paper supports and are required to produce a portfolio of paintings with evaluation based on technical growth and exploration of visual ideas. No prerequisites. J occasionally. 3 credit hours.

ART 2520 Painting II Students will continue Painting I experience with emphasis on individual exploration and ideas as well as different painting techniques. Technical approaches are discussed, but the course focus is on the student developing his/her own images in a personal, distinctive, and effective way. Prerequisite: ART 2510. J occasionally. 3 credit hours.

ART 2570 Intermediate Black/White Photography Students are offered additional experiences which are built on skills acquired in ART 1570. Extensive work in fine black and white photography, studio photography techniques, and experimental techniques is included. Designed to help students who have established basic skills and interest in photography to grow as student photographers in an atmosphere of advanced performance. Prerequisite: ART 1570. J occasionally. 3 credit hours.

ART 2590 Interdisciplinary Photography Combining traditional and non-traditional photographic processes with new technologies allow photographers to explore new opportunities and creative possibilities. This course enables students to communicate their ideas by combining photo-based mediums with computer-generated imagery, drawing, and painting. Classes include time in the darkroom and the computer graphics studio as well as lecture and discussion. All projects will be presented within an historical context. Students will study classic and contemporary art making; assignments include library research, viewing slides, and assigned readings. Prerequisite: ART 1570. J occasionally. 3 credit hours.

ART 2600 Ceramics II Students will demonstrate further development of skills with potter’s wheel, hand building methods, glazing, decoration techniques, and kiln firing. Wheel throwing and pottery skill development will be emphasized throughout the course. Prerequisite: ART 1590. J occasionally. 3 credit hours.

ART 2730 Web Design and Animation This studio production course is designed to advance the image creation skills and knowledge gained in the foundation media arts course, ART 1730: Introduction to Computer Art and Design. Students will create websites and 2-D animation using the industry standard software Flash and Dreamweaver. The course emphasizes understanding the needs of the audience as the motivation for creating effective web design and making appropriate aesthetic choices in designing those sites. Prerequisite: ART 1730. J fall, spring. 3 credit hours.

ART 2740 Advanced Digital/Imaging With Photoshop Students’ knowledge and skill base in digital imaging will be enhanced through in-depth instruction in the use of Adobe Photoshop. Students will become technically proficient at the capture, manipulation, and output of images using digital still cameras and flat bed scanners. A more sophisticated level of aesthetic understanding will be achieved as students create images that express their imagination. Prerequisite: ART 1730; Eligibility: ENG 1530. J occasionally. 3 credit hours.

ART 2750 Portfolio Seminar Students will complete their visual art portfolio containing artist’s resume and statement, 20 slides of personal work, and digital media of all portfolio components. Professional practice of the visual artist will be introduced. Research project, participation in juried show(s), and portfolio completion are required. Prerequisites: At least one studio art course, ART 1730 preferred; Eligibility: ENG 1530. J spring. 2 credit hours.

ART 2800 Interactive Design This studio production course advances the skills and knowledge gained in foundation media arts courses ART 1730, ART 2730, and CMM 1710. Students will create images, sound, and motion sequences using programs they are already familiar with for use in interactive design projects using Macromedia’s Director software. They will publish projects to CD-ROM, DVD, and/or the Internet. The course emphasizes understanding of the needs of the audience as the motivation for creating effective interactivity and applying that understanding to production design. Corequisite: ENG 1530. J occasionally. 3 credit hours.

ASTRONOMY

AST 1510 Introduction to Astronomy Students will learn about the universe while learning the scientific way of looking at the world and life. There will be four fundamental recurring questions: What is out there? Why is it the way it is? How do we know? How sure are we that we are right? Students will learn that science is a process and will learn the connection between theory and observation. Students will demonstrate their knowledge by observations of the sky and by accessing astronomy sites on the World Wide Web. Prerequisite: MAT 0600; Eligibility: ENG 1530. J fall; C occasionally. 3 credit hours.

AVIATION

AVN 1100 Aircraft Powerplants/Systems Students are provided with instruction in the theory and operating principles of reciprocating engines and appropriate systems necessary for pilot understanding. While not intended to be an aviation mechanics course, students will study aircraft structure, airframe stresses, lubrication systems, and other related systems. Prerequisite: MAT 0600; Eligibility: ENG 1530. J fall. 3 credit hours.

AVN 1140 Private Pilot Ground School Students will receive theoretical training necessary to sit for the written portion of the Private Pilot Practical Test. This course will focus on aerodynamics, aircraft performance, cross-country navigation techniques, the application of the Federal Aviation Regulations (FARs), the use of the Airman’s Information Manual (AIM), and various aircraft maneuvers. Instruction is offered by FAA and college-approved instructors who are associated with local FAA-approved flight schools. Prerequisite: ENG 0430; Corequisite: AVN 1150; Eligibility: MAT 0600 and must meet minimum college level reading score: Accuplacer 80+. J fall, spring, summer. 3 credit hours.

AVN 1150 Private Pilot Flight Students will receive flight training necessary to sit for the flight portion of the Private Pilot Test. This course will offer students their first opportunity for actual flight training in accordance with Part 141 of the Federal Aviation Administration (FAA) Requirements. Dual instruction and supervised solo flight practice are conducted by FAA and college-approved instructors who are associated with local FAA-approved flight schools. Among the topics included are flight principles, pre- and post-flight procedures, taxiing and ground procedures, flight controls, basic maneuvers, takeoffs and landings, communications, ATC procedures, and an introduction to aircraft systems. Prerequisites: FAA Third Class Medical Certificate, minimum age of 17 prior to the “flight check” at the end of the course, and must meet minimum college level reading score: Accuplacer 80+; Corequisite: AVN 1140. J fall, spring, summer. 1.5 credit hours.

AVN 1200 Survey/Air Traffic Control Students will be able to describe air traffic control communication procedures. Students will be able to describe fundamental differences between radar and non-radar operations. Students will be able to communicate with air traffic controllers. Students will be able to describe how air traffic controllers sequence and direct aircraft. Eligibility: ENG 1530. J spring. 3 credit hours.

AVN 1240 Instrument Pilot Ground School Students will focus on the fundamentals of flying an aircraft solely by reference to instruments and will become familiar with flight instruments and navigational aids. Topics include basic navigation systems such as VOR (Very High Frequency Omni Direction Range), ADF (Automatic Direction Finder), ILS (Instrument Landing System), as well as advanced navigation systems such as GPS (Global Positioning System), LORAN, INS, and RNAV. This is the ground school portion of the instrument pilot rating. Prerequisite: AVN 1140 and 1150, or Private Pilot Certificate; Corequisites: AVN 1250 and MAT 1590; Eligibility: ENG 1530; other: current FAA Third Class Medical Certificate. J fall, spring. 3 credit hours.

AVN 1250 Instrument Pilot Flight Students will receive instrument flight training in accordance with Part 141, Appendix C of the Federal Aviation Regulations (FAR). This course will focus on the fundamentals of flying an aircraft solely by reference to instruments. It consists of a minimum of 35 hours of dual flight instruction along with briefing and other matters related to instrument flight. Prerequisite: AVN 1140 and 1150, or Private Pilot Certificate; Corequisites: AVN 1240 and MAT 1590; Eligibility: ENG 1530; other: current FAA Third Class Medical Certificate. J fall, spring. 1.5 credit hours.

AVN 1340 Commercial Pilot Ground School I This course, along with AVN 2140: Commercial Pilot Ground School II, prepares students for the
AVN 1500 Commercial Pilot Flight I Students will receive commercial flight training in accordance with Part 141, appendix D, of the Federal Aviation Regulations. FAA and college-approved instructors associated with local FAA-approved Fixed Base Operators (FBOs) conduct dual instruction and supervise solo flight. This course consists of a minimum of 49 hours of flight instruction along with briefing and other matters related to commercial piloting. The student will bear all expenses beyond the above flight and instructional time. This course is the first half of a training package (along with AVN 215) that prepares students for the FAA Commercial Pilot Practical Test ASEL (Airplane Single Engine Land). Prerequisite: AVN 1140 and 1150, or Private Pilot Certificate; Corequisite: AVN 1350; Eligibility: ENG 1530; other: current FAA Third Class Medical Certificate. J fall, spring. 1.5 credit hours.

AVN 2150 Commercial Pilot Flight II Students will receive commercial flight training in accordance with Part 141, appendix D, of the Federal Aviation Regulations. FAA and college-approved instructors associated with local FAA-approved Fixed Base Operators (FBOs) conduct dual instruction and supervise solo flight. The course consists of a minimum of 71 hours of flight instruction along with briefing and other matters related to commercial piloting. The student will bear all expenses beyond the above flight and instructional time. This course is the second half of a training package (along with AVN 1350) that prepares students for the FAA Commercial Pilot Practical Test ASEL (Airplane Single Engine Land). Prerequisites: AVN 1340 and 1350; Corequisite: AVN 2140; Eligibility: ENG 1530; other: current FAA Third Class Medical Certificate. J fall, spring. 1.5 credit hours.

AVN 2200 Advanced Aircraft Systems Students will focus on a more advanced presentation of aircraft systems than is covered in AVN 1100. Among the systems covered are electrical, hydraulic, anti-icing, instrument, pressurization, and fuel systems. Prerequisite: AVN 1100 or Private Pilot and Instrument Rating; Eligibility: ENG 1530. J fall. 3 credit hours.

AVN 2250 Certified Flight Instructor-Airplane This course consists of a minimum of 65 hours of instruction - 25 hours of dual flight and 40 hours of classroom instruction - and prepares students for the FAA Certified Flight Instructor Airplane Practical Test. Flight instruction consists of a comprehensive review of private and commercial flight maneuvers. The class instruction includes an in-depth discussion of the fundamentals of instruction, including lesson plan preparation, laws of learning, and effective communication techniques. Aerodynamics, regulations, procedures, and other topics covered during the private and commercial phases of training are also reviewed. Prerequisites: commercial pilot certificate with instrument rating and current FAA Third Class Medical Certificate. J fall, spring. 3 credit hours.

AVN 2350 Multi-Engine Flight Provides advanced training in light twin-engine airplanes. Students will receive flight and ground instruction necessary for the FAA Commercial Pilot Practical Test AMEL (Airplane Multi-Engine Land). Corequisites: AVN 1340 and AVN 1350; other: current FAA Third Class Medical Certificate. J fall, spring. 0.5 credit hours.

AVN 2450 Certified Flight Instructor/Instrument Prepares students for the FAA Certified Flight Instructor-Instrument Practical Test. This elective course includes beginning and advanced topics necessary for instructing students in instrument flight. In addition to 15 hours of dual flight instruction, students will learn how to prepare lesson plans in instrument flight theory, methods for effective communication, the use of a variety of instructional methods, and how to evaluate performance during 20 hours of classroom instruction. Prerequisite: Certified Flight Instructor-Airplane rating; other: current FAA Second Class Medical Certificate. J fall, spring. 2 credit hours.

BIOLOGY

BIO 1450 Emergency Medical Technology This course presents a contract offering limited to persons involved in the delivery of emergency medical care who intend to take the New York State Health Department’s certifying exam for emergency medical technicians. Students will learn about all major aspects of trauma, medical emergencies, cardiopulmonary resuscitation, victim extrication, transport, spinal injuries, shock, airway management techniques, and use of an anti-shock garment. In addition to 90 hours of classroom/laboratory work, students will complete one hour of observation and assistance in a hospital emergency room. Eligibility: MAT 0500 or greater; must meet minimum college level reading score: Accuplacer 80+. J fall, spring. 7 credit hours.

BIO 1500 Human Biology This course covers basic structures and functions of the human body. Students will learn about the chemical basis of life, cellular structure and metabolism, tissues, and an overall survey of the organ systems of the body. An introduction to human evolution is presented. Recent developments in science, medicine, and health coupled with environmental issues and their impact on health are incorporated into the course. Laboratory exercises include use of the microscope, experimentation, and hands-on investigation of organ systems. Corequisite: ENG 1510, reading score 80+; J fall, spring; C fall, spring. 4 credit hours.

BIO 1510 Health Science Students will investigate a variety of health-related topics, many of which are useful in planning a healthier lifestyle. Topics include stress, mental health, nutrition, human sexuality and reproduction, birth control, sexually transmitted and other diseases, cardiovascular health, cancer, drugs (including alcohol), and environmental health. This survey course is appropriate for non-science majors. Corequisite: ENG 0410 and ENG 0430; Reading score Accuplacer 70+. Note: Eligibility for ENG 1510 is strongly recommended. J fall, spring; C fall, spring; Online fall, spring. 3 credit hours.

BIO 1520 Biology of Birds In this introduction to birds, one of the most colorful and popular groups of animals on our planet, students will learn about basic anatomy and physiology, evolutionary history, classification and identification by sight and song, behavior, and ecological importance. Outdoor fieldwork is included. Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J occasionally; Online occasionally. 1 credit hour.

BIO 1540 Biology of Insects This course studies insects, the most abundant and diverse group of animals on our planet. Students will learn about basic anatomy and physiology, evolutionary history, classification and identification, behavior, and ecological and economic importance. Field trips and a small insect collection are required. Outdoor fieldwork included. Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J occasionally. 1 credit hour.
BIO 1560 Biology of Mammals This course studies mammals, the group considered to be the peak of animal evolution. Students will learn about physiology, evolutionary history, classification and identification, behavior, and ecological importance. Outdoor fieldwork included. Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J occasionally. 4 credit hours.

BIO 1570 Principles of Biology I Students will identify, understand, and interpret fundamental biological principles such as biodiversity, evolution, ecology, chemical foundations of life, cell structure and function, cellular metabolism, photosynthesis, respiration, cellular reproduction, and classical, human and molecular genetics. Laboratory may include one or more outdoor experiences. Prerequisite: high school chemistry or Corequisites: CHE 1500 or CHE 1530 and MAT 0690 and ENG 1510; must meet minimum college level reading score 80+. J fall, spring; C fall, spring. 4 credit hours.

BIO 1580 Principles of Biology II Students will recognize, identify, describe, and classify representatives of the major phylogenetic and taxonomic groups of life on earth, surveying the three domains of life’s biodiversity and the archaea, bacteria, protist, fungi, plant, and animal realms. Students will study evolutionary history and relationships, life cycles, reproductive strategies, morphology, anatomy, physiology, behavior, and ecological roles of representative organisms. Laboratory may include one or more outdoor experiences. This survey course is appropriate for both science and non-science majors. Prerequisite: BIO 1570. Eligibility: ENG 1530. J spring; C spring. 4 credit hours.

BIO 1700 Immunology Students will study the mechanisms needed to establish normal immunity, as well as the biological problems that can arise in allergies, autoimmunity, and chronic inflammation. As such they will learn about diseases from which so many suffer. In addition, during laboratories, students will be engaged in individual research projects to learn invaluable standard operating procedures for laboratory work, like good note keeping, making reagents, etc. The research projects will be used as a vehicle for them to learn the important biotechnology techniques and concepts that have developed out of the field of immunology, as well as to prepare them for an undergraduate research experience should they choose. Special emphasis will be placed on the nexus between immunology, molecular biology, and pathophysiology. Prerequisite: BIO 1570 or 2510; Eligibility: ENG 1530. J occasionally; C occasionally. 4 credit hours.

BIO 1710 Personal Health and Safety Designed for non-science majors, this course deals with emergency medical problems as they relate to sudden illness, accidents, environmental emergencies, and life threatening situations. Students will learn about legal responsibilities, bleeding, shock, soft tissue injuries, musculoskeletal injuries, syncope, diabetic emergencies, seizures, strokes, poisoning, and alcohol abuse. Successful course completion may possibly lead to American Red Cross certifications in both community CPR, first aid/responding to emergencies, and automatic external defibrillation (AED). Appropriate for non-science majors. Corequisite: ENG 0430 and ENG 0440. Reading score Accuplacer 70+. Note: Eligibility for ENG 1510 is strongly recommended. J occasionally. 4 credit hours.

BIO 1820 SURI: Biotechnology I Students will be exposed to authentic laboratory environments and the practice application of scientific method in context of research projects. The course is divided into laboratory experience and a weekly three-hour colloquium where students receive lectures on key topics and present scientific literature. Colloquium also trains students in lab notebook keeping, scientific presentation skills and reading/presenting biotechnology and biomedical literature. Students are divided into either Biotechnology I or Biotechnology II, depending on their level of experience, but are blended together in a single course. Biotechnology I students are required to understand and explain the methods used and data presented in scientific literature and in their own research. Research topics range from cancer biology and immunology to environmental biotechnology and deliberately use methods and interpretation of results unique to the field of biotechnology. Prerequisite: BIO 1570. J summer. 4 credit hours.

BIO 1830 SURI: Environmental I Students will participate in environmental research that pertains to their area of interest and/or as requested by local environmental organizations. As part of this experience, students will read, interpret, and present published scientific research papers. Students will be responsible for experimental design, maintaining a laboratory journal, and acquiring the necessary laboratory and field research skills to complete their research and present their results. Students are divided into either Environmental I or Environmental II, depending on their level of experience, but are blended together in a single course. Environmental I students are expected to function as technicians. As such, they will learn how to function in a research setting, learn scientific record-keeping and how to design and perform a well-controlled experiment reproducibly. Prerequisite: BIO 1570. J summer. 4 credit hours.

BIO 2010 Biology Internship Students receive on-the-job experience consisting of 135 hours of supervised activity in a local business or industry. Students work in conjunction with a faculty mentor and a supervisor at the job site. All guidelines in the original college internship policy will be followed. Prerequisite: at least a 2.0 GPA and either sophomore standing or one semester completion in an appropriate certificate program. 1 to 3 credit hours.

BIO 2013 Environmental Science Internship I Students receive on-the-job experience consisting of 135 hours of supervised activity in a local business or industry. Students work in conjunction with a faculty mentor and a supervisor at the job site. All guidelines in the original college internship policy will be followed. Prerequisite: at least a 2.0 GPA and either sophomore standing or one semester completion in an appropriate certificate program. 1 to 3 credit hours.

BIO 2020 Biology Internship II Students receive on-the-job experience consisting of 135 hours of supervised activity in a local business or industry. Students work in conjunction with a faculty mentor and a supervisor at the job site. All guidelines in the original college internship policy will be followed. Prerequisite: at least a 2.0 GPA and either sophomore standing or one semester completion in an appropriate certificate program. 1 to 3 credit hours.

BIO 2022 Biotechnology Internship II Students receive on-the-job experience consisting of 135 hours of supervised activity in a local business or industry. Students work in conjunction with a faculty mentor and a supervisor at the job site. All guidelines in the original college internship policy will be followed. Prerequisite: at least a 2.0 GPA and either sophomore standing or one semester completion in an appropriate certificate program. 1 to 3 credit hours.

BIO 2023 Environmental Science Internship II Students receive on-the-job experience consisting of 135 hours of supervised activity in a local business or industry. Students work in conjunction with a faculty mentor and a supervisor at the job site. All guidelines in the original college internship policy will be followed. Prerequisite: at least a 2.0 GPA and either sophomore standing or one semester completion in an appropriate certificate program. 1 to 3 credit hours.

BIO 2510 Anatomy & Physiology I This course is the first of two human anatomy and physiology courses which must be taken in sequence. This first course is designed for students who have had little or no previous study of the body or the physical and chemical principles on which body structure and function is based. In this course, students are introduced to basic chemistry and physics, cytology, and histology, and the following organ systems are covered: integumentary, skeletal, muscular, cardiovascular, immune, and respiratory. The accompanying laboratory deals with basic terminology, microscopy, animal dissection, organ dissection, and experimentation. Prerequisite: high school chemistry, CHE 1500, or CHE 1530. Corequisite: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J fall, spring; C fall, spring. 4 credit hours.

BIO 2520 Anatomy & Physiology II This course is the second of two human anatomy and physiology courses which must be taken in sequence. In this course, students are introduced to water, electrolyte, and acid-base balance, and the following organ systems are covered: urinary, digestive, endocrine, nervous, and reproductive.
The accompanying laboratory deals with microscopy, animal dissection, organ dissection, and experimentation. Prerequisite: BIO 1570 or BIO 2510; Eligibility: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J fall, spring; C fall, spring. 4 credit hours.

BIO 2532 Microbiology - Lab Students will become skilled in appropriate techniques for handling bacterial cultures, identifying specimens and implementing and evaluating various standard diagnostic procedures. Prerequisite: BIO 1570 or BIO 2510; Eligibility: ENG 1530. J fall, spring; C fall, spring. 1 credit hour.

BIO 2550 Conservation Biology Students will study, discuss, and present information related to the global loss of biodiversity. Traditional as well as modern conservation practices will be discussed emphasizing the ways in which the principles of genetics, ecology, and evolutionary biology are being utilized to conserve and protect at-risk species and global biodiversity. The growing need for the application of ecological principles to our human role in the environment, including topics such as habitat alteration and fragmentation, introduction of exotic species, ecological economics, the importance of diversity, and extinction will be discussed. Multiple field trips will be included outside of scheduled class time. Prerequisite: BIO 1570 or high school AP Biology of approved high school advanced biology; Eligibility: ENG 1530. J fall, spring; C fall, spring. 3 credit hours.

BIO 2560 Genetics Students will identify the fundamental concepts of heredity, including Mendelian extensions, structure and replication of chromosomes, gene and chromosomal mutations, gene linkage and chromosome mapping, transcription and translation, regulation of gene expression, mechanisms of mutation, recombination and repair, population genetics, molecular evolution, cloning and recombinant DNA technology, and other contemporary topics. Prerequisites: BIO 1570; Corequisite: CHE 1550; Eligibility: ENG 1530. J occasionally. 4 credit hours.

BIO 2570 Environmental Issues/Ethics Students will gain critical understanding of the impacts of human activities as they affect the earth and the web of life it sustains from both ethical and scientific perspectives. Contemporary environmental issues such as methods and limitations of science and moral reasoning, global warming, ozone depletion, deforestation, animal rights, population growth, waste disposal, biodiversity, and species extinction will be discussed. This team-taught course is offered under biology for natural science credit (BIO 2570) or philosophy for humanities credit (PHL 2570). Prerequisites: BIO 1570 and ENG 1530. J occasionally. 3 credit hours.

BIO 2600 Planet Earth: Critical Topics Students will examine critical issues affecting humanity and the global environment, from an in-depth, three-part perspective. Students will investigate the science of selected topics of global environmental significance, explore their causes and consequences within contemporary culture, and evaluate the impacts and importance of the mass media in public perception concerning these issues. Corequisite: ENG 1530 and a reading score of 80+. J occasionally. 3 credit hours.

BIO 2620 Tropical Biology Seminar Students will experience “hands-on” learning about South and Central American tropical habitats, including rainforests, coral reefs, mangrove swamps, and Caribbean coastal shore areas, via classroom lectures and travel to Costa Rica, Panama, or other biodiversity sites during spring recess. Animals and plants typical of both marine and terrestrial tropical communities will be explored and identified, and their various habitats will be investigated. Prerequisites: BIO 1570 and permission of the instructor; Eligibility: ENG 1530. Rigorous physical activities, including swimming, snorkeling, and hiking are required. J occasionally. C occasionally. 3 credit hours.

BIO 2640 Animal Behavior Students will master a variety of topics including the nature of instinct, biological basis of aggression, social communication, animal navigation and migration, mating and reproductive behavior, and territoriality. Both classical and recent studies, including those that deal with human behavior will be represented. Field trips may be an additional part of the course. Prerequisite: a college biology or psychology course. J occasionally. C occasionally. 3 credit hours.

BIO 2660 Zoology In this introduction to the animal kingdom, students will be asked to identify and understand animal morphology, development, behavior, relationships with the environment, and the evolutionary history of numerous phyla and classes of animals. This course explains what animals are, what they do, and how they do it. Additional or more field trips will be included. Prerequisite: BIO 1570; Eligibility: ENG 1530. J spring. 4 credit hours.

BIO 2670 Botany Using a classical taxonomic study of the botanical realm, students will gain an understanding of bacteria, phytophagists, fungi, and the true plants, and explore the ecological, evolutionary, and economic significance of these organisms. Emphasis is placed on the morphology, anatomy, physiology, behavior, and ecology of botanical organisms through the study of cells, tissues and organs, life cycles and reproductive strategies, evolutionary relationships and trends, taxonomic classification, and related contemporary issues. Laboratory includes off-campus field trips and outdoor fieldwork assignments. Prerequisite: BIO 1570; Eligibility: ENG 1530. J fall. 4 credit hours.

BIO 2760 Nutrition Students will evaluate the importance of foods and nutrients: proteins, vitamins, minerals, water, energy metabolism, nutritional needs throughout the life cycle, nutrition and disease states, food safety, and consumer issues dealing with nutrition. Prerequisite: a high school biology course, or BIO 1570, or BIO 2510; Corequisite: ENG 1510 and college level reading score Accuplacer 80+. J fall, spring; C fall, spring; Online fall, spring. 3 credit hours.

BIO 2800 Cell and Molecular Biology This course examines the structure and function of living cells. The course extends and adds to the fundamental cell biology knowledge students acquire in BIO 1570, Principles of Biology I. In the lecture component of the course, students will learn about energy use by cells; cellular proteins and enzymes; DNA, chromosomes, and gene expression; membrane structure and transport; cellular organelles; cell communication; the cytoskeleton; and control of the cell cycle and cell death. In the laboratory portion of the course, students will learn how to perform contemporary methods used to manipulate cells and molecules within cells. Prerequisite: BIO 1570; Eligibility: ENG 1530. J occasionally. C occasionally. 4 credit hours.

BIO 2810 Biotechnology Research Students will be introduced to problem-solving using modern laboratory techniques in molecular biology that were first introduced in courses such as: Principles of Biology, Genetics, and Cell and Molecular Biology. Problem solving draws on the basic techniques of molecular biology used in the study of gene structure and function, including DNA/RNA and plasmid isolation, protein extraction, Southern blotting and Western blotting, PCR, gene cloning, and others. This course provides hands-on experience with the techniques and instrumentation used in the modern biotechnology laboratory. Prerequisite: BIO 2560; Corequisite: BIO 2800. J occasionally; C occasionally. 2 credit hours.

BIO 2820 SURI: Biotechnology II Students will be exposed to authentic laboratory environments and the practice application of scientific method in context of research projects. The course is divided into laboratory experience and a weekly three hour colloquium where students receive lectures on key topics and present scientific literature. Colloquium also trains students in lab notebook keeping, scientific presentation skills and reading/presenting biotechnology and biomedical literature. Students are divided into either Biotechnology I or Biotechnology II, depending on their level of experience, but are blended together in a single course. Biotechnology II students are required to understand and explain the underlying concepts in scientific literature and in their own research at an undergraduate level. This includes the methods, results, and conclusions drawn in the research. Research topics range from cancer biology and immunology to environmental biotechnology and deliberately use methods and interpretation of results unique to the field of biotechnology. Prerequisite: ENG 1530; BIO 1700 or BIO 2531 or BIO 2560, or BIO 2800. J summer. 4 credit hours.

BIO 2830 SURI: Environmental II Students will participate in environmental research that pertains to their area of interest and as requested by local environmental organizations. As part of this experience, students will read, interpret, and present published scientific research papers. Students will be responsible for
experimental design, maintaining a laboratory journal, and acquiring the necessary laboratory and field research skills to complete their research and present their results. Students are divided into either Environmental I or Environmental II, depending on their level of experience, but are blended together in a single course. Environmental II students are expected to function like an advanced student. In addition to Environmental I expectations, they are also expected to understand and communicate how the papers they present fit into the underlying science. Prerequisite: ENG 1530; BIO 1570; and BIO 1580, or BIO 1830, or BIO 2550 or BIO 2600, or BIO 2660, or BIO 2670. J summer. 4 credit hours.

BUSINESS

BUS 1220 College Keyboarding Students will master the keyboard and develop skills and techniques in accuracy, proofreading, speed, and document production. Basic letters, one-page reports, and a variety of business documents are introduced and keyed using the computer. Skill building is emphasized through individualized instruction. No prerequisites. J fall, spring; C fall, spring; Online fall, spring. 3 credit hours.

BUS 1320 Office Procedures Students will learn to create, edit, save, and print documents. Preparation of business letters and reports will enhance basic and production skills and office simulation activities. The ability to produce and edit professional business documents is strengthened. The course provides hands-on training in word processing software. Prerequisite: BUS 1220. J fall, spring, C fall, spring. Online fall, spring. 3 credit hours.

BUS 1410 Accounting Fundamentals Students will gain an understanding of the accounting principles and procedures used to record, classify, and summarize financial data. Students will become familiar with accounting terminology and many of the financial records, forms, and statements used in an electronic environment. No prerequisites. J spring; C spring. 3 credit hours.

BUS 1420 Office Procedures Students will prepare to learn and perform procedures to become effective in both the operation and managerial levels required in today’s and tomorrow’s office. A survey of the automated office and introduction to integrated office systems is emphasized. Students are given a perspective on the role of an office professional and an awareness of the technical developments that have affected the office professional. Course content includes theory and practice in time and work management, telephone techniques, planning/coordinating travel and meetings, and communication skills. No prerequisites. J spring; C spring; Online spring. 3 credit hours.

BUS 1430 Entrepreneurship I This course provides the student with skills and resources necessary to assess current personal, economic, social, and business environment for opportunities for new ventures. Students will assess their business ideas based on their own strengths and skills, by looking internally at prior experience, education and skills. In addition the student will begin an external analysis of area trends. Business ideas will be matched with the student’s skills, as well as personal, professional, and financial goals. Students will finalize their business concept and conduct a feasibility study of their local market. Eligibility: ENG 1510. J occasionally; C occasionally; Online occasionally. 3 credit hours.

BUS 1500 Introduction to Business Students will study the elements and characteristics of a free enterprise system and will be presented an overview of functional areas of business and basic concepts of the business world. Some topics include the environment of business, organization and management of the enterprise, management of human resources and production, marketing, finance, government’s role in business, social responsibility, and cultural diversity, as well as major societal issues facing today’s business executives. Recommended for beginning business students and non-business majors. Corequisite: BUS 1430. J fall, spring; C fall, spring; Online occasionally. 3 credit hours.

BUS 1510 Principles of Financial Accounting Students will gain a broad view of accounting’s role in satisfying society’s need for financial information. In an overview of the accounting profession, students will understand generally accepted accounting principles underlying the design, integrity, and effectiveness of accounting information systems. Providing relevant financial statements for the decision maker and the use of computers to generate financial information are outlined. Prerequisite: must meet minimum college level reading score: Accuplacer 80+. J fall, spring; C fall, spring; Online occasionally. 4 credit hours.

BUS 1520 Principles of Managerial Accounting Students will demonstrate basic decision making and analyzing skills in management accounting. Financing a business through debt or capital structures, analysis of cash flows, financial ratios, manufacturing costs, budgeting, cost-volume-profit analysis, and current managerial accounting topics are covered. Prerequisite: BUS 1510. J fall, spring; C fall, spring; Online occasionally. 4 credit hours.

BUS 1610 Personal Finance Students will gain an appreciation of the need for personal financial planning and will learn how to apply such planning to goal setting and budgets. They will evaluate exposures to risk and how insurance fits into a risk management plan. Students will have the ability to coordinate income, assets, and spending into a comprehensive program that takes the planner through the various stages of their life cycle, from college to retirement. Eligibility: ENG 1510. J fall, spring; C occasionally. 3 credit hours.

BUS 1650 Global Business Students will learn how and why countries differ. More specifically, they will learn about the economics, politics, and global monetary system of international trade. Students will develop an understanding of the global marketplace, different cultures, and the role of management and labor in international business. (Previous knowledge of economic, business, geography, and world politics is helpful, but not a requirement.) Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J spring. 3 credit hours.

BUS 2010 Business Internship Students will receive on-the-job experience consisting of 135 hours of supervised activity in a local business or industry. Students work in conjunction with a faculty member and a supervisor at the job site. All guidelines in the original internship policy will be followed. Prerequisite: sophomore standing. J fall, spring; C fall, spring. 1 to 3 credit hours.

BUS 2020 Business Internship Students will receive on-the-job experience consisting of 135 hours of supervised activity in a local business or industry. Students work in conjunction with a faculty member and a supervisor at the job site. All guidelines in the original internship policy will be followed. Prerequisite: sophomore standing. J fall, spring; C fall, spring. 1 to 4 credit hours.

BUS 2220 Labor Relations Students will be able to identify the processes and practices of collective bargaining in the United States. Students learn fundamentals in labor legislation, labor negotiations, contract administration, and grievance procedure as well as conduct research and learn about current activities in the field involving collaboration and cooperation between employers and unions. Prerequisite: ENG 1530. J occasionally. 3 credit hours.

BUS 2270 Introduction to Taxation Introduces students to a broad range of tax concepts and types of taxpayers. The course will also emphasize the basic structure of the tax law and the process of performing tax research, as well as build a foundation of the details of tax law that are most likely to be of long-term importance. Students will be exposed to tax research, tax planning, and tax compliance. Prerequisites BUS 1510-1520. J occasionally. 3 credit hours.

BUS 2320 Word Processing Production Students will refine basic skills mastered in word processing and practice more sophisticated features of Microsoft Word for multi-page documents including page formatting, footnotes, macros, merge, document assembly, sort, select, tables, and graphics. Documents similar to those encountered in business organizations are prepared. Projects simulating real-life situations will reinforce word processing and desktop publishing skills. Prerequisite: BUS 1320 or equivalent experience. J fall, spring; C fall, spring. 3 credit hours.

BUS 2420 Professional Development Internship Students will learn to integrate theory and practice in a business setting by working 10 hours per week in a business organization. Student, instructor, and internship site supervisor will jointly plan the experience and help the student develop as a professional. A weekly, two-hour seminar focuses on topics related to the professionalism that is required in today’s business world. Prerequisites: sophomore standing and must be program major. J fall; C spring. 5 credit hours.

BUS 2480 Business Electronic Communication Students will learn to design, create, and publish professional communication and marketing materials for businesses and organizations using presentation and publishing software. They will investigate other electronic communication tools used in business today such as electronic mail, audio and video conferencing, and the Internet. Prerequisite: sophomore standing. Online fall. 3 credit hours.
BUS 2510 Corporate Finance Students will apply computational, critical thinking, and financial analysis tools to data to make it useful for business decisions of a financial nature. The student will demonstrate an understanding of alternative forms of business organization, ratio analysis, risk-return tradeoffs, time value of money, debt versus equity financing, valuation of securities, and capital budgeting. Students learn to apply these tools in the context of maximizing shareholders’ wealth in a global economy. Prerequisites: BUS 1510-1520. J occasionally; C occasionally. 3 credit hours.

BUS 2530 Business Law I Students will study and examine the legal environment of business using the case method in which law is applied to factual situations. In BUS 2530, students study court systems and procedural law, tort and criminal law, constitutional law, and contract law. In BUS 2540, students study the law related to personal property and bailments, real property, secured transactions and bankruptcy, business structure including partnerships and corporations, and the Uniform Commercial Code. Eligibility: ENG 1530. J fall; C fall. 3 credit hours.

BUS 2540 Business Law II Students will study and examine the legal environment of business using the case method in which law is applied to factual situations. In BUS 2530, students study court systems and procedural law, tort and criminal law, constitutional law, and contract law. In BUS 2540, students study the law related to personal property and bailments, real property, secured transactions and bankruptcy, business structure including partnerships and corporations, and the Uniform Commercial Code. Eligibility: ENG 1530. J spring; C spring; Online occasionally. 3 credit hours.

BUS 2550 Marketing Students will study the process of planning and putting into practice various activities involved in the marketing of products, services, or ideas, and analyze the theories involved in the flow of goods and services from the producer to the consumer. The dynamic nature of the American economy students, students will demonstrate a knowledge of the marketing concept, buyer behavior, product analysis, pricing factors, institutions and channels of distribution, and promotional strategies. Prerequisite: ENG 1530. J fall, spring; C spring. 3 credit hours.

BUS 2570 Principles of Management Students will learn the basic concepts, factors, functions, and techniques of management in organizations. Students will obtain specific knowledge of planning, organizing, directing, and controlling and the interconnectedness of these functions in productive organizations. Upon course completion, students will demonstrate a knowledge of the principles of good management in individual and team-based environments. Eligibility: ENG 1530 and sophomore standing. J fall; C fall. 3 credit hours.

BUS 2580 Management/Organizational Behavior Students will develop an understanding of the basic concepts of behavioral sciences and their application to performance of individuals working in organizations. Students will study key attitudes and behavior that affect productivity. Upon course completion, students will demonstrate an understanding of the factors that affect performance such as leadership, motivation, communication, absenteeism, and job satisfaction as well as a basic understanding of how diverse individual styles of interaction contribute to an organization. Eligibility: ENG 1530 and sophomore standing. J spring; C spring. 3 credit hours.

BUS 2590 Advanced Managerial Accounting Students will develop techniques for internal reporting and analysis of accounting information to assist managers in their decision making processes. Students will demonstrate an understanding of various budgeting techniques and the responsibility of managers in the process. Upon course completion, students have a knowledge of the fundamental accounting concepts of planning and control. Prerequisites: BUS 1510-1520 and Eligibility: MAT 1590. J occasionally; C occasionally. 3 credit hours.

BUS 2630 Human Resource Management Students will learn the basic functions of human resource management in organizations. Topics include organization of jobs, employment, training, labor relations, compensation, appraisal, and benefits. Eligibility: ENG 1530. J occasionally; C occasionally. 3 credit hours.

CHE 1500 Introduction to Chemistry Students will study the fundamental concepts of chemistry from a theoretical approach using basic scientific tools of measurement and problem solving. Topics include atomic structure, nomenclature, bonding, periodic behavior, chemical equations, acids and bases, gases, liquids, solids, and properties of solutions. The course is for students with little or no chemistry background and/or who wish to continue in CHE 1550. Eligibility: ENG 1530; Corequisites: MAT 0600 or MAT 1500; must meet minimum college level reading score: Accuplacer 80+. J fall; C spring. 3 credit hours.

CHE 1530 Allied Health Chemistry Students will consider selected basic concepts from inorganic, organic, and biological chemistry which will be applied to allied health and biological fields. Topics include matter and measurements, chemical bonds and reactions, redox, states of matter, acids and bases, organic functional groups, and common macromolecules in biological systems. The course is for students with little or no chemistry background who are pursuing a degree in an allied health field or who wish to continue in CHE 1550. Corequisite: ENG 1530 or MAT 1500; Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J fall; C fall. 3 credit hours.

CHE 1550 College Chemistry I Students will investigate fundamental concepts of chemistry from a theoretical perspective with an emphasis on problem solving. Through the laboratory students will attain and demonstrate qualitative and quantitative skills. The chemistry of elements and compounds will be studied through measurements, atomic structure, periodicity, chemical bonding, stoichiometry, reaction classification, redox, gases, liquids, and solids. The review class is strongly recommended as an opportunity to practice problem solving, to ask specific questions, and to review returned quizzes and exams. Course content is designed for the science/engineering major who has already taken a chemistry course and who wishes to transfer to a four-year institution. Prerequisite: high school chemistry or CHE 1500 or CHE 1530; Corequisites: ENG 1510 and MAT 1590; must meet minimum college level reading score: Accuplacer 80+. J fall, spring; C fall. 4 credit hours.

CHE 1560 College Chemistry II A continuation of CHE 1550, students will investigate intermolecular forces in solids and liquids, solutions, kinetics, equilibrium, acids and bases, thermodynamics, electrochemistry, and nuclear reactions. Prerequisite: CHE 1530; Corequisite: ENG 1530 and MAT 1600. J spring; C spring. 4 credit hours.

CHE 2530 Organic Chemistry I Students will apply many concepts from college chemistry to the study of organic molecules. Students will be able to name and draw structures, assign properties, predict reaction products, synthesize and explain the reaction mechanisms for alkanes, alkenes, alkynes, and cyclic hydrocarbons as well as alkyl halides, alcohols, and ethers. Aromatic compounds will be introduced and studied. Chemistry and effects of solvents will also be investigated. A broad spectrum of classical organic reactions will be examined in the lab using microscale techniques. Prerequisite: CHE 1560. J fall. 4 credit hours.

CHE 2540 Organic Chemistry II A continuation of CHE 2530, students will extend their studies to the spectroscopic analysis of hydrocarbons. Additional topics include aromatic compounds, aldehydes, ketones, carbanions, carboxylic acids and their derivatives, amines, phenols, amino acids, polymers, lipids, carbohydrates, and proteins, and nucleic acids. Labs (still microscale) will investigate a range of multistep reaction sequences, as well as a few short classic reactions. Prerequisite: CHE 2530. J spring; 4 credit hours.

COMMUNICATION CMM 1510 Introduction to Communication Students will be introduced to the theories, processes, and applications of verbal and non-verbal human communication and explore why and how we communicate (face-to-face, in public, through the mass media, etc.). Students will also examine the ways that new communication technologies are shaping private and public discourse. Students will gain the skills necessary to recognize and analyze communication failures and be able to apply those skills in the process of becoming more effective communicators. Corequisite: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J fall, spring; C fall. 3 credit hours.

CMM 1610 Public Speaking Students will learn effective strategies for researching, preparing, and delivering informative and persuasive speeches to small groups. Students will be able to demonstrate methods for building confidence in speech delivery, supporting points with evidence, analyzing the audience, using media aids effectively, and refining delivery style. Eligibility: ENG 1510; must meet minimum college level.
reading score: Accuplacer 80+. J fall, spring; C fall, spring. 3 credit hours.

CMM 1630 Introduction to TV Production
Students are introduced to the cameras and sound, lighting, mixing, recording, and graphic tools used to produce television programming. Working in teams, students will produce live-to-tape programs, and produce storyboards for projects that will be produced during the course. Projects are edited using digital video software and Macintosh computers. Corequisite: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J fall. 3 credit hours.

CMM 1710 Digital Video Production
Students will be introduced to single camera, post-produced video making. Students will explore shot composition, using a digital video camera, film style shooting, sound recording, and lighting. They will learn how to conduct an audience analysis, write project treatments, and produce storyboards for projects that will be completed during the course. Projects are edited using digital video software and Macintosh computers. Corequisite: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J fall. 3 credit hours.

CMM 1750 Rhetoric of Vision and Sound
This communication and media arts foundation course explores the vision and sound codes used in various forms of mediated communication. Students will examine films, television, radio, and the Internet to gain an understanding of the techniques employed by producers and directors to create meaning beyond content and script. Students will explore the grammatical elements which comprise the rhetoric of vision and sound: the use of light, color, two- and three-dimensional space, time, motion, and sound. In today’s media saturated environment, the ability to decode mediated messages is a valuable critical thinking skill for all citizens; students interested in becoming producers of media will find the knowledge they have gained in this course especially helpful to their production efforts. Corequisite: ENG 1530. J occasionally. 3 credit hours.

CMM 2500 Interpersonal Communication
Students will develop their ability to examine the interpersonal and communication. They are likely to encounter in their personal and professional lives. They will describe their interpersonal communication style, and understand the roles played by such factors as verbal and non-verbal cues, communication climate, intimacy, distance, and conflict. Students also learn to recognize obstacles to effective interpersonal communication and develop strategies for overcoming these obstacles. Corequisite: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J fall, spring; C occasionally. 3 credit hours.

CMM 2510 Introduction to Public Relations
Students will learn the definition of, theory behind, and application of public relations (PR) and will be introduced to the role public relations plays in integrated marketing campaigns. The course will include a study of the strategic PR process; research, action and planning, communication and evaluation. Students will gain practical experience in writing news releases, market research, crisis management, and creative design. Corequisite: ENG 1530. J fall; C fall. 3 credit hours.

CMM 2530 Writing for Electronic Media
This practical writing course offers students guidance and experience conceptualizing and writing for a variety of electronic media forms including radio, television, film, multimedia productions, and the Internet. The brief exposure to messages created for electronic media, as well as the interactive nature of some electronic media, makes writing for the media especially challenging. Students will learn how to cope with these challenges and become competent media writers. Prerequisite: ENG 1530. J spring. 3 credit hours.

CMM 2560, 2561, 2562, 2563, 2564, 2565 Communication/Media Arts Internship
Students will demonstrate a working knowledge of the media by participating in actual work experience for a communication or media arts organization. Students will negotiate internship duties with the organization’s supervisor and with their faculty sponsor in the communication and media arts program. Students submit written logs of their experiences and a final report analyzing their internship experience, which contribute to their evaluation. Prerequisite: CMM 1510. J occasionally. 1 credit hour.

CMM 2570 Studio Production Practicum
Students have the opportunity to expand the foundation of production skills acquired in CMM 1630. Producing, directing, writing for electronic media, and live editing skills are emphasized. Students will provide guidance and advice to production teams through live-to-tape programs and lab exercises. Prerequisite: CMM 1630. J occasionally. 3 credit hours.

CMM 2680 Planet Earth: Critical Topics
Students will examine critical issues affecting humanity and the global environment, from an in-depth, three-part perspective. Students will investigate the science of selected topics of global environmental significance, explore their causes and consequences within contemporary culture, and evaluate the impacts and importance of the mass media in public perception concerning these issues. Corequisite: ENG 1530 and a reading score of 80+. J occasionally. 3 credit hours.

CMM 2610 Mass Communication/Media Literacy
Students will learn about the processes, industries, and issues involved in the mass communication media of books, magazines, newspapers, radio, TV, film, the Internet, and the newest media technologies. They will learn how media has evolved over time and will be able to analyze the coding embedded in mass mediated messages. Students will also study the impact media has on us as individuals, Americans, and world citizens. Prerequisite: ENG 1530. J spring. 3 credit hours.

COMPUTER SCIENCE

CSC 1300 Computer Basics for the Novice
Designed for the newcomer to computers, this course introduces personal computer hardware and software by presenting the fundamentals of a Windows operating system and provides an exposure to word processing, graphics, spreadsheets, and other standard programs. Students may be concurrently enrolled in CSC 1510. This course will not count toward degree credits if the student has previously taken any other CSC course. No prerequisites. J occasionally; C occasionally. 1 credit hour.

CSC 1310 Introduction World Wide Web
Students will learn how to use various browsers to access information on the Internet and work with its multimedia capabilities. This course is appropriate for students in any discipline and requires no prior computer experience. No prerequisites. J fall, spring; C fall, spring. 1 credit hour.

CSC 1320 Introduction Electronic Word Processing
Students will learn fundamental concepts of electronic word processing including creating, editing, formatting, printing, spell checking, and grammar checking documents. Students implement solutions to assigned problems using software such as Microsoft Word. This course is appropriate for students in any discipline and requires no prior computer experience. A student enrolled concurrently in or with prior credit in CSC 1560 cannot apply this course toward graduation. No prerequisites. J fall, spring; C fall, spring. 1 credit hour.

CSC 1330 Introduction to Electronic Spreadsheets
Students will learn fundamental concepts of electronic spreadsheets including design, formatting, and working with charts and functions. Students implement solutions to assigned problems using software such as Microsoft Excel. This course is appropriate for students in any discipline and requires no prior computer experience. A student enrolled concurrently in or with prior credit in CSC 1560 cannot apply this course toward graduation. Corequisite: MAT 0500. J fall, spring. 1 credit hour.

CSC 1510 Introduction to Computer Science
Students will develop computer literacy by studying an overview of computing and a brief introduction to programming. Topics include a history of computers and computing, computer system components, data representation, the impact of computers on society, computer ethics, an introduction to data communications, networking, word processing, spreadsheets, programming in a structured language, and e-mail. Students will also learn a new and a browser to access the World Wide Web. Less than 20% of class time is spent on lab exercises. No prerequisites. J fall, spring; C fall, spring; Online fall, spring. 3 credit hours.

CSC 1530 Web Publishing
Students will study HTML language, usability concepts, and embedding JavaScript programming code. Students will design web pages using tables, forms, cascading style sheets, multimedia, and JavaScript. Students will also learn how to publish a web page with video clips and sound. Prerequisite: some knowledge of HTML required. J fall; C fall; Online fall. 3 credit hours.

CSC 1550 Microcomputer Applications
Students use application software such as Microsoft Office to study word processing, spreadsheets, database management, and presentation software. The integration and practical application of these topics is stressed throughout the course. Students will spend a substantial amount of out-of-class time working on computer projects. Prerequisite: MAT 0500 or higher; must meet minimum college level reading
Students use Visual BASIC to communicate design, program organization, control structures, Windows-based business applications using 1570. J occasionally. 3 credit hours.

Connection.

Students will develop, manage, and publish an object-oriented programming language such as Java. Topics include control structures, program debugging, documentation, user-defined methods, parameter passing, graphical user interfaces, arrays, and user-defined classes. Students spend a substantial amount of out-of-class time working on computer projects. Prerequisite: CSC 1570; Corequisite: MAT 1590; must meet minimum college level reading score: Accuplacer 80+. J fall, spring; C spring; Online spring. 3 credit hours.

CSC 1590 Computer Programming

Students will learn algorithm development and object-oriented program design using an object-oriented language such as Java. Topics include control structures, program debugging, documentation, user-defined methods, parameter passing, graphical user interfaces, arrays, and user-defined classes. Students spend a substantial amount of out-of-class time working on computer projects. Prerequisite: CSC 1570; Corequisite: MAT 1590; must meet minimum college level reading score: Accuplacer 80+. J fall, spring; C spring; Online spring. 3 credit hours.

CSC 1600 Data Structures

This course continues the study of algorithm development involving data structures, data abstraction, recursion, sorting, and searching. Topics in data structures include stacks, queues, linked lists, and trees. Large programming systems with multiple modules are designed and implemented using an object-oriented programming language such as Java. Prerequisite: CSC 1590; Corequisite: MAT 1600. J occasionally; C occasionally; Online occasionally. 4 credit hours.

CSC 1630 Web Technologies

Students will be introduced to a programming framework to develop code to be used in web development. Students will develop, manage, and publish code to the cloud using various tools consistent with the framework used. The integration and practical application of framework development technologies will be stressed. Students will spend a substantial amount of out-of-class time on computer projects which require a reliable internet connection. Prerequisite: CSC 1530 and CSC 1570. J occasionally. 3 credit hours.

CSC 1680 Introduction to Visual Basic

Students will learn to develop user-friendly, Windows-based business applications using Microsoft Visual Basic.Net. Topics include screen design, program organization, control structures, subprograms, arrays, and file maintenance. Students use Visual BASIC to communicate with other Windows-based applications such as Microsoft Excel and Access. Problem solving techniques and structured programming practices are emphasized. Prerequisite: CSC 1590 or equivalent programming experience. Online occasionally. 3 credit hours.

CSC 1720 Numerical Analysis I

Students will explore methods for the numerical solution of a variety of mathematical problems using various analysis tools such as Excel, MAPLE, and/or Mathematica. Topics include limits and derivatives, Newton’s method and min-max problems, numerical integration, Monte-Carlo methods, interpolation, and approximation theory. Corequisite: MAT 1710. J spring. 1 credit hour.

CSC 1760 Microcomputer Applications II

Students will further their study of topics from CSC 1560 using a software package such as Microsoft Office. Database topics include action queries, custom reports and forms, macros, and modules. Students spend a major portion of the semester developing an application using a relational database. Spreadsheet topics include macros, charts, and data analysis tools. Some advanced features of word processing such as directories and forms are included. Prerequisite: CSC 1560. J occasionally. C occasionally. Online fall. 3 credit hours.

CSC 2100-2020 Computer Internship

Students receive on-the-job experience consisting of 135 hours of supervised activity in a local business or industry. Students work in conjunction with a faculty mentor and a supervisor at the job site. All guidelines in the original college internship policy will be followed. Prerequisite: at least a 2.0 GPA and either sophomore standing or one semester completion in an appropriate certificate program. J occasionally; C occasionally. 1 to 4 credit hours.

CSC 2230 Applications/Troubleshooting

Computer User Specialist This course is designed to provide Information Technology majors and other computer related majors, with communications skills and technical skills necessary for troubleshooting and user support. Topics include: problem solving methodologies, operating systems (installation, customization, compatibility and troubleshooting), help desk operation, software request tracking and analysis, hardware and software needs assessment, training and instructional methodology and application troubleshooting. Prerequisites: CSC 1560 and CSC 1580. J occasionally; C occasionally. Online occasionally. 3 credit hours.

CSC 2410 Web Programming

Students will study client and server side programming techniques using current scripting languages. Projects will emphasize the design of websites that interface with databases. Students will spend a substantial amount of out-of-class time working on computer projects. Prerequisite: CSC 1530 and CSC 1590 or programming experience. J occasionally; C occasionally; Online fall. 3 credit hours.

CSC 2450 CIT Capstone

Students investigate current topics in computer information technology. Regular class sessions center on investigation of these issues with students leading the discussion. Students will reflect on and discuss ethics as it pertains to the field of computing. Students prepare for entry into the workplace through professional writing assignments and discussions of workplace survival skills. Prerequisite: Student must be within one semester of graduation in the A.A.S. Information Technology or Computer Information Systems degree program or have permission of the instructor. Online spring. 3 credit hours.

CSC 2470 Network Administration

This course introduces the fundamentals of local area network administration. After a brief review of computer network hardware, students are introduced to and examine leading network operating systems. Students will gain familiarity and experience in the installation, configuration, and management of network operating systems through a combination of lecture and hands-on lab. Corequisite: CSC 2510. J occasionally; C occasionally; Online fall. 3 credit hours.

CSC 2480 Advanced Networking/Computer/ Security

Students will gain a greater understanding of computer networks with an emphasis on network security. Topics will include law and ethics, network policies, IT audits, system inventorying, remote control, traffic monitoring and routing, malicious codes such as viruses, WAN interfacing, the Internet, addressing, TCP/IP utilities, RAS, VPN, firewalls, encryption, and security issues. Students will use a variety of software tools to evaluate the security effectiveness and operational efficiency of different computer systems and configurations. Prerequisites: CSC 1580 and CSC 2510 or equivalents. J occasionally; C occasionally; Online occasionally. 3 credit hours.

CSC 2510 Introduction to Networks

Students will explore topics in computer networking including networking design and architecture, data transmission, standards, and protocols. Local area networks (LAN) and wide area networks (WAN) will be studied along with the technologies that support the Internet. Upon course completion, students will demonstrate knowledge of these topics and have the ability to work with these concepts. Students will have some hands-on experience in this course. Prerequisite: CSC 1570 or equivalent programming experience; Corequisite: CSC 1590. J fall, spring; C spring; Online fall. 3 credit hours.

CSC 2540 Introduction to Systems Analysis

Students will explore topics in computer networking including networking design and architecture, data transmission, standards, and protocols. Local area networks (LAN) and wide area networks (WAN) will be studied along with the technologies that support the Internet. Upon course completion, students will demonstrate knowledge of these topics and have the ability to work with these concepts. Students will have some hands-on experience in this course. Prerequisite: CSC 1570 or equivalent programming experience; Corequisite: CSC 1590. J fall, spring; C spring; Online fall. 3 credit hours.

CSC 2650 Numerical Analysis II

Students will apply computer numerical methods to the concepts encountered in intermediate calculus. Topics include limits of sequences, sums of series, point-wise approximations of functions using Taylor polynomials, interval-wise approximations of functions using LaGrange and Chebyshev polynomials and Fourier series, and multiple integration. Students will use analysis tools such as Excel, MAPLE, and/or Mathematica.
Prerequisite: CSC 1720 or Corequisite: MAT 2650. J fall. 1 credit hour.

CSC 2660 Database Management Students will learn about database design methodology, exploring various data models, particularly the relational model. Topics include relational algebra, query languages, design techniques, security considerations, and database implementation. Students will use a database management system such as Oracle or MySQL. Prerequisite: CSC 1590 or CSC 1760. J occasionally; C occasionally; Online occasionally. 4 credit hours.

CSC 2670 Computer Organization Upon course completion, students will demonstrate the ability to discuss the hierarchy of a computer system including digital-logic level, machine level, operating system level, and assembly level. Students will also be able to list major differences between various computer systems. Students work on projects that might include assembly language programming, internal organization of a typical PC, number systems, and digital logic. Prerequisite: CSC 1590 or equivalent programming experience. J occasionally; C occasionally; Online occasionally. 4 credit hours.

CSC 2680 Numerical Analysis III Students learn computer numerical methods to solve differential equations. Topics include one-step methods such as Euler and Runge-Kutta, multi-step methods such as Adams-Bashford and Milne-Simpson, extensions of the Runge-Kutta method to solve higher order equations and systems of differential equations, solving boundary value problems using shooting and finite difference methods, and solving certain partial differential equations. Students will use various analysis tools such as Excel, MAPLE, and/or Mathematica. Prerequisite: CSC 2650 or Corequisite: MAT 2680. J spring. 1 credit hour.

COOPERATIVE EDUCATION
CED 1050-1060 Cooperative Education-Freshman CED 2050-2060 Cooperative Education-Sophomore Students learn to identify the skills necessary to work in business and technology. College credit is awarded for the knowledge they gain from working in positions related to their majors. The student is evaluated by the program coordinator and his/her supervisor. No prerequisites. J spring. 1 credit hour.

CRIMINAL JUSTICE
CRI 1290 Physical Fitness for Criminal Justice This is a specialized physical education program for criminal justice students and will emphasize an understanding of physical fitness and its direct application to the criminal justice profession. Specific instructions will cover wellness, physical fitness, and self-evaluation. The general requirements for the police physical agility portion of the civil service examination are explained and incorporated into this course. Prerequisite: criminal justice majors or permission of the instructor. J occasionally. 2 credit hours.

CRI 1310 Corrections Practicum During this 84-hour experiential format, the student/recruit will be placed in a correctional facility for on-the-job training. The student/recruit will be assigned to a full-time correctional officer. While applying their academic knowledge in a real world setting, students/recruits will learn and perform the requisite duties for daily operations of a correctional facility. All work experiences will be reduced to written form on a daily basis and evaluated by the assigned training officer. At the completion of the practicum, these evaluations will be used to assist in determining performance competency and certification potential. Prerequisites: Students must be a sworn corrections officer working in either a county jail or correctional facility. C occasionally. 2 credit hours.

CRI 1320 Introduction Law Enforcement Starting with the origins of American law enforcement, this course concentrates on contemporary law enforcement agencies and their function within the criminal justice system. Students will study police agencies at the local, county, state, and federal levels, and their operational techniques, as well as goals and objectives with specific civil laws of each agency. Eligibility: ENG 1510. Corequisites: CRI 1310; must meet minimum college level reading score: Accuplacer 80+. J occasionally; C occasionally. 3 credit hours.

CRI 1330 Correctional Law This study encompasses substantive and procedural law from the correctional officer's perspective. The students/recruits will learn the substantive law with emphasis on the elements of proof needed for a specific criminal act and how to obtain the evidence necessary without violating the inmate's constitutional rights and avoiding civil liability. Corequisites: CRI 1310, CRI 1350, CSC 1510, and SPA 1500. C occasionally. 3 credit hours.

CRI 1340 Introduction to Emergency Telecommunications Provides the student with material related to handling a variety of emergency situations. Students also examine specialized equipment used for telecommunications, including biomedical telemetry, alert paging, and mobile emergency radio systems. Prerequisite: permission of Sheriff's Academy director. J occasionally; C occasionally. 3 credit hours.

CRI 1350 Corrections Academy This New York state mandated study surveys the correctional system and provides an in-depth academic and practical correctional officer experience. Students/recruits are required to learn, understand, and apply the requisite functions of a correctional officer as stated by the New York State Department of Corrections. Prerequisite: Student must be a sworn correction officer working in either a county jail or correctional facility. C occasionally. 10 credit hours.

CRI 1360 Legal Issues/Emergency Telecommunications Provides emergency telecommunicators with an overview of the legal system, the completion of the practicum, these legal issues and law, and civil liability. Students are exposed to vehicle and traffic law and its application to emergency situations. Prerequisite: permission of Sheriff's Academy director. C occasionally. 3 credit hours.

CRI 1370 Radar/LIDAR Operator This course provides the basic knowledge from which to prepare a student for the use of a police radar/lidar utilized by police agencies across New York state. Instruction in such topics as basic principles of radar and lidar, legal and operational considerations, calibration and set up procedures, mock courtroom testimony, speed estimates and supervised field practicum. Prerequisite: student must be a certified police officer of a recognized law enforcement agency, or by permission of academy director. J occasionally. 2 credit hours.

CRI 1380 Emergency Medical Dispatch Provides students with materials related to medical emergencies which require a response from emergency telecommunicators. Students become familiar with recognition of medical emergencies, prioritizing emergencies, and selecting appropriate responses. Students must possess CPR certificates and New York state telecommunicator certification. Prerequisite: permission of Cattaraugus County corrections academy director. C occasionally. 3 credit hours.

CRI 1390 Breath Analysis Course This course provides a base of knowledge from which to prepare students for the use of breath analysis equipment currently utilized within New York State law enforcement agencies. Instruction will include such topics as: pharmacology of alcohol, alcohol properties, legal issues, current case law, Henry's Law, Infrared theory. Data logger nomenclature and operation, court preparation, and lab exercises. Prerequisite: student must be a certified police officer of a recognized law enforcement agency, or by permission of academy director. J occasionally. 2 credit hours.

CRI 1410 Peace Officer Firearms This course is a requirement for New York state peace officers. It is a comprehensive study in the fundamental use of firearms. The student will be provided with detailed instruction in firearms safety, weapons nomenclature, shooting skills, ammunition, tactical situations, position shooting, and use of force issues. A portion of the course will be practical application of learned skills on the firearms range. Prerequisite: students must be a sworn and properly registered peace officer as required by NYS statute. J occasionally. 2 credit hours.

CRI 1420 Report Writing in Criminal Justice Students will develop knowledge and skills necessary for concise, effective, and accurate report writing. The importance of the narratives required in reports generated by law enforcement personnel and other criminal justice vocations is emphasized. Prerequisites: CRI 1510 and permission of instructor; Eligibility: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J occasionally; C occasionally. 3 credit hours.

CRI 1430 Inmate Classification This course provides a base of knowledge of the Inmate Classification program mandated by the New York State Commission of Correction (minimum standards 7013). This course will prepare students to apply this knowledge in the workplace. Prerequisite: student must be a sworn correction officer working in either a county jail or correctional facility. J occasionally. 1 credit hour.

CRI 1440 Inmate Direct Supervision Students will gain a basic knowledge and understanding of the running of a direct supervision housing unit in a correctional facility. Direct supervision allows
Students study contemporary penalties and the various successes and problems associated with those penalties, including prison life, prisoners' rights, community corrections, and the death penalty. For anyone interested in correctional careers. Prerequisite: CRI 1510; Eligibility: ENG 1510. J occasionally; C occasionally. 3 credit hours.

CRI 1540 Introduction to Legal Systems Students will gain an understanding of the American legal system by examining the social influences on law-making, community involvement in the legal system, and the unique role of police, judges, and lawyers. Students will explore cross-cultural comparisons and legal philosophy. For anyone interested in the fundamentals of criminal and civil law. Prerequisite: CRI 1510; Eligibility: ENG 1510. J occasionally; C occasionally. 3 credit hours.

CRI 1550 Stress in Law Enforcement Students will learn about the stressors encountered in law enforcement which can have a significant impact on both the law enforcement professional and his or her family. The causes of stress, as well as both short-term and long-term reactions and effects of a stressful incident(s) will be examined. Students will also be exposed to methods of coping with the pressures of the law enforcement profession. Corequisite: ENG 1510. CRI 1320 or CRI 1510; Reading score 80+. J occasionally; C occasionally. 1 credit hour.

CRI 1560 Homeland Security Students will examine the history of international and domestic terrorism and the fundamental concepts of homeland security both pre- and post-9/11. Students will be provided with an overview of the structures and functions of the governmental agencies responsible for protecting the United States from terrorism. Students will review the process of planning and preparation for the potential response to future attacks in the United States. Corequisites: ENG 1510; CRI 1320 or CRI 1510; Reading score 80+. J occasionally; C occasionally. 3 credit hours.

CRI 1610 Search and Seizure Students will study the laws and constitutional issues governing searches and seizures by law enforcement officers. Students will gain an understanding of the application of these techniques in accordance with the 4th Amendment (right to be secured from unreasonable searches and seizures), and the 6th Amendment (right to counsel) is emphasized. Prerequisite: CRI 1320 or CRI 1510, and permission of a criminal justice faculty member. J occasionally; C occasionally. 1 credit hour.

CRI 1670 Serial Killers This course focuses on the etiology and typologies of the phenomenon of a serial killer, what makes a serial killer, and what impact a serial killer has on society. A cross-section of serial killers is explored, identifying what is believed to have caused these individuals to kill. Prerequisite: must meet minimum college level reading score: Accuplacer 80+. J occasionally; C occasionally. 1 credit hour.

CRI 1700 Criminal Justice and Substance Abusers Students will learn how to identify and communicate with persons having an alcohol or drug problem who are being processed in the criminal justice system. Prerequisites: CRI 1510 and permission of instructor; Eligibility: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J occasionally; C occasionally. 1 credit hour.

CRI 1720 Criminal Justice and the Mentally Ill Students will learn how to identify and communicate with mentally ill persons who are being processed in the criminal justice system. Prerequisites: CRI 1510 and permission of instructor; Eligibility: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J occasionally; C occasionally. 1 credit hour.

CRI 1730 Gangs and Criminal Justice Students will learn the development and history of gangs in the United States which includes studying different criminal enterprises in which gangs are involved and solutions to the gang problems. Corequisites: CRI 1320, CRI 1510, or CRI 1520. C J occasionally; O occasionally. 1 credit hour.

CRI 2200 Instructor Development The experienced police officer has valuable knowledge, skills and abilities which are gained through on the job experiences. The goal of this course is to assist the candidate in developing the ability to research, prepare, and communicate that knowledge to other police recruits and hired officers. Training will focus on constructing instructional objectives, planning of training, factors which influence adult learning, factors that modify behavior, the development of communication skills, and the instructional process an methods of evaluating course effectiveness. Prerequisite: students must be a certified police officer of a recognized law enforcement agency and must have successfully completed CRI 1460. Basic Investigative Photography. J occasionally. 4 credit hours.

CRI 2310 Law Enforcement Field Training Officer This course will provide the basic knowledge to prepare a student to become a field training officer. Instruction in such topics as principles in adult learning, FTO competency evaluations, remediation techniques, and FTO
liability issues will be covered. Prerequisite: student must be a certified police officer of a recognized law enforcement agency, or by permission of the academy director. J occasionally. 2 credit hours.

CRI 2220 Firearms Instructor This course is designed for the police instructor who wishes to expand his/her instructional skills to the area of firearms. The goal of this course is to assist the instructor candidate in developing their skills in relationship to fundamentals of marksmanship, firearms safety, course and curriculum design and the ability to diagnose shooter deficiencies and correct these actions. Topics of instruction will include: range safety, range maintenance, shooting fundamentals, instructional techniques, equipment maintenance, shooting course design, and legal issues. Prerequisites: CRI 2200; students must be a certified police officer of a recognized law enforcement agency, or by permission of the academy director. J occasionally. 4 credit hours.

CRI 2230 Law Enforcement Supervisor This course is mandated for any officer who has been promoted to a first line supervisor position. It is also recommended for any officer who aspires to become a first line supervisor. This course will cover topics in the area of: transition to supervisor, style of leadership, rules of the supervisor, legal issues, incident management, community relations and contemporary police problems, review of written reports, search warrants, civil liability, constitutional law, use of force, stress management, child protective issues, domestic violence, media relations, and crime scene/incident management. Prerequisite: students must be a certified police officer of a recognized law enforcement agency, or by permission of the academy director. J occasionally. 7 credit hours.

CRI 2250 Law Enforcement Academy I This New York state mandated study surveys the criminal justice system and provides an in-depth academic and practical law enforcement experience. Students are required to learn, understand, and apply the requisite functions of a recruit police officer as stated by the New York State Division of Criminal Justice Services and the Municipal Police Training Council. Such functions include, but are not limited to, criminal justice systems; proper handling of various weapons; crime investigation; traffic enforcement; accident investigation; defensive driving; community policing; emergency medical procedures; criminal law, civil liability; and police ethics. Prerequisite: Successful completion of New York state mandated law enforcement application process (see Chautauqua County sheriff’s academy director for detailed instructions and format); Corequisites: CRI 2380, PHE 2460, and CRI 2470. J fall. 10 credit hours.

CRI 2260 Law Enforcement Academy II This New York state mandated study surveys the criminal justice system and provides an in-depth academic and practical law enforcement experience. Students are required to learn, understand, and apply the requisite functions of a recruit police officer as required by the New York State Division of Criminal Justice Services and the Municipal Police Training Council. Such functions include, but are not limited to; juvenile law and procedures, crime scene investigations, critical incident management, counterterrorism, case preparation, interview and interrogation, arrest processing, civil disorder, injury and death investigations. Eligibility: student must be current Chautauqua County Sheriff’s Academy recruit. J occasionally; C occasionally. 10 credit hours.

CRI 2270 Law Enforcement Academy III This course is encapsulated in the basic police course and areas of instruction will be based on standards mandated by the NYS DCJS. Recruits who need recertification as police officers must successfully complete the entire police refresher course. Individuals who enroll in this course will receive instruction in basic patrol functions, firearms, emergency medical services, vehicle operations, and physical fitness training. All mandated training is on a case-by-case basis and will be determined after an evaluation by DCJS of the students past training records and the amount of time since they graduated from the basic police academy. Prerequisite: The students must have a prior NYS basic police certification which has lapsed or is in need of additional training hours as mandated by the Division of Criminal Justice services of New York state. Students must be appointed and placed on the police registry in Albany by a NYS recognized law enforcement agency and must have met the basic academy requirements prior to application. Students must meet DCJS requirements as they relate to the police refresher course. J occasionally; C occasionally. 5 credit hours.

CRI 2280 Law Enforcement Academy IV This course is encapsulated in the basic police course and areas of instruction will be based on standards mandated by the NYS DCJS. Recruits who need recertification as police officers must successfully complete the entire police refresher course. Individuals who enroll in this course will receive instruction in basic patrol functions, firearms, emergency medical services, vehicle operations, and physical fitness training. All mandated training is on a case by case basis and will be determined after an evaluation by DCJS of the students past training records and the amount of time since they graduated from the basic police academy. Police Refresher II is a continuation of Police Refresher I. Students must pass both Refreshers I and II in sequential order before they can receive a certificate to work as a police officer. Refresher II builds on what was instructed in the refresher I course. Prerequisite: students must have a prior NYS Basic Police certification which has lapsed or is in need of additional training hours as mandated by the Division of Criminal Justice services of New York state. Students must be appointed and placed on the police registry in Albany by a NYS recognized law enforcement agency and must have met the basic academy requirements prior to application. Students must meet DCJS requirements as they relate to the police refresher course. J occasionally; C occasionally. 5 credit hours.

CRI 2330 Criminal Procedural Law Studies the criminal law processes necessary for successful criminal investigation including physical and testimonial evidence gathering, arrest, and presentation of an accused to court for trial proceedings. Students are required to apply contemporary U.S. Supreme Court decisions relevant to such topics as arrest, search and seizure, and interrogation. Prerequisites: CRI 1510 and Corequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.

CRI 2370 Criminal Investigation Analyzes the basic procedures used in the investigation of a criminal matter. Students are required to demonstrate proper crime scene investigation techniques via photographing, sketching, and evidence collection for crimes against property and crimes against a person as well as study interview and interrogation techniques and courtroom demeanor and testimony. Prerequisites: CRI 1510 or basic police recruit school; and Corequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.

CRI 2380 Law/Law Enforcement Officer Students are required to learn and understand constitutional law and criminal procedural law as determined by the New York State Criminal Code. Students also study New York state vehicle and traffic laws and various New York state civil disturbance laws. Corequisites: CRI 2250, CRI 2460, CRI 2470, and compliance with New York state regulations. J fall. 3 credit hours.

CRI 2420 Standard Field Sobriety Test Students will analyze drugs and how they impair human functions. Students will study illegal drugs and related sections of the New York state penal law, and the effects of alcohol on humans with an emphasis on driving while intoxicated. Students will gain practical skills in administering standardized field sobriety testing on intoxicated drivers as well as investigative skills in relation to intoxicated drivers. Eligibility: student must be current Chautauqua County Sheriff’s Academy recruit or New York state certified police/peace officer. J occasionally. 3 credit hours.

CRI 2470 Law Enforcement Practicum This experiential format places the student in the field for on-the-job training. Students will apply their academic learning in real settings and are assigned to certified field instructors who will evaluate the individual on a daily basis. Evaluations are based primarily on knowledge of the law, interpersonal skills and initiative, familiarity with forms, and the overall quality of demeanor expected of law enforcement officers. Corequisites: CRI 2250, CRI 2380, CRI 2460, and compliance with New York state regulations. J fall. 4 credit hours.

CRI 2510 Police Community Relations Students will study the traditional method of providing police services, along with problem-oriented and community-based policing. Students will discuss the interpersonal and intergroup relations between police and the public. Required topics include police ethics, stereotypes, minority relations, peer relations, and the role of technology in providing police services and crime prevention. Prerequisite: CRI 1510; Corequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.

CRI 2520 Police Administration Concentrates on contemporary principles of administration and their applications to the internal organization and management of law enforcement agencies. Students apply traditional management models/theories to various managerial concerns including planning, staffing, human resources, and leadership styles, as well as other proactive actions dealing with collective bargaining, future trends, and internal/external problem-solving. Prerequisite: CRI 1510; Corequisite: ENG 1530.
and how they are currently being used to fleece consumers and taxpayers. The core of the class will be on current criminal activity such as Enron, Adelphia Cable, and MCI WorldCom. The course will address whichever scandal is currently being debated at the time of the class offering. Prerequisite: CRI 1510; Corequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.

CRI 2620 Introduction to Probation and Parole Students will explore the history, purposes, and development of probation and parole as correctional practices and will learn about the successes and problems, as well as the future, of these practices. Prerequisite: CRI 1510; Corequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.

CRI 2640 American Judicial System Focuses on the dynamics of the courthouse. Students study lawyers and their participation in the criminal court arenas. Issues such as how and why cases move from one court to another, sentencing, and proposals for reforming the court process are discussed. Prerequisite: CRI 1510; Corequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.

CRI 2650 Juvenile Justice System Students will study various causes and categories of juvenile crime and delinquency and explores the unique structure and processes of the separate legal system for juveniles. Prerequisite: CRI 1510; Corequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.

DANCE
DAN 1510 Beginning Ballet Students will gain an understanding of body alignment and the importance of health for the dancer. Students learn basic ballet techniques, including barre work and ballet dance combinations, and are introduced to understanding rhythm and a brief history of ballet. No prerequisites. J occasionally. 2 credit hours.

DAN 1530 Modern Jazz Technique Students will prepare to perform modern jazz dance and dance in musical theatre. Students will experience a daily warm-up to increase strength, flexibility, and endurance, and a dance combination. Students are introduced to the history of jazz dance and kinesiology. No prerequisites. J occasionally. 2 credit hours.

DIGITAL/COMPUTER TECHNOLOGY
DCT 1210 Electrical/Electronic Concepts This is an introductory electrical/electronic course presented at a survey level. Verbal descriptions are used as a substitute for mathematics whenever possible. Component identification and how components are used in circuits are emphasized. Skills such as circuit wiring, understanding schematics, and using a multimeter for troubleshooting are developed throughout the course. Soldering theory and practice are included. No prerequisites. J occasionally. 3 credit hours.

DCT 1220 Programmable Logic Controllers Students will investigate the principles and applications of programmable logic controllers and how they are used in manufacturing automation. Topics include PLC hardware, programming using ladder logic, timers, counters, and PLC applications. The SLC-500 PLC will be used. Corequisite: DCT 1290 or some formal knowledge of electricity or electronics. J spring. 3 credit hours.

DCT 1290 DC Electricity Students will learn the foundations of DC circuit analysis and explore fundamental electrical quantities (current, voltage, resistance, and power), basic circuit laws, and network theorems. Fundamental concepts used in later electrical courses are emphasized. Prerequisite: MAT 0600. J spring. 4 credit hours.

DCT 1300 AC Electricity Students will extend the techniques used in DCT 1290 to include circuits containing resistance, capacitance, and inductance driven by sinusoidal forcing functions. Additional topics include transformers, AC power, and resonance. Prerequisite: DCT 1290. J fall. 4 credit hours.

DCT 1330 Electrical Devices/Circuits I Students will see detailed coverage of semiconductor diode and transistor theory and application. Topics include DC and AC diode and transistor models, graphical analysis, clippers, clamps, peak detectors, power supplies, class A voltage amplifier design, and an introduction to power amplifiers. Corequisite: DCT 1300. J fall. 4 credit hours.

DCT 2010-2020 Technology Internship Students receive on-the-job experience consisting of 135 hours of supervised activity in a local business or industry. Students work in conjunction with a faculty mentor and a supervisor at the job site. All guidelines in the original college internship policy will be followed. Prerequisite: at least a 2.0 GPA and either sophomore standing or one semester completion in an appropriate certificate program. J occasionally; C occasionally. 3 credit hours.

DCT 2220 Digital Electronics Students will be provided a detailed introduction to digital systems. Included will be a discussion of number systems, codes, Boolean algebra, digital ICs, flip flops, and sequential circuits. Hands-on experience will be emphasized. Corequisite: MAT 0600. J fall. 4 credit hours.

DCT 2330 Electrical Devices/Circuits II Students will see detailed coverage of the approximations used to analyze circuits containing operational amplifiers. Topics include inverting and non-inverting amplifiers, summing circuits, I/V converters, differentiators, integrators, waveshaping circuits, and oscillators. Three terminal regulators, the 555 timer, and FET circuits are discussed. Prerequisite: DCT 1330. J spring. 4 credit hours.

ECONOMICS
ECO 1530 Contemporary Economic Problems Students will analyze current economic problems while critically evaluating solutions to these problems. Students integrate basic economic concepts and terminology to problems surrounding such issues as the environment, distribution of resources, health care, crime, market power, poverty, discrimination,
government price controls, and international trade. This course is not a substitute for ECO 2610-2620. Corequisite: ENG 0430; must meet minimum college level reading score: Accuplacer 80+. J occasionally; C occasionally. 3 credit hours.

**EDO 2610 Macroeconomic Principles** Students will be introduced to how the US economy functions as part of an open economy, as it relates to international trade and finance. Students will learn to recognize the role of supply and demand, different economic systems, the private and public sectors, and evaluate unemployment, inflation, and Gross Domestic Product as indicators of economic activity. Students will evaluate matters of fiscal policy, monetary policy, and conflicting economic opinions. Prerequisites: sophomore standing and ENG 1530. Eligibility: MAT 1510. J fall, spring; C fall, spring; Online occasionally. 3 credit hours.

**EDO 2620 Microeconomic Principles** Students will examine principles of supply and demand with an applied analysis of consumer demand, sensitivity to price changes (elasticity), and utility. Using cost and revenue information, students will demonstrate the theoretical market of perfect competition and monopolies along with realistic alternative markets like monopolistic competition and oligopolies. Students will recognize the role of comparative advantage and specialization in international trade. Prerequisites: sophomore standing and ENG 1530. Eligibility: MAT 1510. J fall, spring; C fall, spring; Online occasionally. 3 credit hours.

**EDUCATION**

**EDU 1250 Early Childhood Development** Students will examine the developmental stages of young children including their physical, intellectual, and social-emotional capabilities, emphasizing the wide variation in abilities and behaviors in children. The basic concepts of developmental characteristics of children from birth through eight years of age are to be understood as a foundation for planning appropriate activities for children and establishing appropriate expectations of young children. Eligibility: must meet minimum college level reading score: Accuplacer 80+. J occasionally; C occasionally. 1 credit hour.

**EDU 1260 Health/Safety/Nutrition of Children** Students will focus on basic considerations for establishing and maintaining a safe, healthy, and developmentally appropriate environment for young children. Ways to promote good health and nutrition are presented, and prevention and reduction of injuries are explored. Eligibility: must meet minimum college level reading score: Accuplacer 80+. J occasionally; C occasionally. 3 credit hours.

**EDU 1290 Introduction Early Childhood Education/Care** Students will be introduced to the field of early childhood care and education. An overall view of the field includes history and theory; social, emotional, physical, cognitive, and creative development of young children; how early childhood professionals and early childhood programs meet the needs of young children and their families; and models of early childhood programs. This course introduces the activities and materials of the early childhood profession. Corequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.

**EDU 1310 Family, School, & Community Partnerships** Students will examine the diversity of families and factors that influence parenting in contemporary society, focusing on strategies to develop working partnerships with parents. Students will study ways to design parent-teacher conferences, parent education, and parent involvement programs. The importance and nature of relationships between schools and community agencies will also be explored. Corequisite: ENG 1530. J spring; C spring. 3 credit hours.

**EDU 1510 Foundations/Education-Teaching Profession** Students will be provided with information and experiences that will be helpful in deciding whether or not a career in education seems to be an appropriate choice. This course explores the philosophical and socio-cultural roots of education. Students will also examine the political, economic, legal, and ethical basis of American education. Contemporary issues facing education will be examined within the context of teachers, students, schools, and curriculum. Students will also complete a 20 hour internship in a local school. Corequisite: ENG 1530. J fall, spring; C spring. 3 credit hours.

**EDU 2150 Infant/Toddler/Developmental/ Education** Students will increase their knowledge about the developmental needs and program requirements for infants and toddlers. They will do this by strengthening their observation skills, reading, and discussing current research and trends in infant/toddler care, and applying theory in field experiences. Students will plan and implement developmentally appropriate activities based on the needs of a specific child or groups of children within their field setting. Special attention will be given to the development of the whole child, the child as the curriculum, respectful and responsive relationships, intentional and purposeful interactions, and the environment as a teaching tool. A minimum of 20 hours will be spent in the field experience. Prerequisite: ENG 1530. J fall; C occasionally. 3 credit hours.

**EDU 2210 Field Placement I-Education** Students will gain practical experience participating in a minimum of 100 hours of supervised work in a public school or other appropriate educational setting. Students will also participate in a weekly seminar which focuses on developing knowledge of how schools and classrooms work and teamwork within the educational setting. The seminar also focuses on students' experiences, problems, and special interests. The student, faculty coordinator, and school supervising teacher work together to develop an appropriate learning experience for the student. Students are responsible for assigned readings and a weekly written log of the field experience in addition to other assignments. Prerequisites: EDU 1510 with a C or better, minimum of 3 credits of education electives with a C or better, and permission of the education faculty. Application required; must be a program major. Please note: For students enrolled in the Early Childhood Certificate Program, EDU 1510 may be replaced with EDU 1290 to satisfy the prerequisite. J fall, spring; C fall, spring. 4 credit hours.

**EDU 2220 Field Placement II** Students will gain practical experience participating in a minimum of 75 hours of supervised work in a different school or educational setting than they used in EDU 2210. Students will also participate in a weekly seminar which focuses on learning to further develop their interpersonal teaching skills. Students are responsible for assigned readings and a weekly written log of the field experience in addition to other assignments. Prerequisites: EDU 2210 with a C or better and permission of the education faculty. Application required; must be a program major. J spring; C fall, spring. 3 credit hours.

**EDU 2340 Working with Adolescents** Students will explore the characteristics, problems, and needs of adolescents, with emphasis on the techniques and skills necessary for working with them in a variety of settings - recreational, educational, and therapeutic. Topics include a look at treatment facilities, mental health, substance abuse, and the dynamics of delinquency. Prerequisites: ENG 1530 and ENG 1510 or BUS 1210; must meet minimum college level reading score: Accuplacer 80+. J occasionally. 3 credit hours.

**EDU 2440 Children’s Literature** Students will develop a comprehensive knowledge of children’s literature with emphasis on identification and familiarization of the different types of children’s literature, the influence that literature can have on children’s and adults’ lives, and the development of effective and creative methods of using literature with children. Use of current technology is included. Prerequisite: ENG 1530. J fall, spring; C spring. 3 credit hours.

**EDU 2450 Exceptional Children** Students will develop knowledge and understanding of exceptional children and youth, the ways they are served in public schools, appropriate attitudes toward human viability, and individual differences. Current legal and instructional issues and methods are discussed. Prerequisites: ENG 1510 or ENG 1520 and ENG 1530. J occasionally; C occasionally. 3 credit hours.

**EDU 2460 Field Experience/Exceptional Children** Students will spend four to five hours per week in an educational setting working one-on-one or in small groups with students with identified disabilities as well as those at risk for academic failure. A regularly scheduled on-campus seminar is part of the course. Students spend a minimum of 45 hours in their educational setting during the semester in addition to the seminar. Designed primarily for students who plan to transfer to a four-year institution to complete a baccalaureate degree in teacher education. Prerequisites: PSY 1510 and ENG 1530; students should be concurrently enrolled in EDU 2450. J occasionally; C occasionally. 1 credit hour.

**EDU 2500 Literacy in the Classroom** Students will develop a basic foundation in literacy instruction. The five components of reading, basic reading disabilities, and applications to curriculum and instruction will be explored. In addition, students will examine the basics of literacy approaches including the collection and interpretation of data. Prerequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.
EDU 2510 Philosophy/Techniques-Early Childhood Students will examine the basic concepts of a child’s psychological and intellectual development in relation to methods and techniques appropriate to early care and education programs. Developmentally appropriate practices will be emphasized as they apply to the skills used with young children (birth to age 8), individually and in groups. Participation in observations and practice will be required.

Prerequisite: ENG 1530 and PSY 2520 or EDU 1250 and EDU 1260. J occasionally; C occasionally. 3 credit hours.

ELECTRICITY/ELECTRONICS

EIC 1200 Fundamentals of Electricity Students will gain basic background knowledge of DC and AC circuits. Circuit analysis, circuit wiring, understanding schematics, and using measuring instruments for troubleshooting skills will be developed on an ongoing basis throughout the course.

Corequisite: MAT 0600. J fall. 3 credit hours.

EIC 1220 Industrial Automation/PLC Students will investigate the principles and applications of programmable logic controllers and how they are used in manufacturing automation. PLC hardware, SLC - 500 programming using ladder logic, and PLC applications will be emphasized.

Prerequisite: ELC 1200. J spring. 3 credit hours.

EIC 1230 Electric Motors/Control System Students will learn the fundamental concepts of motors and motor controls. Topics include ladder diagrams, pilot devices, contactors, motor starters, motors, and other control devices. Upon completion, students will be able to properly select, connect, and troubleshoot motors and control circuits.

Prerequisites: EIC 1200 or permission of the instructor. J occasionally. 3 credit hours.

ENGLISH

ENG 0190 Essential Reading Skills Students will obtain the basic reading skills needed to begin working toward their educational objectives. Topics include word recognition skill work, vocabulary development, and the mastery of basic comprehension patterns in reading. Grading is credit/fail. Prerequisite: admission by placement score. J fall, spring; C fall, spring. 3 imputed credit hours.

ENG 0410 Developing Reading Versatility Students will develop more versatile reading and study skills such as greater speed and comprehension of varied reading materials, improved retention of subject matter, skimming, and scanning of textbooks and magazine articles, improved vocabulary and word recognition, and greater enjoyment and understanding of literature.

Prerequisite: admission by placement score. Accuplacer 57-79. J fall, spring; C fall, spring. 3 imputed credit hours.

ENG 0430 Essential Writing Skills Students will develop the skills to write effective, organized standard written English. Emphasis will be on clarity and correctness, particularly in accomplishing the sort of short in-class writing tasks required of college students.

Prerequisite: admission by placement score. Accuplacer Writeplacer 1-3. J fall, spring; C fall, spring. 3 imputed credit hours.

ENG 1510 English Composition I Students will learn to write precise, clear, substantive essays. Students will work with multi-page papers, organization, and mechanics. Emphasis will be placed on critical thinking, reading, and writing.

Prerequisite: admission by successful completion of ENG 0430 or placement score: Accuplacer Writeplacer 4-6, Writeplacer reading 70+. Students who have not met the minimum College level reading score (Accuplacer 80+) must be coregistered for ENG 0410. J fall, spring; C fall, spring. 3 credit hours.

ENG 1530 English Composition II Students will learn to write precise, clear, substantial, and logical essays. They will develop critical thinking and writing skills required in higher education, employment, and life. Students will also learn to conduct research and write a research paper.

Prerequisite: admission by successful completion of ENG 1510 or placement score: Accuplacer Writeplacer 7 or 8. Students must meet the minimum College level reading score (Accuplacer 80+). J fall, spring; C fall, spring. 3 credit hours.

ENG 1540 Writing About Literature Students will learn to write precise, clear, substantial, and logical essays about fiction, poetry, and drama.

Prerequisite: ENG 1530. J fall, spring; C fall, spring. 3 credit hours.

ENG 1560 English For Careers Students will develop the writing skills necessary for communication in the workplace, including such products as business letters, reports, proposals, e-mail, memos, resumes, cover letters, and applications. Specific skills include writing with correctness, professionalism, and tone appropriate to audience.

Prerequisite: ENG 1530. J spring; C spring. 3 credit hours.

ENG 2010 English Internship Prerequisite: At least a 2.0 GPA and either sophomore standing or one semester completion in an appropriate certificate program. J occasionally; C occasionally. 3 credit hours.

ENG 2510 Masterpieces/World Literature I Students will read, discuss, and analyze some of the most enduring and important works of literature up to the 17th century. Prerequisites: ENG 1530-1540. J occasionally; C occasionally. 3 credit hours.

ENG 2520 Masterpieces/World Literature II Students will read, discuss, and analyze some of the most enduring and important works of literature from the 17th century to modern times. Prerequisites: ENG 1530-1540. J occasionally; C occasionally. 3 credit hours.

ENG 2540 Creative Writing Students will develop and practice creative written expression. Emphasis on poetry or prose may vary with instructors, but primary attention is placed on the development of a student’s writing style.

Prerequisites: ENG 1530-1540. J fall, spring; C occasionally. 3 credit hours.

ENG 2550 American Literature I Students will study key works of early American literature (pre-1865) in their literary, cultural, and historical contexts. Students will be asked to explore what “American” means and what major ideas were at work to create a cultural definition for that term. In addition to studying the traditional texts of authors such as Hawthorne, Whitman, Fuller, Emerson, Bradstreet, Franklin, Bradford, etc., students will be exposed to literature outside of the New England canon including Native Americans, French and Spanish colonizers, and African slaves. Prerequisites: ENG 1530-1540. J occasionally; C occasionally. 3 credit hours.

ENG 2560 American Literature II Students will study key works of American literature from 1865 to the present as well major literary movements such as regionalism, naturalism, realism, modernism and beyond. American writing will be approached in both historical and artistic context. In addition to studying texts by major authors such as Twain, James, Chopin, Chestnutt, London, Cather, Faulkner, Frost, Sandburg, Ginsberg and O’Connor, as well as contemporary authors including Morrison, Silko, Erdrich, Kingston, and Updike, students will study other works that focus on the rich diversity of voices and styles of American literature. Prerequisites: ENG 1530-1540. J occasionally; C occasionally. 3 credit hours.

ENG 2580 The Modern Novel Students will discuss and analyze some of the great novels in the period from 1900 to the present day. Students will learn to understand the novel as a separate genre and recognize the characteristics distinguishing the modern novel from earlier fiction. Prerequisites: ENG 1530-1540. J occasionally. 3 credit hours.

ENG 2590 Science Fiction Students will read and discuss a variety of important and typical works by major authors in the historical development of science fiction from its remotest beginnings to the present. Students will gain the understanding of relationships with other literature, with science, with society, and from the viewpoints of both reader and writer. Prerequisites: ENG 1530-1540. J occasionally; C occasionally. 3 credit hours.

ENG 2610 British Literature I Students will read, discuss, and write about ideas prompted by the British literature of the Middle Ages, Renaissance, Restoration, and 18th century. Prerequisites: ENG 1530-1540. J occasionally; C occasionally. 3 credit hours.

ENG 2620 British Literature II Students will read, discuss, and write about ideas prompted by the British literature of the Romantic, Victorian, and 20th century periods. Prerequisites: ENG 1530-1540. J occasionally; C occasionally. 3 credit hours.

ENG 2650 Award Winning Young Adult Literature Students will discuss and prepare to teach a wide variety of young adult literature in various cultural settings as they examine the defining components of the adolescent experience. This course will be of particular interest to students majoring in secondary education as well as those students who enjoy reading young adult literature as the class is a study of the variety of texts written for and about adolescents. Students will read and discuss a range of assigned and self-selected award-winning books. Prerequisites: ENG 1530-1540. J spring. 3 credit hours.

ENG 2660 Literature Goes to Hell Students will examine various works of literature, art, and music which include the Underworld, Hades, Hell, and the devil. These motifs are examined in a way that refers to the cultures and time periods.
from which they sprang. These are discussed as literary themes, not necessarily as religious ones. Prerequisites: ENG 1530 and ENG 1540. J occasionally; C occasionally. 3 credit hours.

ENG 2730 World Mythology Students will gain a background in the classical mythology of various cultures. Students will study creation myths and the stories of the major heroes, gods, and goddesses. Students may learn about applications of myth in modern works of literature, arts, and music. Prerequisites: ENG 1530-1540. J occasionally. 3 credit hours.

ENG 2740 Newswriting and Editing Students will practice most forms of journalism found in newspapers, magazines, and broadcasting studios. Emphasis is on the individual student’s writing. Prerequisites: ENG 1530-1540. J fall. 3 credit hours.

ENG 2830 Shakespeare Students will be introduced to the work and times of Shakespeare. The play’s the thing and will be the main focus of the course, yet films, recordings, and class readings may be used as aids in appreciating and visualizing the plays. Selected comedies, tragedies, romances, and sonnets are read and discussed. Prerequisites: ENG 1530-1540. J occasionally; C occasionally. 3 credit hours.

ENG 2840 Film Study and Appreciation Students will learn the film as a world art form and social document, focusing attention on major areas of film, such as history, criticism, and visual literacy. Students explore a range of film productions from silent films to current releases and examine various approaches to film criticism. Prerequisites: ENG 1530-1540. J spring. 3 credit hours.

ENG 2850 Literature of the Bible Students will read Old and New Testament selections and will discuss their various interpretations. Some historical background is provided, but emphasis will be on the archetypal figures and themes which have greatly influenced much of our imaginative literature. Prerequisites: ENG 1530-1540. J occasionally; C occasionally. 3 credit hours.

ENG 2870 The Romance of Arthur Students will trace the historical and literary roots of the legend of King Arthur. Readings, films, and discussions center on the evolution of Arthur and notable features of his world: Avalon, Camelot, Merlin, Morgan Le Fay, Guinevere, Lancelot, Gawaine, and Mordred. In poems, chronicles, tales, and romances, major Arthurian images and themes will be examined, such as courtly love, chivalry, the sword of power, the Round Table, the Fisher King, and the Holy Grail. Among several works, the course examines the bardic traditions of the Brythonic Celt as well as the romance cycles of Chretien de Troyes and Sir Thomas Malory. Prerequisites: ENG 1530-1540. C occasionally. 3 credit hours.

ENR 2010-2020 Engineering Internship Students receive on-the-job experience consisting of 135 hours of supervised activity in a local business or industry. Students work in conjunction with a faculty mentor and a supervisor at the job site. All guidelines in the original college internship policy will be followed. Prerequisite: at least a 2.0 GPA and either sophomore standing or one semester completion in an appropriate certificate program. J occasionally; C occasionally. 3 credit hours.

ENR 2510 Thermodynamics Students will continue investigations into mechanics with extensive study in thermodynamic systems. Students will analyze and solve problems involving fluid dynamics, energy conservation, and thermodynamic processes. Prerequisite: PHY 1610 or 1710 and MAT 1720. J occasionally. 4 credit hours.

ENR 2550 Mechanics-Statics Students will study rigid body mechanics including forces, force systems, their resultants, and conditions for equilibrium. Other topics include equivalent force systems, equilibrium of rigid bodies, structural mechanics to include trusses, frames and beams, shear and bending moment diagrams, friction, and properties of areas and volumes. Prerequisites: MAT 1720 and PHY 1710. Corequisite: MAT 2650. J fall. 3 credit hours.

ENR 2560 Mechanics-Dynamics Students will study time derivatives of vectors using Cartesian, cylindrical, and path coordinates. The dynamics of a particle from a single frame of reference including rectilinear and central force problems are stressed. Other topics are conservation of
energy and momentum as applied to dynamic problems. Rigid body rotations and Coriolis acceleration are studied in detail. Prerequisite: ENR 2530; Corequisite: MAT 2680. J spring. 3 credit hours.

ENT 2580 Strength of Materials Students will be able to explain the concepts of stress and strain and the relationships between them in the solution of problems such as beams, columns, torsional members, connections and combined loading (Mohr's circle). Stress concentrations, thin-walled pressure vessels, and beam deflections are covered. Laboratory experiences include standard tests to determine properties of various materials when subjected to normal stress, bending, shear impact, and torsion loading. Hardness tests and non-destructive testing procedures are used. Prerequisites: MAT 2650 and ENR 2550. J spring. 4 credit hours.

ENT 2740 Analysis/Linear Electrical Circuits Students will gain expertise in the techniques of elementary circuit analysis. DC resistive circuits are first analyzed using Ohm's and Kirchhoff's laws, voltage and current division, resistance and source combinations, and superposition. Basic techniques are expanded to include dependent sources, mesh analysis, nodal analysis, Thevenin and Norton's theorems, and the maximum power transfer theorem. Sinusoidal, exponential, and damped sinusoidal forcing functions are then introduced along with inductance and capacitance. LaPlace transforms are used to obtain complete solutions for first and second order RL, RC, and RLC circuits. Prerequisite: MAT 1250 or Corequisite: MAT 1720. J fall. 3 credit hours.

ENTREPRENEURSHIP

ENT 1440 Entrepreneurship Operations Students will have an opportunity to develop the knowledge and skills needed by the business owner in the areas of marketing, management, and communications. Students will learn to identify potential customers, define target markets, and plan appropriate promotional strategies. In the area of business management, students will learn about employee behavior, motivation, leadership, building effective teams, interpersonal relationships, and employment laws and regulations. Other issues to be discussed will include personal image, professionalism, and customer service as well as effective networking, information and communication technology, and effective business writing. Students will be required to complete a segment of the business plan as it relates to this course. Eligibility: ENG 1510. Online occasionally. 3 credit hours.

ENT 1460 Family Owned Businesses This course is designed for students who will be entering a family-owned business, or expect to someday establish a business which they can leave to their children. Some of the topics covered include succession planning, handling conflict, dealing with non-family members, reinvention of the business, management styles, strategy, leadership, and the evolution of the enterprise from the first generation entrepreneurial stage into the family business to the second, third and succeeding generations. Eligibility: ENG 1510. J occasionally. 1 credit hours.

ENT 1470 Retail Management/Entrepreneurship Ownership This course covers major retailing topics, including consumer behavior, information systems, store location, operations, service retailing, the retail audit, retail institutions, franchising, human resource management, computerization, and retailing in a changing environment. Its decision-making orientation provides a real-world approach focusing on small retailers. Eligibility: ENG 1510. Online occasionally. 3 credit hours.

ENT 1480 Entrepreneurship Internship Students will receive on-the-job experience consisting of 153 hours of supervised activity in a local business. Students work in conjunction with a faculty member and a supervisor at the job site. All guidelines in the original internship policy will be followed. Eligibility: ENG 1510. J occasionally. 3 credit hours.

FRENCH

FRE 1510 Introductory French I Students will learn French language vocabulary and structure by completing a series of activities designed for realistic communication, both written and spoken. They will learn the reading and writing of the French alphabet. Through reading, dialogue, and associated study, students will develop an understanding of the language and cultural distinctions of French speakers worldwide. Eligibility: ENG 1510. J occasionally. C occasionally. 4 credit hours.

FRE 1520 Introductory French II Students will learn French language vocabulary and structure by completing a series of activities designed for realistic communication, both written and spoken. They will learn the reading and writing of the French alphabet. Through reading, dialogue, and associated study, students will develop an understanding of the language and cultural distinctions of French speakers worldwide. Eligibility: ENG 1510 or two years high school French; Eligibility: ENG 1510. J occasionally. C occasionally. 4 credit hours.

FRE 2510 Intermediate French I Students will continue their French language study, including a review of basics covered in FRE 1510-1520. Students will focus on increasing their conversational fluency and understanding of the French civilization, past and present. They will also focus on expanding their reading ability by exploring popular and literary texts. Prerequisite: FRE 1520 or three years high school French or appropriate course placement on PLACE exam; Eligibility: ENG 1510. J occasionally. 3 credit hours.

FRE 2520 Intermediate French II Students will continue their French language study, including a review of basics covered in FRE 1510-1520. Students will focus on increasing their conversational fluency and understanding of the French civilization, past and present. They will also focus on expanding their reading ability by exploring popular and literary texts. Prerequisite: FRE 2510 or four years high school French. Eligibility: ENG 1510. J occasionally. 3 credit hours.

GEOGRAPHY

GEO 1520 World Regional Geography Students will study and evaluate interrelationships of location, climate, landforms, and natural resources with the cultural, economic, and political systems of the world's political and cultural regions. Other topics include population trends, impact of technology and culture upon the natural environment, and patterns of economic development as they relate to regions of the world: Europe, Russia, Middle East, Asia, Africa, and the Americas. Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J occasionally. 3 credit hours.

GEOLOGY

GLG 1510 Physical Geology In this classical introduction to geology, students will identify and explain the geologic processes operating on and beneath Earth's surface, including mineral and rock formation, plate tectonics, deformation, orogeny, weathering, erosion, transport, and deposition. Landforms resulting from geologic processes will be interpreted. Laboratory projects and field trips correlate with lecture topics. Corequisite: MAT 0600; Eligibility: ENG 1510; Must meet minimum college level reading score: Accuplacer 80+; J occasionally. 4 credit hours.

GLG 1520 Historical Geology Students will identify and interpret the scientific theories explaining the physical and biological evolution of Earth, with an emphasis on the North American continent, using stratigraphic, fossil, and radiometric evidence. Laboratory projects and field trips include the use of geologic maps, cross-sections, and the study of faunal succession using fossil specimens. Prerequisite: GLG 1510 or 1550; Eligibility: ENG 1510; Must meet minimum college level reading score: Accuplacer 80+. J occasionally. 4 credit hours.

GLG 1550 Earth Science Students will identify and explain basic concepts in geology, oceanography, and meteorology, including mineral and rock formation, plate tectonics, mountain building, weathering and soils, erosional and depositional processes, geologic hazards, oceans, and the atmosphere. Optional field experiences are offered. This is an introductory course for students with little or no science background. Eligibility: ENG 1510 and MAT 0500; Must meet minimum college level reading score 80+. J fall. 3 credit hours.

GLG 1610 New York State Geology Students will be introduced to the various geologic provinces of New York state and their unique
history, physiography, and scenic beauty. Through the use of readings, lectures, audiovisual aids, and a mini-lab, students will be able to explain the major events in the geologic history of New York state and describe the geologic characteristics of each province. During the mini-lab, students will learn to identify common New York rocks, minerals, and fossils. Corequisite: ENG 1530. J occasionally. 1 credit hour.

GLG 1620 The Age of Dinosaurs Students will explore life on earth during the Mesozoic era, the "age of dinosaurs." Through the use of readings, lectures, extensive audiovisual aids, the Internet and laboratory exercises, students will study major geologic events of this period, identify the behavior of the most common dinosaurs, and identify common Mesozoic marine and plant life. Class discussions and assignments will include new and controversial theories explaining the evolution, behavior, and extinction of dinosaurs. During mini-labs students will handle and learn to identify common dinosaur fossils. Corequisite: ENG 1530. J occasionally. 1 credit hour.

GLG 1630 Ice Ages Students will be introduced to the major ice ages in our geologic past, with an emphasis on the Pleistocene Ice Age. Using readings, lectures, the Internet, audiovisual aids, and mini-labs, students will discuss the earth’s major eras of glaciation, explain the work of glaciers in shaping topography, identify common Pleistocene age animals and discuss current theories of glaciation. Corequisite: ENG 1530. J occasionally. 1 credit hour.

GLG 1640 Introduction to Paleontology Students will examine the history of life on Earth as reflected in the fossil record. The course covers the oldest known forms of life from over three billion years ago through the origin of marine communities, the invasion of land, dinosaurs, and the age of mammals. Emphasis will be placed on common fossil groups and the interaction of organisms with their diverse environments. This is an introductory course for students with little or no science background. Corequisite: ENG 1530. J occasionally. 3 credit hours.

GLG 1720 Geologic Hazards This course explores the dangerous and fascinating world of earthquakes and volcanoes. Students will study the geologic settings that produce these phenomena, specific hazards associated with each, and the immediate and long term effects of natural disasters of this magnitude. Risk assessment, human mitigation, and ways to minimize the devastating consequences of earthquakes and volcanoes will be covered. Eligibility: ENG 1530. J spring; C occasionally. 1 credit hour.

GLG 1740 Catastrophic Weather Students will be introduced to the field of meteorology and explore general weather principles and the where, when, why, and how of catastrophic weather events such as thunderstorms and lightning, tornados, hurricanes, floods, and drought. Methods to prepare and protect you and your family against these natural disasters are also covered. Eligibility: ENG 1530. J occasionally; C occasionally. 1 credit hour.

GLG 1760 Petroleum Geology Petroleum resources constitute a major source of energy for our transportation, home, and industrial needs on a national and global basis. Students will gain an insight into the geology of petroleum (oil and gas), and develop an understanding of its origin, occurrence, and geologic controls. Students will increase their knowledge of economic, environmental, and geopolitical considerations as related to petroleum prospect development. Practice in prospect analysis will be obtained through a series of exercises which demonstrate basic use of wireline logs and subsurface maps. Eligibility: ENG 1530. J occasionally. 1 credit hour.

GLOBAL STUDIES

GLS 1500 Introduction to Global Studies Students will learn about the study of global processes and examine interactions and changes that have affected our view of globalization over time. This includes understanding the interconnectedness of people, places, institutions, and circumstances around the world. Students will bring together different insights from social sciences, humanities, and natural sciences, while emphasizing the role of the individual and his/her relationship to the larger global community. Corequisite: ENG 1510: must meet minimum college level reading score: Accuplacer 80+. J fall, C fall. 3 credit hours.

GLS 2500 Global Studies Capstone Students will design and implement a single original global studies project of choice, [subject to instructor approval] that seeks to reinforce comprehension of course lectures and program content through academic research and a public demonstration of the work. In doing so, students will consider the ways in which their chosen program electives fit into the field of global studies and a globalized world. Prerequisites: ENG 1530, GLS 1500, and student must be within one semester of graduation in the AA Global Studies degree program or have permission of the instructor. J spring; C spring. 3 credit hours.

HISTORY

HIS 1510 World History Before 1500 Students will examine the foundations of major cultures of today’s world from the beginning of recorded history to the early modern age, with an emphasis on how these developments continue to shape the human experience. They will utilize methods of the social sciences by researching, interpreting, and communicating an understanding of primary and secondary historical sources. The factual and interpretive content of this course will emphasize the comparisons of key historical developments, their chronology, interaction, and the diffusions of the world’s major cultures amid increasing global interconnection. Eligibility: ENG 1530. It is not necessary to take HIS 1510 before HIS 1520. HIS courses are reading and writing intensive. J fall, spring; C fall. 3 credit hours.

HIS 1520 World History Since 1500 Students in this introductory historical survey course will study and evaluate the cultural changes and continuities of selected world societies during the Modern Era, from the sixteenth century CE, to the present from a western perspective. They will use social sciences methods to research, interpret, and communicate historical understanding through the use of primary and secondary sources. The shaping of the modern age and its legacy for the world today will be stressed, as will the implications for the future of the global community. Eligibility: ENG 1530. It is not necessary to take HIS 1510 before HIS 1520. HIS courses are reading and writing intensive. J fall, spring; C spring. 3 credit hours.

HIS 1530 US History Before 1865 Students will be introduced to the history of the United States from the European Encounter through the Civil War. Using the methodology of the social sciences, students will learn and evaluate the major political, social, cultural, scientific-technological, economic, and natural developments that shaped the United States during its formative years; when the American republic was founded, expanded, and tested by division. Students will give special attention to the unique contributions made by diverse peoples and institutions, and the responsibilities of educated citizens today. Eligibility: ENG 1530. It is not necessary to take HIS 1530 before HIS 1540. HIS courses are reading and writing intensive. J fall, spring; C fall, spring. 3 credit hours.

HIS 1540 US History Since 1865 Students will examine the history of the United States from the conclusion of the Civil War to the present. Using the methodology of the social sciences, students will learn and evaluate the major political, social, cultural, scientific-technological, economic, and natural developments that have shaped the recent American experience. Students will give special attention to the unique contributions made by diverse peoples and institutions, and will better understand the responsibilities of educated citizens today. Eligibility: ENG 1530. It is not necessary to take HIS 1530 before HIS 1540. HIS courses are reading and writing intensive. J fall, spring; C fall, spring. 3 credit hours.

HIS 2100 The American Civil War Students will survey the American Civil War and the subsequent Reconstruction Era. The specific topics to be covered include: the causes of the war; the political, economic, military, and diplomatic execution of the war; the problem of waging war in a democracy; the constitutional issues raised by the war; the reasons the South lost the Civil War; the impact of the war and reconstruction on American history; and the reconstruction policies of Lincoln, Johnson, and the Radical Republicans. Lectures will focus on the military aspects of the war. Prerequisite: ENG 1530. J spring; C occasionally. 3 credit hours.

HIS 2560 History of World War II Students will examine and evaluate the world at war with emphasis on the role of the United States from the battlefields to the homefront. Multiple factors of the aftermath of World War I, the rise of fascism, Japan’s expansion in Asia, the alliance of Britain, America, and the USSR in creating a new world after the war are assessed. Corequisite: ENG 1530. J occasionally. 3 credit hours.

HIS 2570 History of World Religions This interdisciplinary course examines the development and variety of religious belief in the past and present. Historical, pre-historic, and non-literary traditions are examined, including Native American, African, Asian, Indo-European,
and Semitic beliefs. Special consideration is given to religious development, assimilation, diffusion, practices, and phenomena. Cross-cultural comparisons and the key tenets of today’s world faiths are also emphasized. Eligibility: ENG 1530. J occasionally; C occasionally. 3 credit hours.

HIS 2590 Native American History Students will examine the prehistory and history of Native North Americans through the present. Culture, religion, intertribal affairs, and Indian-European relations from a Native point of view are studied. The history of the Iroquois, particularly in New York state, is emphasized. Eligibility: ENG 1530. J occasionally; C occasionally. 3 credit hours.

HUMAN DEVELOPMENT

HUM 0340 Student Development Addresses the role that student development plays in college success. Students will identify factors affecting their development and success as students. Students will become familiar with Arthur Chickering’s theory of student development and will assess their development in four of Chickering’s developmental areas. Students will formulate appropriate goals for their growth and development based on Chickering’s model. Grading is credit/fail. No prerequisites. J fall, spring; C fall, spr. 3 imputed credit hours.

HUM 1300 On Course for Success Students will learn a number of proven strategies for creating greater academic, professional, and personal success, and discover how to create a rich, fulfilling life by examining their beliefs and developing new skills and behaviors. Students will focus on empowering themselves to make wise choices in their academic and personal life which will lead to improved experiences and outcomes. No prerequisites. J fall, spring; C fall, spring; 3 credit hours.

HUM 1510 Achievement And Self Students will develop a greater self-understanding and self-awareness. Emphasis on personal strengths, interpersonal skill, and achievement style. Students will identify their objectives for growth and change and learn specific goal setting and goal acquisition techniques. Lectures and experiential activities will be included. Eligibility: ENG 1510. J fall, spring; C fall, spring; 3 credit hours.

HUM 1550 Life/Career Planning Students will increase their understanding of their abilities, strengths, values, needs, interests, and personality as related to planning life and career goals. They will be able to locate and use various sources of occupational, career planning, and educational planning information. Students will identify career goals and objectives as well as action steps to be achieved in reaching their objectives and goals. They will become aware of the importance of a self-empowered attitude in achieving life and career goals. Eligibility: ENG 1510. J fall, spring; C fall, 2 credit hours.

HUM 1650 Leadership Development Students will develop an understanding of leadership theory, an awareness of the moral and ethical responsibilities of leadership, and an awareness of one’s own leadership style and abilities. Students will be given an opportunity to develop essential leadership skills and to understand and practice productive leadership behavior. The course will use experiential methods of discussion, film, simulation, and a variety of readings, including some from the humanities. Particularly appropriate for those currently in leadership positions or those wishing to gain skills for leadership roles. Eligibility: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J occasionally; C occasionally. 3 credit hours.

HUMAN SERVICES

HUS 1210 Introduction to Human Services Students will examine the philosophy and goals of HUS 1210 Introduction to Human Services Students will examine the philosophy and goals of human services: social welfare, social work, and early childhood education, and be introduced to the historical, political, and social perspectives of human services. Programs designed to meet common human needs and alleviate social problems are identified and differences among programs including those of other countries are discussed. Methods and theories of intervention are studied with an emphasis on diversity of target populations. Through case studies, guest speakers, and agency visits, students are introduced to the human service career and generalist practice. Corequisite: ENG 1510 or Eligibility: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J fall, spring; C fall, spring; 3 credit hours.

HUS 1220 Poverty and Social Class in America This course examines the nature and extent of poverty in the United States, including the causes of poverty, poverty measurement, and beginning intervention strategies for individuals, communities, and professionals. Students will analyze a framework for understanding socioeconomic diversity, and use the strengths perspective to improve instruction and service delivery to populations in need. This course is appropriate for anyone working with people in generational poverty, including those in the fields of education, human services, criminal justice, and the health care professions. This course integrates theory with practical intervention strategies. Eligibility ENG 1510 and a score of 70+ on the Accuplacer test. J occasionally; C occasionally. 1 credit hour.

HUS 1280 Introduction to Family Systems Students will examine the systems theory approach to family organization and functioning, integrating the theory and beginning clinical interventions used in working with families. Topics include the family life cycle, family structure, assessment techniques, family crises, and parent-child interaction. Corequisite: ENG 1510 or Eligibility: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J occasionally; C occasionally. 3 credit hours.

HUS 1310 Studies in Alcohol and Chemical Dependency Students will examine the physical and pharmacological effects resulting from the use and abuse of alcohol and other substances. Topics include alcohol use and abuse, alcoholism, the disease concept, recent research theories about alcoholism and other substances, and other relevant social issues. The New York State Division of Alcoholism and Alcohol Abuse has reviewed this course and found it consistent with approved standards for 45 hours of CASAC counselor education/training. Provider number ED0056.A.OAAS. Prerequisite: PSY 1510 or HUS 1210 or previous experience in the human services profession; Eligibility: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J fall; C occasionally. 3 credit hours.

HUS 1410 Generalist Practice Skills Students will be introduced to the fundamental skills, techniques, and strategies used in the helping professions. Students will develop and practice each step in the case management process from engagement to termination. Utilizing a systems framework, students will learn to interview and assess client needs, identify community resources, and apply problem solving strategies and evidence-based interventions. Students will further explore the legal and ethical responsibilities of the practitioner, and demonstrate documentation skills involved in service planning. Students will learn to present in a case conference and explore methods for evaluating client success and helper effectiveness. Corequisite: ENG 1510 and Prerequisite: HUS 1210. J fall, spring; C fall, spring. 3 credit hours.

HUS 2210 Field Placement I-Social Work Students will gain practical experience participating in a minimum of 120 hours of supervised work in a human service agency. Students will also participate in a weekly seminar which focuses on developing knowledge of agency networking, teamwork, applied ethics, and communication skills. The seminar also focuses on students’ experiences, problems, and special interests. The student, faculty coordinator, and agency supervisor work together to develop an appropriate learning experience for the student. Students are responsible for assigned readings and a weekly written log of the field experience in addition to other assignments. Prerequisites: HUS 1210 with a C or better, a minimum of 3 credits of human services electives with a C or better, HUS 1410, and permission of the human services faculty; Corequisite: ENG 1530. Application required; must be a program major. Social science majors transferring to a four-year social work or human services program may also apply. J fall, spring; C fall, spring. 3 credit hours.

HUS 2220 Field Placement II Students will gain practical experience participating in a minimum of 120 hours of supervised work in a different agency or using a higher skill set than used in HUS 2210. Students will also participate in a weekly seminar which focuses on learning to develop a helping relationship. Students will learn about the characteristics of the helper and client, and techniques of helping that are appropriate to their agency situations. Opportunities for analysis of personal characteristics and development of skills in the helping relationship will be provided during both practicum and seminar. Students are responsible for assigned readings and a weekly written log of the field experience in addition to other assignments. Prerequisites: HUS 2210 with a C or better and permission of the human services faculty. Application required; must be a program major. J spring; C fall, spring. 5 credit hours.

HUS 2230 Interviewing and Counseling Students will develop entry level interviewing skills appropriate for work in human services
agencies. Counseling theory and techniques of interviewing are emphasized. Students will learn about the therapeutic relationship, non-verbal and verbal communication, multicultural interviewing, and crisis intervention. A variety of clinical techniques are discussed through role playing and case discussions. Prerequisite: PSY 1510, PST 1520, or HUS 1210. Corequisite: ENG 1510 or Eligibility: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J fall, spring; C fall. 3 credit hours.

HUS 2250 Policy And Organization Expanding on concepts introduced in HUS 1210, the student will demonstrate knowledge of the development and analysis of social policy. Current issues and problems in the organization and delivery of social services to diverse populations are examined with linkage to the historical perspectives. Comparisons with European social welfare programs will be made. The relationship of social and professional values to policy formulation and analysis is stressed. As part of student research teams, students will produce a written policy analysis of a social welfare/education policy. An Internet research refresher session is included. Prerequisites: ENG 1530, HUS 1210, and sophomore standing. Should be taken with or following an internship. J fall, spring; C spring. 3 credit hours.

HUS 2340 Working with Adolescents Students will explore the characteristics, problems, and needs of adolescents, with emphasis on the techniques and skills necessary for working with them in a variety of settings - recreational, educational, and therapeutic. Topics include a look at treatment facilities, mental health, substance abuse, and the dynamics of delinquency. Corequisite: ENG 1530 and PSY 1510 or HUS 1210; must meet minimum college level reading score: Accuplacer 80+. J occasionally. 3 credit hours.

HUS 2350 Mental Illness: Classification/Intervention Students will learn information on the historical and current classification of mental illnesses including the current Diagnostic and Statistical Manual (DSM). Students will explore assessment techniques and beginning evidence based clinical interventions for various mental health populations. Students will utilize the DSM to analyze and diagnose an individual and identify the roles of human service professionals within the field of mental health. Prerequisite: PSY 1510 or PSY 1520; Corequisite: ENG 1510 or Eligibility: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J spring; C spring. 3 credit hours.

HUS 2370 Introduction to Gerontology Students will examine an interdisciplinary perspective of the aging process and the social environments of older adults. Physical, psychological, and social changes are covered. Topics include theories of aging, demographic changes, ageism, vulnerable populations, and problems of income, retirement, housing, and health care. Emphasis is on the particular needs of the older adult and the resources and services available nationally and locally. Field trip included. Prerequisite: HUS 1210, PSY 1510, or SOC 1510; Corequisite: ENG 1510 or Eligibility: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J occasionally. 3 credit hours.

HUS 2380 Working with Older Adults Students will focus on attitudes, knowledge, and methods by which the human service caregiver can offer direct services to the older adult. Topics include enabling the elderly to maintain normal roles and continuity of life, coping mechanisms in adapting to age, counseling with older adults, dynamics of institutional life, principles of long-term care, developing therapeutic environments in communities and institutions, and service programs for older adults. Corequisite: ENG 1510 or Eligibility: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J occasionally. 3 credit hours.

HUS 2430 Alcohol/Chemical Dependency: Treatment Builds on previous alcoholism and substance abuse courses to provide an overview of methods used in the field of chemical dependency. Specific focus is on the primary skills required of counselors: group and individual counseling, treatment planning, diagnostic assessment, psycho-social assessment, and case management. The course assumes a working knowledge of alcoholism and other addictions and a prior course in interviewing is suggested. The New York State Division of Alcohol and Substance Abuse has reviewed this course and found it consistent with approved standards for 45 hours of education/training for the CASAC. Provider number EDO056AL OASAS. Prerequisite: HUS 1310 or extensive employment in a chemical dependency agency. Prior interviewing course suggested. B.S. and M.S. level individuals are permitted to enroll if they have prior counseling education. HUS 1280 and HUS 2230 recommended. J spring. 3 credit hours.

INTERNATIONAL EDUCATION INE 2730 Semester Abroad The student should consult with the study abroad coordinator to determine the appropriate course number(s) to register for because credit hours vary. Offers programs in many countries including Australia, Ecuador, England, Ireland, and Spain. Programs consist of courses taken at a college or university in the host country and count for credit hours earned while attending a university abroad. Financial aid for which a student is eligible applies to these programs for older adults.

INT 1500 Master Student: Students will develop the skills necessary to reach their educational goals, including improved study skills, communication skills, and time management skills. Students will examine life issues faced by college students and will understand the significance of personal responsibility in achieving their goals. Eligibility: ENG 0410 and ENG 0430. J fall, spring; C fall, spring. 2 credit hours.

INT 1520 Student Success Seminar: Designed to acclimate and orient students to higher education. Students will develop an understanding of the academic and personal demands of college life, and the attitudes, behaviors, and skills which successful students exhibit. Students will become familiar with the resources available at this college to help them succeed. No prerequisites. J fall, spring; C fall, spring; Online occasionally. 1 credit hour.

INT 1750 Arts in the Apple: The Apple is intended to provide art, music, theatre, communication, and media arts students with a field-based learning experience using a trip to New York City, during which students will visit museums, cultural institutions, theatres, and attractions. A final project, researched in New York City, will be produced as a result of the course experience. Eligibility: ENG 1530. J fall. 3 credit hours.

INT 2800 Science Connections: A science outreach opportunity for science majors, students in this course design and present hands-on science investigations for third grade students in physical science, biology, chemistry, and earth science/geology. Prerequisite: science major with sophomore standing and permission of instructor; must meet minimum college level reading score: Accuplacer 80+. J spring. 1 credit hour.

LIBRARY LIB 1500 Library Research Skills: Students develop basic skills in library research techniques using both print and electronic tools. Focus is on location and retrieval of information from major reference sources, print indexes, and electronic databases. Especially designed for freshmen and returning adult students. No prerequisites. J occasionally; C occasionally. 1 credit hour.

LIB 1690 Electronic Library Resources Students will be introduced to the latest online free and subscription databases, as well as web-based library catalogs. Students gain a working knowledge and learn basic operating procedures in a variety of electronic databases. Lectures, demonstrations, and hands-on assignments are featured. No prerequisites. Online fall, spring, summer. 1 credit hour.

MATHEMATICS FOR EDUCATORS MAE 2510 Math for Elementary Teachers: Students will develop the skills necessary to effectively teach mathematics at the elementary school level. Topics of study will include problem solving, operations in the base-ten whole number system (as well as other bases), operations with fractions, operations with integers, operations with decimals and percents, relations and functions, estimation, number theory, and ratios and proportions. While there will be review of the basic mathematics used at the elementary school level, the emphasis of this course will be for students to understand why those mathematical procedures work and how to construct appropriate lessons and activities to illustrate the ideas to elementary students using a variety of concrete methods. Prerequisites: ENG 1510 and fulfillment of the math requirement in the student's degree program, and sophomore standing. J fall. 3 credit
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MATHEMATICS

MAT 0300 Prealgebra: Extended Time Students will improve their basic mathematical skills. Topics include integers, real numbers, fractions, decimals, percents, and ratios and proportions. Applications are emphasized throughout to help students improve their ability to handle everyday mathematics. Students are introduced to variables and other elementary algebra topics throughout the course in preparation for MAT 0500. This course is taught as part of the APLUS program. No prerequisites. J fall, spring, 5 imputed credit hours.

MAT 0400 Prealgebra Students will improve their basic mathematical skills. Topics include integers, real numbers, fractions, decimals, percents, and ratios and proportions. Applications are emphasized throughout to help students improve their ability to handle everyday mathematics. Students are introduced to variables and other elementary algebra topics throughout the course in preparation for MAT 0500. No prerequisites. J fall, spring, 4 credit hours.

MAT 0500 Elementary Algebra Students will learn basic algebraic skills necessary for further study in mathematics and many other disciplines which involve quantitative problems. Topics include a review of arithmetic and signed numbers, linear equations and inequalities, graphing and Cartesian coordinates, basic rules of exponents, and solving 2-by-2 systems of equations. Problem-solving and applications are emphasized. Prerequisite: MAT 0300 or MAT 0400 or placement exam. J fall, spring, C fall, spring. 3 imputed credit hours.

MAT 0600 Intermediate Algebra Students will learn basic algebraic skills necessary for further study in mathematics and many other disciplines which involve quantitative problems. Topics include an introduction to functions, polynomial arithmetic, factoring, rational and radical equations and expressions, properties of rational exponents and solutions to quadratic equations. Problem-solving and applications are emphasized. Prerequisite: MAT 0500 or one year of high school algebra and placement exam. J fall, spring, C fall, spring. 3 imputed credit hours.

MAT 1220 Applied Math for Technology Students will learn applications for algebra, trigonometry, complex numbers, exponential, sinusoidal and logarithmic functions, vectors, and determinants. Illustrative examples are provided for the electrical, mechanical, computer technology and physics disciplines. This course is designed to meet the specialized needs of technology students and is not recommended for engineering or mathematics majors. Prerequisite: MAT 0600 or two years of high school algebra/geometry or placement exam. J occasionally. 4 credit hours.

MAT 1250 Applied Technical Calculus Students will learn applications of derivatives and integrals. Illustrative examples are provided for the electrical, mechanical, computer technology and physics disciplines. A computer algebra system such as Derive is incorporated into the course. The course is designed to meet the specialized needs of technology students and is not intended for engineering or mathematics majors. Prerequisite: MAT 1220 or MAT 1590. J occasionally. 4 credit hours.

MAT 1500 Problem Solving With Mathematics Students will develop problem-solving skills through a detailed study of topics such as financial mathematics, linear and exponential modeling, and geometry, in concert with specific problem solving strategies such as drawing diagrams, making systematic lists, looking for patterns, identifying sub-problems, and working backwards. Solution presentations and communication are emphasized. Prerequisite: MAT 0500 or one year of high school algebra and placement exam; must meet minimum college level reading score: Accuplacer 80+. J fall, spring; C fall, spring; Online fall, spring. 3 credit hours.

MAT 1540 Elementary Statistics Students will study an introduction to statistics including measures of central tendency and spread, graphical analysis of data, probability, random sampling, correlation and regression, hypothesis testing and confidence intervals. Practical applications are emphasized throughout the course. A significant part of the course is taught in a laboratory setting using a software package such as Minitab. Prerequisite: MAT 0600 or two years of high school algebra/geometry and placement exam; must meet minimum college level reading score: Accuplacer 80+. J fall, spring; C fall, spring; Online fall, spring. 3 credit hours.

MAT 1590 College Algebra/Trigonometry Students will learn algebra and trigonometry topics necessary to prepare them for the study of precalculus. Topics include one-to-one functions and their inverses and graphs, polynomial and rational functions and their applications, radicals and exponents, complex numbers, and trigonometric functions, including graphs and basic identities. Problem-solving and applications are emphasized. An approved graphing calculator is required. Prerequisite: MAT 0600 or two years of high school algebra/geometry and placement exam. J fall, spring; C fall, spring; Online fall, spring. 4 credit hours.

MAT 1630 Calculus for Business & Social Science Students will study an introduction to differential calculus of functions of a single variable with applications to the behavioral, management, and social sciences. Topics include limits, continuity, derivatives, and applications of derivatives for algebraic, exponential, and natural logarithm functions. Prerequisite: MAT 1530 or MAT 1600 or high school precalculus or equivalent. A student cannot receive graduation credit for both MAT 1630 and MAT 1710. J occasionally; C occasionally. 3 credit hours.

MAT 1640 Calculus for Business & Social Science Students will study an introduction to integral calculus for functions of a single variable and the calculus of functions of several variables. Techniques of integration and differentiation and applications of these techniques to the behavioral, management, and social sciences are studied. Prerequisite: MAT 1630 or MAT 1710. A student cannot receive graduation credit for both MAT 1640 and MAT 1720. J occasionally; C occasionally. 3 credit hours.

MAT 1670 Discrete Mathematics Students will master fundamental concepts of discrete mathematics that are essential for further studies in mathematics and computer science. Topics include symbolic logic and deductive reasoning, methods of proof, set theory, combinatorics, Boolean algebra, number theory, relations, and graph theory. Prerequisite: MAT 1600 or high school precalculus or equivalent. J fall; C spring; Online fall. 3 credit hours.

MAT 1710 Calculus & Analytic Geometry Students will study the fundamental concepts of calculus. Topics include an introduction to analytic geometry, functions, limits and continuity, and derivatives and integrals and their applications. An approved graphing calculator is required. A computer algebra system such as Derive is incorporated into the course. Prerequisite: MAT 1600 or high school precalculus or equivalent. J fall, spring; C fall. 4 credit hours.

MAT 1720 Calculus & Analytic Geometry Students will further their study of calculus. Topics include applications of the definite integral such as volume, surface area and arc lengths, logarithmic and exponential functions, trigonometric and hyperbolic functions, techniques of integration, polar coordinates, parametric equations, improper integrals, and sequences and series including power series and Taylor series. An approved graphing calculator is required. A computer algebra system such as Derive is incorporated into the course. Prerequisite: MAT 1710. J fall, spring; C spring. 4 credit hours.

MAT 2650 Calculus & Analytic Geometry Students will continue their study of calculus. Topics include solid analytic geometry, calculus of functions of several variables, multiple integration, two- and three-dimensional vectors, and vector calculus (including Green’s Theorem and Stokes’ Theorem). A computer algebra system such as Mathematica is incorporated into the course. Prerequisite: MAT 1720. J fall. 4 credit hours.

MAT 2670 Linear Algebra Students will learn the algebra and geometry of finite-dimensional vector spaces and their linear transformations, the algebra of matrices and determinants, characteristic values and vectors, and diagonalization of matrices. A computer algebra system such as Derive is incorporated into the course. This course is intended for students majoring in mathematics, computer science and engineering. Prerequisite: MAT 1720. J spring. 3 credit hours.
MAT 2680 Ordinary Differential Equations
Students will study differential equations of the first and higher order, systems of linear differential equations, and Laplace transforms. Applications are stressed throughout the course. The course is intended for students majoring in mathematics, computer science, and engineering. Prerequisite: MAT 1720. MAT 2650 strongly recommended. J spring. 3 credit hours.

MECHANICAL TECHNOLOGY
MCT 1210 Applied Pneumatics/Hydraulics
Students will be introduced to the basics of hydraulic and pneumatic machinery. They will study the basic components of these systems, such as pumps, valves, and actuators. This course will include a combination of laboratory activities and computer-based simulations. Students will also discuss safety standards for pneumatic and hydraulic systems. No prerequisites. J spring. 3 credit hours.

MCT 1240 Engineering Drawing With AutoCAD
Students will focus on engineering drawing fundamentals, incorporating both manual and computer-aided drafting. Topics include free-hand sketching, principles of applied geometry, orthographic projections, dimensioning, section views, pictorials, conventional drawing practices, standards, tolerancing, and an introduction to 2-D wire frame software such as AutoCAD. Students will create and modify CAD geometry, text, and dimensions. Eligibility: Must meet minimum reading score: Accuplacer 70+. J fall. 3 credit hours.

MCT 1250 Statics for Technology
Students will study rigid body mechanics including forces, force systems, their resultant, and conditions for equilibrium (including friction). Topics include equivalent force systems, equilibrium of rigid bodies, and structural mechanics (trusses, frames, beams, properties of areas, and volumes). Prerequisite: PHY 1250; Corequisite: MAT 1220 or MAT 1590 or higher. J spring. 3 credit hours.

MCT 1270 Machine Theory and Operations
Students will learn the function and operation of basic chip producing machine tools such as lathes, drill, milling machines, saws, and grinders. Prerequisite: MAT 0600. J fall. 3 credit hours.

MCT 1280 CNC/Machine Tools
Students will learn the programming and operation of Computer Numerically Controlled (CNC) machine tools. Manual programming of two and three axis mills and lathes using canned cycles will be covered. Topics discussed will include CNC machine components, absolute and incremental programming, preparatory functions (G-codes), miscellaneous functions (M codes), work piece offsets, tool length offsets, cutter compensation and cutting tools and workholding methods for CNC. Lab projects provide hands-on experience for students on CNC controllers. Prerequisite: MCT 1270; Corequisite: MAT 1220 or MAT 1590 or higher. J spring. 3 credit hours.

MCT 1300 Machine Tool Technology I
Students will gain exposure to setting up and running manual machine tools such as lathes, mills, and drill presses. In this course, the students will concentrate on more hands-on applications of set-up and machining of more complex parts using the manual equipment in the MTI lab. Prerequisites: MCT 1240 and 1270 and MAT 1220, or MAT 1590 or higher. J spring. 4 credit hours.

MCT 1340 Manufacturing Drawings & GD&T
Students will gain further exposure to actual manufacturing drawings and other information provided. The first part of the course will cover the ability to read, interpret, and construct manufacturing drawings. The second part will introduce the students to geometric tolerance and dimensioning. Prerequisite: MCT 1240. J spring. 3 credit hours.

MCT 1380 Introduction to Solid Modeling
Students will be introduced to 3-D solid modeling software. Much of the course is spent on application of a parametric solid modeler such as Solid Works. Students will learn to create and sketch geometry and parametric solids. Students will also be introduced to detailing and assembly modeling. Emphasis is placed on establishing constraints that correctly convey the design intent. Prerequisite: MCT 1240 or equivalent experience. J spring. 3 credit hours.

MCT 1390 AutoCAD
Students will learn the concepts and fundamental principles of computer-aided drafting using AutoCAD software. Through both lecture and laboratory assignments, students will apply the commands and functions used in industry to create working mechanical drawings. Prerequisite: MCT 1340. J fall. 2 credit hours.

MCT 2010-2020 Technology Internship
Students receive on-the-job experience consisting of 135 hours of supervised activity in a local business or industry. Students work in conjunction with a faculty mentor and a supervisor at the job site. All guidelines in the original college internship policy will be followed. Prerequisites: at least a 2.0 GPA and either sophomore standing or one semester completion in an appropriate certificate program. J occasionally. 3 credit hours.

MCT 2230 Mechanics of Materials
Students will learn stress, strain, and the mechanical properties of materials, tension, compression, torsion, and beams. Topics such as columns, welded and riveted connections, combined stress, stress concentrations, thermal stresses, and pressure vessels are discussed. Prerequisites: MCT 1250 and MCT 1250 or MAT 1600, or higher. J fall. 4 credit hours.

MCT 2270 Mechanics of Energy Systems
Students will analyze and solve problems involving thermodynamic systems. Students will study thermodynamic processes, including cycles. Applications will focus on fluid dynamics and energy conservation, and heat transfer. Prerequisite: PHY 1260. J spring. 4 credit hours.

MCT 2280 Advanced CNC Programming
Students will continue learning computer numerically control (CNC) programming, but move into advanced programming of three, four, and five-axis CNC machines. CAD/CAM is introduced and illustrated. Students will be exposed to Fanuc and Haas controllers. Prerequisites: MCT 1280 and MCT 1220, or MAT 1590 or higher. J fall. 3 credit hours.

MCT 2300 Machine Tool Technology III
Students will gain additional exposure in setting up and running CNC machine tools such as lathes, mills, and EDM equipment. Students will concentrate on the set-up and machining utilizing CNC programs of more complex parts using the CNC equipment. Prerequisites: MCT 1300 and MAT 1220, or MAT 1590 or higher. J fall. 4 credit hours.

MCT 2340 Dimensional Metrology
Studies gain exposure to basic and state of the art requirements for inspection and measurement of machined parts and assemblies. Students will be introduced to the various types of inspection equipment. The students will also have hands-on exposure to metrology via a CMM (Coordinate Measurement Machine) and an optical comparator. Students will hear of state of the art advances in measurement techniques from industry representatives. Prerequisites: MCT 1340 and MAT 1220 or MAT 1590 or higher. J fall. 2 credit hours.

MCT 2380 Advanced Solid Modeling
Students will extend their knowledge by using the parametric solid modeler in industrial design application. Skills are developed to support applications in the area of feature patterns, molded and cast parts, sheet metal applications, lofting, and sweeps. Assembly modeling and editing is covered as well as detailing of parts and assemblies. Links to other applications such as publication bill of materials, CAM, analysis package, and other CAD systems are also featured. Prerequisite: MCT 1380. J fall. 3 credit hours.

MCT 2410 Computer Aided Manufacturing
Students will gain exposure to the programs and procedures used in PC based CAD/CAM part programming and manufacturing. Course is based on the use of local industry standard CAM software. The PC-based CAM system will be used to produce complex machined parts from detailed solid models on advanced CNC machine tools. Prerequisites: MCT 1380, 2280 and 2300. J spring. 3 credit hours.

MCT 2420 Manufacturing Process I
Students will learn traditional manufacturing processes. Topics include processes such as casting, hot and cold working, injection molding, powdered metallurgy and finishing, as well as MTL props and their effect on the manufacturing process, and lean manufacturing. Labs consist of tours of traditional manufacturing plants and a project which requires students to create a small factory that uses new manufacturing techniques. Emphasis of the project is on quality, reduced work in process, and the team approach. Prerequisites: MCT 1280, MCT 1380 and sophomore technology standing. J spring. 3 credit hours.

METEOROLOGY
MET 1510 Introduction to Meteorology
Students are introduced to the basic concepts and processes of atmospheric science. Topics include atmospheric moisture, vertical and horizontal air pressure patterns, thermal patterns, clouds, atmospheric circulation and winds, air masses, fronts, fog, ice formation, thunderstorms, turbulence, and sub-tropical weather. Students will study weather data including surface and pressure maps, surface weather data, and a variety of computerized weather data banks throughout the U.S. and selected areas of the world. The relationship of meteorological phenomena to aeronautical conditions will be included.
Prerequisite: MAT 0600; Corequisite: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J occasionally. 3 credit hours.

MEDICAL OFFICE TECHNOLOGY

MOT 1410 Medical Terminology Focuses on medical terminology as it occurs in the anatomical systems of the human body. Students will learn the basic principles of medical word building, pronunciation, and use of medical terms. Students will also learn about all human anatomical systems, the study of common diseases, procedures, and abnormalities. Eligibility: ENG 1510. J fall; C fall, spring; Online fall, spring. 3 credit hours.

MOT 1420 Medical Office Procedures Students will learn procedures to become effective in the administrative duties necessary in today's state-of-the-art medical office. Students will examine medical record management, filing procedures, medicolegal communications, appointment scheduling, telephone procedures, insurance form completion, medical coding, medical transcription, and financial recordkeeping. Eligibility: ENG 1510. C spring; J fall; Online fall, spring, 3 credit hours.

MOT 2430 Medical Transcription Provides students with the training necessary to demonstrate mastery in transcribing medical reports. Realistic dictation from healthcare facilities will give students the experience of listening to a variety of medical terms, different accents, and various medical reports. Prerequisites: MOT 1410 and MOT 1420. Online fall, spring, 3 credit hours.

MOT 2440 Medical Coding I (CPT) Students are introduced to procedural coding. Students will learn CPT and HCPCS coding systems, and how to relate coding procedures to office operations, medical reimbursement, and medical billing. Prerequisites: MOT 1410 and MOT 1420. C fall; J fall; Online fall. 3 credit hours.

MOT 2450 Medical Coding II (ICD-9-CM) Students are introduced to ICD-9-CM coding classification systems. Students will learn how diagnostic coding procedures relate to medical reimbursement and office operations. Prerequisites: MOT 1410 and MOT 1420. C spring; J spring; Online spring. 3 credit hours.

MUSIC

MUS 1510 Introduction to Music Guides the student's search for musical enjoyment and MUS 1510 Introduction to Music Guides the student's search for musical enjoyment and understanding. A survey of classical and popular music is presented through listening and written examples. Students will gain knowledge of music literature and the art of music and its relationship to society. No prior musical experience or skills required. Eligibility: ENG 0410 and College level reading score: Accuplacer 80+. C fall, spring. 3 credit hours.

MUS 1510 Music Theory I Introduces the student to the basic fundamentals of reading and writing music. Students will work with elements of common practice theory and harmony through written assignments and aural training. No previous musical experience or skills required. No prerequisites. J fall. 3 credit hours.

MUS 1580 Music Theory II In this continuation of Music Theory I, students gain further mastery of the structure of music through written work in more complex chordal structure, compositional techniques, and aural skills. Prerequisite: MUS 1570. J spring. 3 credit hours.

MUS 1590 American Music/Classic/Popular This course is designed as an overview of American music, past to present, classical and popular. Music will be considered chronologically from Native American through current musical influences. Topics will include music of the classical, folk, ethnic, blues, jazz, rock, and music theatre literature. No prior music experience or skills are required. This course is a good companion course to MUS 1510. Prerequisite: ENG 0430; must meet minimum college level reading score: Accuplacer 80+. J spring. 3 credit hours.

MUS 1610, 1620, 2610, 2620 Applied Music - Private Lessons Provides for private study for the beginner or more advanced student on instruments, voice, composition, or other areas of music. Students gain musical skills and artistry through individual instruction. Sessions are arranged through the director of music. Public performance is optional. A studio fee is required. May be taken for a total of 6 credit hours. No prerequisites. J fall, spring. 1 credit hour.

MUS 1630 Beginning Voice Singers of all levels of experience from the beginner on can take this course. Students will improve their vocal performance for singing or speaking by dealing with written and class exercises. Vocal production, vocal pedagogy, artistic interpretation of song, working with accompanists, stage usage, acoustics, and the use of sound equipment will be considered. Recommended for those interested in performing arts, communications, education, public speaking, and related areas. No prerequisites. J fall, spring. 3 credit hours.

MUS 1650 Business of Music Students will gain an understanding of the various means of entering the music business, learn the important role of the songwriter and terms of music publishing contracts and arrangements. Students will also learn how to gain attention from a record label. Various careers available in the music business are also examined. Eligibility: ENG 1510. J spring. 3 credit hours.

MUS 1670Beginning Piano Offers group instruction in piano for the beginner. Through work at the keyboard and written work in music theory, students gain improved ability to perform at the piano or other keyboard instruments. Recommended for those interested in careers in therapy, recreation, education, music performance, music education, and other related fields. No prerequisites. J fall, spring. 3 credit hours.

MUS 1680 Beginning Guitar Offers group instruction in guitar for the beginner. Through work on the instrument and written work in music theory, students gain improved ability to perform on the guitar. Recommended for those interested in careers in therapy, recreation, education, music performance, music education and other related fields. No prerequisites. J fall, spring. C occasionally. 3 credit hours.

MUS 1690 Piano II Students will receive further study in class piano. Aspects of keyboard technique, sight reading, improvisation, artistry, and repertoire will be emphasized. Prerequisite: MUS 1670. J fall, spring; C occasionally. 3 credit hours.

MUS 1700 Guitar II Students will receive further study in class guitar. Aspects of guitar technique, sight reading, improvisation, artistry, and repertoire will be emphasized. Prerequisite: MUS 1680. J occasionally. 3 credit hours.

MUS 1710 Audio Recording Provides an introductory experience in audio recording and sound engineering. Audio recording is helpful for individuals considering audio as a career or as a personal interest. Through work with the college's audio studio, students will gain a knowledge of studio techniques, as well as the aesthetics and styles of music in relation to sound recording. Additional studio hours will be scheduled. No prior studio or musical skills are necessary. Recommended for those pursuing music, education, communications, multimedia, or performing arts. Eligibility: ENG 0410 and ENG 0430. J fall, spring. 3 credit hours.

MUS 1720 Music Ensemble I Students will have the opportunity to participate in a music ensemble, gain a greater understanding of music literature and styles, and grow in musical expression through performance. Prerequisites: Must meet minimum college level reading score: Accuplacer 80+. First-time performers are expected to be at a graduating high school level on voice or instrument. C occasionally. 2 credit hours.

MUS 1730 Music and Digital Studio Appropriate for students with a personal or career interest in this area. No prior music or studio knowledge is required. Through coursework and experience in the college's digital studio, students will be introduced to and gain an understanding of the new music technology including music software, music sequencing, sound sampling, synthesizers, effects, drum machines, and other related equipment. Emphasis will be placed on aesthetics and style in the music produced. Additional studio hours are required. Recommended for those pursuing a career interest in this area. No prior music or studio knowledge is required. C occasionally. 3 credit hours.

MUS 1740 Music Ensemble II Students will have the opportunity to participate in a music ensemble, gain a greater understanding of music literature and styles, and grow in musical expression through performance. This course is the second in the music ensemble series of courses and will cover new and different music literature. Prerequisite: MUS 1720; must meet minimum college level reading score: Accuplacer 80+. C occasionally. 2 credit hours.
MUS 1750, 1760, 2750, 2760
Music Ensembles: Chorus
MUS 1830, 1840, 2730, 2740
Music Ensembles: Jazz
MUS 1850, 1860, 2850, 2860
Music Ensembles: Rock
MUS 1870, 1880, 2870, 2880
Music Ensembles: Concert Band

A variety of courses offers students an opportunity to participate in one or more of the college’s music ensembles. Students gain a greater understanding of music literature and styles, and grow in musical expression through performance. Full- and part-time students can enroll in music ensembles. A total of 12 credit hours in music ensembles may be taken for humanities credit unless additional hours are approved by the assistant dean of arts, humanities, and health sciences. Since ICC music ensembles are non-audition, it is expected that first-time instrumentalists be at high school levels on their instruments. Chorus members must be able to sing in tune. Questions of participation are at the discretion of the instructor. No prerequisites. J fall, spring. 2 credit hours.

MUS 1890 Guitar Maintenance/Repair With a major course emphasis on guitar maintenance and repair, students will concentrate on proper stringing, tuning, set-up, and maintenance. Electric, acoustic, and MIDI Controller instruments will be considered. Purchase considerations for new and used instruments will be discussed. No previous music or repair experience required. Application to other stringed instruments will be included as appropriate. No prerequisites. J occasionally. 1 credit hour.

MUS 1930 Aural Skills I This course focuses on rhythm, melodic, and harmonic recognition and dictation, sight reading, solfeggio, and Kodaly hand signals. Students will have access to computer-assisted practice sessions in the theory studio. Strongly recommended for students wishing to improve their musical abilities. No previous musical experience required. No prerequisites. J fall. 1 credit hour.

MUS 1940 Aural Skills II Provides further study in concepts emphasized in MUS 1930. Students will have access to computer-assisted practice sessions in the theory studio. Strongly recommended for students wishing to improve their musical abilities. Prerequisite: MUS 1930. J spring. 1 credit hour.

MUS 2570 Music Theory III Students will receive a continuation of music theory instruction. Form and analysis, chromaticism, aspects of choral and instrumental arranging will be considered. Prerequisite: MUS 1580. J fall. 3 credit hours.

MUS 2580 Music Theory IV Further consideration of form and analysis, composition, and arranging will be offered in this continuation of Music Theory III. Aspects of 20th Century composition will be considered. Prerequisite: MUS 2570. J occasionally. 3 credit hours.

MUS 2720 Music Ensemble III Students will have the opportunity to participate in a music ensemble, gain a greater understanding of music literature and styles, and grow in musical expression through performance. This course is the third in the music ensemble series of courses and will cover new and different music literature. Prerequisite: MUS 1740, must meet minimum college level reading score: Accuplacer 80+. J occasionally. 2 credit hours.

MUS 2740 Music Ensemble IV Students will have the opportunity to participate in a music ensemble, gain a greater understanding of music literature and styles, and grow in musical expression through performance. This course is the fourth in the music ensemble series of courses and will cover new and different music literature. Prerequisite: MUS 2720, must meet minimum college level reading score: Accuplacer 80+. J occasionally. 2 credit hours.

MUS 2890 Digital/Audio Studio Seminar Students will have the opportunity to work in the audio and digital studios. Students will design a project or series of projects encompassing the two facilities. Class participation is required. Further instruction in audio and digital studio techniques, recording, and sound reinforcement will be presented. Prerequisite: MUS 1710 or MUS 1730. J occasionally. 3 credit hours.

MUS 2930 Aural Skills III More complex harmonies, chordal structure, and rhythmic dictation will be covered in this continuation of MUS 1940. Tonal and atonal sight singing will be studied. Prerequisite: MUS 1940. J occasionally. 1 credit hour.

MUS 2940 Aural Skills IV Advanced tonal and atonal dictation and sight singing will be studied in this continuation of MUS 2930. Prerequisite: MUS 2930. J occasionally. 1 credit hour.

NURSING
NUR 1450 Introduction Associate Degree Nursing This course facilitates entry into the associate degree program for students who have successfully completed NUR 1450 Introduction to Associate Degree Nursing. Students will develop a higher level of clinical performance for a student moving from the freshman to sophomore nursing level during this course. Students participate in a supervised medical-surgical clinical experience in an acute health care agency setting with an instructor present. Students will further develop the National League of Nursing (NLN) Associate Degree (AD) competencies (professional behaviors, communication, assessment, clinical decision making, caring interventions, teaching and learning, collaborating and managing care), the three roles of the AD nurse (provider of care, manner of care, and member within the discipline), and Quality and Safety Education for Nurses (QSEN) competencies. Students will provide safe, holistic, patient-centered care across the life span with diverse cultures. The coursework emphasizes individuals experiencing simple/acute health disruptions in biophysical and psychosocial dimensions. Practice will occur in a variety of healthcare settings. Students will focus on assisting patients to reestablish health/wellness with emphasis on maternal, newborn, and surgical patients. Prerequisites: NUR 1500 and NUR 1510. Corequisites: NUR 2970, BIO 2520, and PSY 2510. 7 credit hours.

NUR 1540 Summer Nursing Clinical Experience Students will develop a higher level of clinical performance for a student moving from the freshman to sophomore nursing level during this course. Students participate in a supervised medical-surgical clinical experience in an acute health care agency setting with an instructor present. Students will further develop the National League of Nursing (NLN) Associate Degree (AD) competencies (professional behaviors, communication, assessment, clinical decision making, caring interventions, teaching and learning, collaborating and managing care), the three roles of the AD nurse (provider of care, manner of care, and member within the discipline), and Quality and Safety Education for Nurses (QSEN) competencies. Students will provide safe, holistic, patient-centered care across the life span with diverse cultures. The clinical experience emphasizes individuals experiencing simple/acute health disruptions in biophysical and psychosocial dimensions. Prerequisites: completion of NUR 1520 and BIO 2520 with a grade of C or better. J summer: C summer. 1 credit hour.

NUR 1500 Basic Pharmacology/Dosage Calculation Designed for the beginning nursing student, students will learn basic principles of pharmacology and medication dosage calculation. Pharmacologic principles and legal/ethical considerations are important to understand to safely administer and assess medications that will be given during the clinical component of NUR 1510. Calculations include interpretation of physician orders, accurate reading of drug labels, use of medication measuring equipment, and implications for varying ages of clients. Prerequisite: acceptance into nursing program. J fall; C fall. 1 credit hour.

NUR 1510 Foundations of Nursing Students will be introduced to the National League of Nursing (NLN) Associate Degree (AD) Competencies (professional behaviors, communication, assessment, clinical decision making, caring interventions, teaching and learning, collaborating, and managing care), the three roles of the AD nurse (provider of care, manager or care and member within the discipline), and Quality and Safety Education for Nurses (QSEN) competencies. Students will provide safe, holistic, patient-centered care to adult and geriatric individuals with diverse cultures experiencing basic disruptions in biophysical and psychosocial dimensions in a variety of healthcare settings. Select ethical-legal principles are introduced. Corequisites: BIO 2510, ENG 1530, and PSY 1510. J fall; C fall. 6 credit hours.

NUR 1520 Health Restoration Students will continue to develop National League of Nursing (NLN) Associate Degree (AD) Competencies (professional behaviors, communication, assessment, clinical decision making, caring intervention, teaching and learning, collaborating and managing care), the three roles of the AD nurse (provider of care, manner of care, and member within the discipline), and Quality and Safety Education for Nurses (QSEN) competencies. Students will provide safe, holistic, patient-centered care across the life span with diverse cultures. The coursework emphasizes individuals experiencing simple/acute health disruptions in biophysical and psychosocial dimensions. Practice will occur in a variety of healthcare settings. Students will focus on assisting patients to reestablish health/wellness with emphasis on maternal, newborn, and surgical patients. Prerequisites: NUR 1500 and NUR 1510. Corequisites: NUR 2970, BIO 2520, and PSY 2510. 7 credit hours.

NUR 1540 Summer Nursing Clinical Experience Students will develop a higher level of clinical performance for a student moving from the freshman to sophomore nursing level during this course. Students participate in a supervised medical-surgical clinical experience in an acute health care agency setting with an instructor present. Students will further develop the National League of Nursing (NLN) Associate Degree (AD) competencies (professional behaviors, communication, assessment, clinical decision making, caring interventions, teaching and learning, collaborating and managing care), the three roles of the AD nurse (provider of care, manager or care and member within the discipline), and Quality and Safety Education for Nurses (QSEN) competencies. Students will provide safe, holistic, patient-centered care across the life span with diverse cultures. The clinical experience emphasizes individuals experiencing simple/acute health disruptions in biophysical and psychosocial dimensions. Prerequisites: completion of NUR 1520 and BIO 2520 with a grade of C or better. J summer: C summer. 1 credit hour.
NUR 2050-2060 Nursing Internship Students receive on-the-job experience consisting of 90 hours of supervised activity in a health care agency setting. Students work in conjunction with a faculty mentor and a supervisor at the job site. Individual goals and objectives will be developed between student, faculty, mentor, and agency supervisor. Prerequisite: Successful completion of NUR 2150 with a grade of C+ or better and permission of the instructor. J spring; C spring. 2 credit hours.

NUR 2350 Pharmacology For Nurses This course presents an in-depth study of pharmacological action of medications and the associated nursing assessments and interventions. Concepts of medication usage, the major classifications and actions of medications, and the care of the client, utilizing the nursing process, are emphasized. Prerequisite: NUR 1520 and successful completion of BIO 2510 and BIO 2520 with a grade of C or better. J spring, summer; C spring, summer. 1.5 credit hours.

NUR 2510 Health Restoration/Maintenance I Students will continue to develop National League for Nursing (NLN) Associate Degree (AD) competencies (professional behaviors, communication, assessment, clinical decision making, caring intervention, teaching and learning, collaborating and managing care), the three roles of the AD nurse (provider of care, manner of care, and member within the discipline), and Quality and Safety Education for Nurses (QSEN) competencies. Course work emphasizes individuals experiencing complex acute and chronic biophysical and mental health deviations. Using a variety of healthcare settings, the student provides quality, safe, holistic, patient centered care across the life span with diverse cultures. Emphasis will be placed on the care of patients with the following alterations: mental health, cell growth, mobility, nutrition, metabolism, neurologic, and renal function. Prerequisite: NUR 1520, NUR 2970, PSY 2510, BIO 2520. Corequisites: NUR 2550 and BIO 2760 or BIO 2351. J fall; C fall. 8 credit hours.

NUR 2520 Health Restoration/Maintenance II Students will continue to develop the National League for Nursing (NLN) Associate Degree (AD) competencies (professional behaviors, communication, assessment, clinical decision making, caring interventions, teaching, and learning, collaborating and managing care) and Quality and Safety Education for Nurses (QSEN) competencies and the three roles of the AD nurse with an emphasis on the role as manager of care. Course work emphasizes individuals experiencing complex acute and chronic biophysical and mental health deviations. Using a variety of healthcare settings, students will provide safe, holistic, patient centered care across the life span with diverse cultures. Emphasis will be placed on the care of patients with the following health alterations: cardiac, respiratory, neurologic, hematology, burns, domestic violence, and end of life care. Prerequisite: BIO 2760, BIO 2350, BIO 2510, NUR 2550. Corequisites: NUR 2350 and NUR 2560 ENG elective, and MAT 1500. J spring, C spring. 8 credit hours.

NUR 2550 Pathophysiology I Students will study diseases as seen in physiological and psychological changes that occur as a result of disease processes, with emphasis on the analysis of primary and secondary nursing and collaborative assessments and the mechanisms of their development. Students will integrate concepts from anatomy and physiology, microbiology, and chemistry, and focus on their application to clinical practice. Prerequisite: NUR 1520. J fall; C fall. 2 credit hours.

NUR 2560 Pathophysiology II As a continuation of Pathophysiology I, students will master diseases as seen in physiological and psychological changes that occur as a result of disease processes, with emphasis on the analysis of primary and secondary assessments and the mechanisms of their development. Students will integrate concepts from anatomy and physiology, microbiology, and chemistry, and focus on their application to clinical practice. Prerequisite: NUR 2550. J spring; C spring. 2 credit hours.

NUR 2970 Health Assessment Students’ knowledge, skills, and expertise will increase in all aspects of nursing health assessment: obtaining health histories; performing physical assessments; recognizing normal assessment findings and deviations from the normal; and recording accurate, concise, and clear data. Emphasis is on performing systematic health assessments of adults, incorporating developmental principles and psychological, sociological, and cultural aspects. To a lesser degree, child assessment is integrated into the course. Laboratory for integration of theory and skill mastery is included. At the end of the semester, each student will perform a health assessment on a selected client and record findings. Prerequisite: NUR 1510 or RN or LPN licensure. J fall, spring, summer; C fall, spring, summer. 3 credit hours.

**OCCUPATIONAL THERAPY ASSISTANT**

OTA 1510 Foundations of Occupational Therapy Students will be introduced to the history, development, function, and philosophy of the occupational therapy profession and the occupational therapy assistant. Students will learn about relevant theories, frames of reference, and models of practice that influence the occupational therapy process. In addition, students will identify how sociopolitical, economic, and geographic factors influence current occupational therapy practice. Students will also demonstrate their ability to locate, select, and interpret evidence-based practice research that supports ethical occupational therapy practice. Prerequisite: acceptance into OTA program. J fall. 3 credit hours.

OTA 1520 Medical Specialties Students will understand the effects heritable diseases, genetic conditions, disability, trauma, and injury to physical and mental health have on an individual. Students will explore the effects disabling conditions have on the occupational performance of a person. Students will learn about normal development throughout the life-span, medical terminology, signs & symptoms, course & prognosis, and common medical treatments related to disease/disability. Prerequisite: acceptance into OTA program. J fall. 3 credit hours.

OTA 1530 Fundamental Skills of OTA I This is the first course in a series of two that focus on development and refinement of skills for the occupational therapy assistant. Students will learn the application component of the knowledge learned in Foundations of Occupational Therapy. Topics include, but are not limited to: understanding yourself and others, applications of the language of the profession, introduction to basic computer skills and assessment tools, and development of professional behaviors. Prerequisite: acceptance into OTA program. J fall. 1 credit hour.

OTA 1620 Psychosocial Concepts/Techniques Introduces students to the care of clients with psychiatric and neurobehavioral disorders. Content addresses role dysfunction and prevention strategies, as well as occupational therapy assessment and intervention techniques. Emphasis is placed on learning to provide care utilizing the occupational therapy process of evaluation, treatment planning, implementation, and documentation of care. Real life and fictional case studies will be used to gain experience in assessment and treatment techniques. Learning experiences will occur in the classroom and clinical environments and will mirror best practices in mental health. Prerequisites: OTA 1510, OTA 1520. J spring. 2 credit hours.

OTA 1630 Fundamental Skills of OTA II Students will build upon the knowledge gained from OTA 1530 to further develop skills necessary for professional practice. More application and evaluation of the following skills will occur: application of the OT process, treatment planning, activity analysis, computer skills, assessment use and techniques, cultural sensitivity, and portfolio development. Prerequisite: OTA 1530. J spring. 1 credit hour.

OTA 1640 Therapeutic Groups Students will demonstrate the knowledge and skills needed to develop and implement therapeutic groups for cohorts of various ages and disabilities. Students will learn about group norms, group characteristics, structure, planning, leadership, and the evaluation of groups in occupational therapy. Prerequisite: OTA 1510. J spring. 2 credit hours.

OTA 1650 Growing Years: Birth-Young Adult Students will learn the major developmental disabilities across the lifespan and how a disability adversely affects the development and engagement in life roles (i.e.: student, sibling, friend, etc.). Theories of human development and occupation will be linked to provide a deeper understanding of the acquisition of functional skills and social roles of children birth to 21 years of age. Occupational assessments will be explored and relevant treatment techniques will be reviewed. Learning about treatment delivery models of children with disabilities will emphasize naturalized environments and family centered models. Prerequisites: OTA 1510 and OTA 1520. J spring. 3 credit hours.

OTA 1700 Fieldwork IA Students will be introduced to and will practice professionalism skills both in the classroom and in various community settings, under the direction of an occupational therapy practitioner. Preparation for and exposure to practice settings and patience
interaction are the primary focus of this course. Through reflection and discussion, application of knowledge about the profession will be practiced. HIPAA regulations, mandated reporter requirements, and universal precautions will be addressed. Background checks will be completed in preparation for student experiences working with the pediatric population. Corequisites: OTA 1620 and OTA 1650. J spring. 1 credit hour.

OTA 2520 Adulthood and Aging Students will focus on the role occupational therapy plays in working with older adults and families across the continuum of care. Students will learn the influence the aging process has on physical, sensory, and cognitive functions and their relationship to functional capabilities. Psychosocial aspects of aging and how environment, culture, and values impact lifestyle and occupational performance will be discussed. Students will share an understanding of theories, issues, and clinical skills specific to practice in geriatric rehabilitation, home health care, long-term care, adult day care programs, and community practice, including wellness and prevention programs. Prerequisite: OTA 1520. J fall. 2 credit hours.

OTA 2540 Fieldwork IB Students will learn how to interact with patients and the healthcare team, and will practice and demonstrate the professionalism skills in this course. Through observation and participation in at least two different community settings, while under the supervision of a qualified professional, students begin to assimilate academic coursework, creating an opportunity for professional growth and development. Corequisites: OTA 1610-1620. J fall. 1 credit hour.

OTA 2550 Technology & Environment Applications for Living Students are provided with a basic knowledge of assistive devices and their use with diverse populations in a variety of practice settings. Students will be exposed to both low and high level technologies including the use of adaptive equipment, wheelchairs and positioning devices, computer modifications, and environmental adaptation. This course provides instruction in selection and modification of adaptive equipment and wheelchairs, and documentation. Students will learn how to educate clients on the use of the assistive devices necessary to improve their occupational performance. Prerequisite: OTA 1630. J fall. 3 credit hours.

OTA 2560 OT Intervention Across Lifespan Students will explore theoretical understanding of common frames of reference and translate these into functional treatment. Students will investigate common treatment approaches and uncover interventions that address common motor, sensory, cognitive, and perceptual disorders across the lifespan. Students will develop treatment sessions using the occupational therapy intervention continuum as a framework which supports the tenets of occupation-based practices. Simulation, real, and fictional case studies will be used to stimulate clinical reasoning and problem solving. J fall. 3 credit hours.

OTA 2570 Classroom to Clinic-Prep Students will learn skills needed to transition from the classroom to the field. Students will identify Level II fieldwork expectations, explore the supervisory and interdisciplinary team relationships, review professional and ethical behavior, review AOTA, NBCCOT and licensure requirements, develop a resume and cover letter, and begin preparation for job searching. Prerequisite: successful completion of OTA 1620, 1630, 1640, 1650, and 1700 with a “C” or better. J fall. 2 credit hours.

OTA 2620 Physical Rehabilitation Students will be introduced to concepts and techniques needed to provide care to patients with neurological, orthopedic, and muscular-skeletal conditions. Students will refine transfer and goniometry techniques, while developing skills with manual muscle testing, mobility, and the application of treatment approaches relevant to the physically disabled population. Prerequisite: OTA 1520. J fall. 3 credit hours.

OTA 2700 Fieldwork IIA: Principles/Practicum Students will participate in the first of two level II fieldwork experiences required for the program. An in-depth experience in the delivery of occupational therapy services will be provided in one of a variety of clinical placement sites. This experience shall develop and expand the students’ repertoire of occupational therapy practice in an effort to develop competent, entry-level prepared occupational therapy assistants that are skilled in applying the OT process to client care. Students will be mentored through this experience by a qualified OT Practitioner. In addition, students will participate in an online portion of the course with student learning focusing on the regulation of the profession of occupational therapy at the local, state, and federal levels. Principles of occupational therapy ethics/dispute resolution systems will be explored and applied to personal and professional conflicts. Students will explore roles and responsibilities of various team members while reflecting on their own responsibilities of working in the profession of Occupational Therapy. Psychosocial factors that influence engagement in occupation will be integrated into student learning. Level II fieldwork must be completed within 12 months of academic preparation. Prerequisite: successful completion of all OTA courses with a “C” grade or better. J spring. 6 credit hours.

OTA 2720 Fieldwork IIIB: Service Management Students will participate in their second of two level II fieldwork experiences which are required for the program. An in-depth experience in the delivery of occupational therapy services will be provided in one of a variety of clinical placement sites. This experience shall further develop and expand students’ repertoire in order to develop competent, entry-level prepared occupational therapy assistants that are skilled in applying the OT process to client care. Students will be mentored through this experience by a qualified OT Practitioner. In addition, students will participate in an online component to the course which will challenge students to identify and discuss trends and issues facing the profession in a variety of service contexts. Service delivery concepts will be explored with topical areas to include, but not limited to, management concepts, reimbursement, quality improvement, supervision, and leadership. Level II fieldwork must be completed within 12 months of academic preparation. Prerequisite: OTA 2700. J spring. 6 credit hours.

PHILOSOPHY

PHL 1510 Introduction to Philosophy Students will gain an understanding of the Western philosophical tradition and the influences of philosophical thinking. Students are introduced to major areas of philosophy and explore the relationships between concepts in metaphysics, epistemology, ethics, social philosophy, and aesthetics. Eligibility: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J fall; spring; C fall; spring. 3 credit hours.

PHL 1570 Critical Reasoning Students will identify and criticize arguments and will acquire an understanding of basic concepts in semantics and logical analysis. Students will distinguish sound from unsound arguments and identify common fallacies. Prerequisite: must meet minimum college level reading score: Accuplacer 80+. J occasionally; C occasionally. 3 credit hours.

PHL 2550 Philosophy of Religion Students will acquire an understanding of basic problems concerning the existence and nature of the divine. Students will also identify different perspectives on the nature of religious experience and its relationship to other areas of philosophy such as ethics and political philosophy. Prerequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.

PHL 2570 Environmental Issues/Ethics Students will gain critical understanding of the impacts of human activities as they affect the earth and the web of life it sustains from both ethical and scientific perspectives. Contemporary environmental issues such as methods and limitations of science and moral reasoning, global warming, ozone depletion, deforestation, animal rights, population growth, waste disposal, biodiversity, and species extinction will be discussed. This team-taught course is offered under biology for natural science credit (BIO 2570) or philosophy for humanities credit (PHL 2570). Prerequisites: BIO 1570 and ENG 1530. J occasionally. 3 credit hours.

PHL 2610 Introduction to Ethical Theory Students will acquire an understanding of basic ethical theories as expressed by major ethicists. Students will develop an appreciation of the complexities and implications of basic moral concepts such as responsibility, duty, character, and the good life. Prerequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.

PHL 2630 Contemporary Moral Problems Students will analyze and acquire an understanding of contemporary moral issues and problems. Students will learn how moral problems are approached differently by diverse ethical perspectives such as utilitarianism and deontological theorists. Students will develop a coherent moral point of view which they will use to approach issues such as privacy, abortion, suicide, euthanasia, war, civil disobedience, and pornography. Prerequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.

PHL 2650 Introduction to Formal Logic Students will be introduced to modern systems of formal logic. Students will determine the formal validity of arguments in propositional and
quantifier logic, make deductions in both systems, and perform translations of ordinary language arguments into formal language. Prerequisite: ENG 1530. J occasionally. 3 credit hours.

PHL 2720 Biomedical Ethics Students will identify key problems confronted by health and medical care professionals. Students will articulate a moral point of view with which they will address problems such as informed consent, patient rights, confidentiality, euthanasia, genetic testing, and medical resource allocation. Prerequisite: ENG 1530. J occasionally. 3 credit hours.

PHYSICAL EDUCATION

PHE 1480 Personal Trainer Certification Students gain theoretical knowledge and practical skills in preparation for a national certification exam in personal training. Topics include guidelines for instructor safe, effective, and purposeful exercises, essentials of the client-trainer relationship, understanding health and fitness assessments, and designing and implementing appropriate exercise programming. Prerequisites: Eligibility: ENG 1510 and Reading Score 80+. J spring, fall. 3 credit hours.

PHE 1500 Care & Prevention of Athletic Injuries Students will be introduced to methods of conditioning, prevention, recognition, treatment, and rehabilitation of athletic injuries, administrative procedures, and other major concerns conducted in an athletic training setting. The application of skills and knowledge in the clinical experience in the athletic training room will be emphasized. Corequisite: BIO 2510 recommended; Eligibility: ENG 0430. J fall, spring. 3 credit hours.

PHE 1501-1508 Athletic Participation-Freshman Student athletes, who successfully complete participation in a NJCAA sport season, will learn about the competitive fundamentals of participation in an NJCAA certified sport. Students will be involved in a variety of learning experiences in the classroom, on the practice field, and during athletic contests. Through hands-on applications, students involved in team sports will learn group dynamics, problem solving, and time management skills. The course of study will focus on physical training and statistical and skill analysis which is sport specific. No prerequisites. J occasionally; C occasionally. 1 credit hour.

PHE 1510 Introduction to Fitness Students will explore the basic areas of health related fitness, body composition, cardiovascular fitness, flexibility, muscular endurance, and strength conditioning. Exposes students to each of the components of fitness through a combination of lectures and hands-on experiences. Students will identify their fitness status and develop, together with the instructor, an individualized program. No prerequisites. J occasionally. 2 credit hours.

PHE 1520 Zumba Students will learn basic principles of aerobic, interval, and resistance training to maximize caloric output, cardiovascular benefits, and total body toning. This class format combines fast and slow rhythms that tone and sculpt the body in an aerobic/fitness fashion to achieve a unique blended balance of cardio and muscle-toning benefits. Students will be introduced to basic anatomy, kinesiology, and exercise physiology. No prerequisites. J fall, spring. 2 credit hours.

PHE 1530 Fundamentals of Movement Students will gain a better understanding of physical and recreational movements of the human body. Fundamentals of Movement will introduce kinesiology for muscle function, flexibility, and endurance. Students will practice proper alignment, balance, and flexibility. This course will include a series of drills to increase coordination and gain personal range of motion while gaining muscle strength and control. Corequisite: ENG 1510. J occasionally. 2 credit hours.

PHE 1540 Core Concepts Students will learn that Core Concepts is an easy-to-follow workout that will increase strength as an alternative to a weight room workout. It will address core strength, muscle endurance, range of motion and joint stability. Students who complete a core-training workout regularly will help reduce the risk of injury and enhance athletic performance in most sports. The class will include the use of floor work, hand weights, stability balls, medicine balls, and rubber tubing, along with other equipment. No prerequisites. J spring. 2 credit hours.

PHE 1550 Promotion In Sport Students will be introduced to the engaging field of sport promotion and to aspects of successful promotions with topics not limited to foundation of sport promotions, promotions cs. Marketing, promotional agendas, structuring and implementing the 7-step incentive plan and other topics leading to effective promotions within the sports industry. Corequisite: ENG 1510 or eligibility: ENG 1530. J occasionally. 3 credit hours.

PHE 1560 Yoga I: Yoga/Relaxation Techniques Students will learn and demonstrate an understanding of the art of Hatha yoga and relaxation techniques. Students will learn how to relieve stress and emotional tension through the systematic training of guided imagery, diaphragmatic breathing, and breath awareness. The course includes lectures on yoga philosophy, postures, diet, meditation, and relaxation techniques. Hatha yoga is a human science that takes into consideration bodily pains, poor posture, faulty breathing, and incorrect walking, and teaches greater awareness of the body as a whole without separating it from the mind and the influences of all senses. Eligibility: ENG 0430. J fall, spring. C occasionally. 2 credit hours.

PHE 1570 Principles of Fitness and Wellness Students will be introduced to the basic concepts and benefits of physical activity, adequate nutrition, and positive lifestyle patterns as a means to promote better health. Combines a series of lectures and labs to disseminate practical information that will enable students to make judgments about their lifestyle choices. Eligibility: ENG 0430. J fall, spring. 3 credit hours.

PHE 1610 Introduction to Aerobic Exercise Students will be introduced to basic auditory principles of aerobic exercise physiology. No prerequisites. J fall, spring. 2 credit hours.

PHE 1620 Fitness Concepts & Applications Introduces the new concept of flex-time physical education which allows students to enroll in either a weight training or cardiovascular conditioning program without traditional day and time schedule restrictions. Topics will include cardiovascular conditions, weight training, injury prevention, nutrition, weight control, body composition, lower back care, and relaxation techniques. No prerequisites. J occasionally; C occasionally. 2 credit hours.

PHE 1630 Traditional Karate Students will demonstrate the basic skills and techniques of preliminary exercises, sparring exercises, punches, blocks, and stances. Students will also learn karate history, methods, theories, and promotion systems. Eligibility: ENG 0430. J fall, spring. 2 credit hours.

PHE 1640 Introduction to Pilates Students will learn about a total body conditioning exercise method which combines flexibility and strength. The purpose of Pilates is to develop mind and body uniformity; provide balance, flexibility, and strength; improve posture; and strengthen the abdomen, lower back, and buttocks. No prerequisites. J fall, spring. 2 credit hours.

PHE 1650 Fundamentals of Basketball Students will learn offensive and defensive fundamentals through drill work with an emphasis on shooting the basketball. The course is taught in a team type of atmosphere and structured to meet the needs and capabilities of the competitive as well as the beginning student. No prerequisites. J fall, spring. 2 credit hours.

PHE 1660 Introduction to Life Fitness Students will be introduced to The Life Fitness system of strength equipment. The course will introduce students to the Life Fitness philosophy of strength development, concepts of form and individual strength program development. Eligibility: ENG 0430. J fall, spring. 2 credit hours.

PHE 1670 Introduction to Physical Education Through class discussions, research assignments, and “in the field” observations students will develop an understanding of the various career opportunities in the field of physical education. The course is primarily suited for students pursuing a career in physical education or education. Eligibility: ENG 0430. J fall. 3 credit hours.

PHE 1680 Beginning Weight Training Students will use universal and free weights to develop strength and muscular endurance. The course will introduce concepts of form, repetition sequences, and provide a basic understanding of musculature and training techniques. No prerequisites. J fall, spring. 2 credit hours.

PHE 1690 Water Aerobics Students will perform uniquely designed exercises for specific muscle groups in the water. Students will become more fit through an exercise form that features repetition and resistance combined with normal body movements. Music and games will add variety and interest to the program. No prerequisites. J occasionally; C occasionally. 2 credit hours.

PHE 1700 Specific Sport Training Students will develop and implement a training program that
improves their performance in a specific sport or activity. The course will emphasize many training techniques and equipment that students will use to coordinate a comprehensive physical fitness regimen. Students will be able to chart progress toward personal and individual goals. Prerequisite: PHE 1660 or PHE 1680. J fall, spring. 2 credit hours.

**PHE 1710 Individualized Swimming** Students will be provided instruction in beginning swimming basics. Students will demonstrate skill in drowningproofing, elementary backstroke, backstroke, sidestroke, crawlstroke, treading stroke, and breaststroke. Improvement in swimming ability and cardiovascular health for all levels of swimmers are the main course objectives. No prerequisites. J occasionally; C occasionally. 2 credit hours.

**PHE 1720 Aerobic Conditioning** After testing, students will be issued individualized programs to follow for the semester. Students will consider activities such as walking, jogging, cycling, swimming, racquetball, rope skipping, and stair climbing when building an improvement program. No prerequisites. J fall. 2 credit hours.

**PHE 1731 Lifeguarding/CPR/AED** Students will learn the skills of preventive lifeguarding, water rescue techniques, and aquatic facility management for pools and waterfronts. American Red Cross certification in CPR for the professional rescuer, lifeguarding, community first aid, automatic external defibrillator, and waterfront module may be used upon successful course completion. Students will learn to give immediate care to an individual who has been injured, has suddenly taken ill, or has a cardiac emergency. No prerequisites. J fall, spring. 3 credit hours.

**PHE 1740 Volleyball/Softball** Students will demonstrate the fundamental skills and strategies of both activities. Students will also develop and demonstrate officiating skills for both sports. No prerequisites. J occasionally. 2 credit hours.

**PHE 1750 Cross-Country Skiing** Students will demonstrate the basic skills used in cross-country skiing. Skills include, but will not be limited to, diagonal stride, star turn, reverse star turn, kick turn, stepping turn, herringbone, and sidestep. Field trips will be made to local cross-country ski areas. No prerequisites. J occasionally. 2 credit hours.

**PHE 1760 Racquetball/Tennis** Students will be introduced to the basic skills, rules of play, and strategies of both sports. Skill development in these racquet sports is emphasized. No prerequisites. J occasionally. 2 credit hours.

**PHE 1770 Self-Defense: Coed** Students will demonstrate the use of effective physical actions when no other alternative is available. Students will also demonstrate the ability to minimize the possibilities of assault and physical confrontation. The elements of karate, aikido, judo, and other fighting martial arts will be introduced. Learning how not to be a victim is the main course objective. No prerequisites. J fall, spring. 2 credit hours.

**PHE 1780 Walking for Health** Students will be introduced to topics that educate and encourage students to begin and maintain a safe and effective walking program. The course will encompass concepts and activities that will advance the understanding of the relationship between lifelong physical activities and overall well-being. No prerequisites. J fall, spring. 2 credit hours.

**PHE 1790 Cardio Kickboxing** Cardio kickboxing is an exercise program comprised of general conditioning exercises for body conditioning and fitness. The course will cover kickboxing moves in an aerobic setting. Students will learn to throw basic kicks and punches with proper form and technique. A warm-up, aerobic portion, drills, cool down, and stretch and relaxation are included in the class. Eligibility: ENG 1530. J occasionally. 2 credit hours.

**PHE 1800 Running for Health and Fitness** Students will explore the aspects and benefits of running in relation to overall achievement of personal wellness. The course will help students gain a greater awareness of their potential by developing a higher level of physical fitness and nutritional awareness. No prerequisites. J spring. 2 credit hours.

**PHE 1810 Baseball Fundamentals** Students will be introduced to pitching and batting basics, team defense, and situation drills. Classroom studies will examine the strategies of winning baseball from the philosophies of the game to the history of America’s greatest pastime sport. Designed for both the player/coach of today’s baseball players to tomorrow’s coaches. Students will perform the baseball skills taught in the classroom. No prerequisites. J spring. 2 credit hours.

**PHE 1820 CPR for the Professional Rescuer** Students will learn the skills needed to respond appropriately to breathing and cardiac emergencies according to American Red Cross criteria for the professional rescuer, including use of automated external defibrillation (AED) to care for victims of cardiac arrest. No prerequisites. J occasionally. 1 credit hour.

**PHE 1830 Beginning Golf** Students will demonstrate rules, knowledge, and basic skills of golf including grip, address, stance, posture, and swing. No prerequisites. J occasionally. 2 credit hours.

**PHE 1840 Self-Defense for Women** This course prepares women to minimize the possibilities of criminal assaults and confrontations. Students will learn to use effective physical actions when no other alternative is available. Learning how not to be a crime victim is the main course objective. Elements of karate, aikido, judo, and other fighting martial arts are utilized. No prerequisites. J fall. 2 credit hours.

**PHE 1850 Bowling/Golf** Students will demonstrate rules, knowledge, and basic skills of golf including grip, address, stance, posture, and swing. No prerequisites. J spring. 2 credit hours.

**PHE 1860 Archery/Foil Fencing** Students will learn the basic fundamentals, rules, and strategies of each activity. No prerequisites. J occasionally. 2 credit hours.

**PHE 1870 Sport Psychology** Students will be introduced to basic aspects of performance in sport and athletic competition. Primary psychological and physiological tenants will be major topics discussed and related to enhancement of athletic performance. There will be practical skills and knowledge development as well as discussion of career opportunities and the future direction of sport psychology. Prerequisite: PSY 1510. J fall. 3 credit hours.

**PHE 1880 Sport Nutrition** Students will develop a thorough understanding of the role nutrition plays in enhancing one’s fitness and sport performance. The effect nutrition has on health promotion and disease prevention is emphasized through current research and practical activities. Corequisite: ENG 0430 or Eligibility: ENG 1510; Must meet minimum college level reading score: Accuplacer 80+. J spring. 2 credit hours.

**PHE 1890 Introduction to Boot Camp** Students will be involved in an intense basic aerobic workout without choreography or dance. The course focuses on endurance, strength, flexibility, and plyometric training. Circuit training, interval training, and endurance and resistance training are emphasized. Prerequisite: must meet minimum college level reading score: Accuplacer 80+. J spring. 2 credit hours.

**PHE 2010 Physical Education Internship** Students receive on-the-job experience consisting of 135 hours of supervised activity in a local educational, recreational, or health setting. Students work in conjunction with a faculty mentor and a supervisor at the job site. All guidelines in the original college internship policy will be followed. Prerequisites: at least a 2.0 GPA and either sophomore standing or one semester completion in an appropriate certificate program. J occasionally, C occasionally. 1 to 4 credit hours.

**PHE 2050 Athletic Training Internship** Students will apply knowledge of athletic training skills in a hands-on experience consisting of 180 hours. Each student will be assigned to work with an athletic team under the supervision of the certified athletic trainer for the semester, attending practices and games. Students will learn about conditioning, injury evaluation, treatment, preventive techniques, and rehabilitation. Prerequisites: PHE 1500 and CPR and first aid certification; Corequisite: ENG 1530; Eligibility: C+ or better in PHE 1500. J occasionally; C occasionally. 1 to 4 credit hours.

**PHE 2060 Intramural Assistant Internship** Students will receive on-the-job experience working in the intramural department. J to 3 credit hours.

**PHE 2460 Physical Education for Law Enforcement** Designed specifically for the basic recruit school trainee, this course emphasizes weight training and fitness for life. Students are required to complete successfully various exercises which include timed running, sit-ups, push-ups, swimming, and maintaining a measured progress throughout the semester. Also studies the need for fitness and the ideal of daily exercise. Corequisites: CRI 2250, CRI 2380, CRI 2470, and compliance with NYS regulations. J fall. 3 credit hours.

**PHE 2470 Defensive Tactics/Law Enforcement** Students are given the knowledge, skills, and abilities to defend themselves during physical altercations while staying within the proper force/level of resistance matrix. Defensive tactics, mechanics of an arrest, transportation of prisoners, and searches are emphasized. Demonstration of
learned skills by students is required. Eligibility: student must be current Chautauqua County Sheriff’s Academy recruit. New York state certified police/peace officer may be accepted with approval of the academy director. J occasionally. 2 credit hours.

**PHE 2501-2508 Athletic Participation-Sophomore** Student athletes, who successfully complete participation in a NJCAA sport season, will learn about the competitive fundamentals of participation in an NJCAA certified sport. Students will be involved in a variety of learning experiences in the classroom, on the practice field, and during athletic contests. Through hands-on applications, students involved in team sports will learn group dynamics, problem solving, and time management skills. The course of study will focus on physical training and statistical and skill analysis which is sport specific. No prerequisites. J occasionally; C occasionally. 1 credit hour.

**PHE 2590 Fitness Seminar Students** will learn how to set up a safe exercise program for their particular needs. Students will also learn various ways to exercise and methods best suited to specific results. Students will develop an understanding of how the body responds to exercise, diet, stress, and other influences. No prerequisites. J occasionally; C occasionally. 1 credit hour.

**PHYSICS**

**PHY 1250 Technical Physics I** Students will use various laboratory experiments to learn the PHY 1250 Technical Physics I Students will use various laboratory experiments to learn the fundamental phenomena, principles, and laws of physics. They will study motion, Newton’s Laws, torque, and the principles of work and energy using algebra and trigonometry. Students will also study applications of these concepts in various fields of manufacturing. Corequisite: MAT 1220 or MAT 1590 or higher. J fall. 4 credit hours.

**PHY 1260 Technical Physics II** Students will continue their investigation into physical phenomenon by focusing on electric and magnetic interactions and the structure of matter. They will study electrostatics, DC circuits, specific electrical components (such as DC motors and generators), and magnetism. Students will also study applications of these concepts in various fields of manufacturing. Corequisite: PHY 1250. J spring. 4 credit hours.

**PHY 1510 Understanding Physics** Students in this one-semester introductory course will learn how physics is the foundation for all other sciences. Students will look at physics from a conceptual viewpoint where verbal reasoning is emphasized and a minimum of algebra is used. Motion, heat, forces, light, energy, electricity, and magnetism are studied with the underlying theme being energy transfer. Each topic will emphasize hands-on investigations and lab experiences. Prerequisite: MAT 0500; must meet minimum college level reading score: Accuplacer 80+. J spring. 4 credit hours.

**PHY 1610 General Physics I** Students will use computer-based sensors and probes to learn the fundamental phenomena, principles, and laws of physics. They will investigate Newtonian mechanics, rotational motion, simple harmonic oscillators and wave motion. Students will become aware of physics in everything they do and see. A tutorial session is available and strongly recommended. Prerequisite: high school physics or PHY 1510; Corequisite: MAT 1600; Eligibility: ENG 1530. J fall; C occasionally. 4 credit hours.

**PHY 1620 General Physics II** Students will continue their investigative approach to understanding the principles of physics. They will further their comprehension of wave phenomena, including sound waves, and will study electricity and magnetism, light and optics, and selected topics in modern physics such as relativity. A tutorial session is available and strongly recommended. Prerequisites: PHY 1610 and MAT 1600. J spring; C occasionally. 4 credit hours.

**PHY 1710 Analytical Physics I** Students will use computer-based laboratory techniques to learn about Newtonian mechanics. They will learn good problem-solving strategies as well as good laboratory practices. They will use vector analysis and calculus to study linear kinematics, dynamics, and conservation laws for momentum and energy. Students will investigate rotating systems and rigid bodies, including solving problems which use angular momentum, torque, center of mass, and moment of inertia concepts. They will also explore simple harmonic oscillators and wave motion. This is the first semester in a three-semester sequence of physics courses designed for students planning to major in physics, chemistry, mathematics, engineering science, or computer science. Students will begin to become aware of physics in everything they do and see. A tutorial session is available and strongly recommended. Eligibility: ENG 1530; Prerequisite: MAT 1710 and high school physics or PHY 1510 or PHY 1610. J spring. 4 credit hours.

**PHY 2010-2020 Physics Internship** Students will receive on-the-job experience consisting of 135 hours of supervised activity in a local business or industry. Students will work in conjunction with a faculty mentor and a supervisor at the job site. All guidelines in the original college internship policy will be followed. Prerequisite: at least a 2.0 GPA and either sophomore standing or one semester completion in an appropriate certificate program. J occasionally. 3 credit hours.

**PHY 2510 Thermodynamics** Students will continue investigations into mechanics with extensive study in thermodynamic systems. Students will analyze and solve problems involving fluid dynamics, energy conservation, and thermodynamic processes. Prerequisite: PHY 1610 or 1710 and MAT 1720. J occasionally. 4 credit hours.

**PHY 2710 Analytical Physics II** Students continue their investigation into physical phenomenon by focusing on electric and magnetic interactions and the structure of matter. Students will develop an understanding of Maxwell’s equations from a detailed treatment of the laws of Coulomb, Ampere, and Faraday. They will use an investigative approach to get an intuitive understanding of electric and magnetic fields and their interactions with charged matter. Students will use vector calculus concepts such as line and surface integrals and will become familiar with the operation of meters, oscilloscopes, and solid state devices. Students will also study geometric and physical optics. The course will end with perplexing problems of noncovariance of the electromagnetic theory of Maxwell. The answers to these questions lead to the study of modern physics topics. Prerequisite: PHY 1710; Corequisite: MAT 2650. J fall. 4 credit hours.

**PHY 2720 Modern Physics** Students will study three major themes: the development of the theory of relativity; the old quantum theory of Planck, Einstein, Bohr, and Sommerfeld; and the new quantum physics of Schroedinger, Heisenberg, Dirac, and Pauli. Students’ interest in relativity theory is motivated by the noncovariance problems discovered in the electromagnetic theory of Maxwell and Lorentz and the null result of the Michelson-Morley experiment. The early quantum theory is developed from Planck’s analysis of the problem of blackbody radiation and from Einstein’s study of the photoelectric effect. This is followed by a careful study of the Schroedinger theory of quantum mechanics and solutions to the Schroedinger equation. In the laboratory students will repeat a number of historical experiments including the determination of the speed of light, the charge and charge to mass ratio of the electron, the Planck constant, and the Rydberg constant. Students may also perform the Franck-Hertz experiment. The last part of the semester in the modern lab is devoted to a special, student-designed project. Prerequisite: PHY 2710; Corequisite: MAT 2680. J spring. 4 credit hours.

**POLITICAL SCIENCE**

**POL 1510 American Politics** Students will study and examine national, state, and local government and politics with an emphasis on national public policy making. Students will learn the different types of democracy, the varieties of political culture and ideology, the role and history of U.S. political parties, the structure of the U.S. constitution, including federalism, and the functioning of the political economy. Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J fall; spring; C spring. 3 credit hours.

**POL 1520 World Politics** Students will study world politics in the post-cold war era focusing on a variety of political “actors” including, but not limited, to nation-states, non-governmental organizations, and intergovernmental organizations including transnational organizations such as the United Nations and supranational organizations such as the European Union. Students develop an understanding of idealism and realism as the two major theories for organizing the study of world politics. Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J occasionally; C occasionally. 3 credit hours.

**POL 1550 Introduction to Labor Studies** In this survey of labor studies, students examine labor history and politics, and the evolution, philosophy, and practice of collective bargaining. Social-psychological principles for effective leadership, team-building and organization are investigated. Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J occasionally; C occasionally. 3 credit hours.

**POL 2530 Law & Civil Rights** Using the case method, students will demonstrate how to “brief” significant cases in First Amendment law involving freedom of religion, freedom of speech,
freedom of press, and freedom of association. Students will also learn the difference between natural rights and citizenship rights. Eligibility: ENG 1530. J fall, spring. 3 credit hours.

POL 2570 State & Local Government Students will examine the historical development and political roles of state, county, city, town, and village government with an emphasis on New York state. Students will complete the course by participating in a simulation of city government. Eligibility: ENG 1530. J occasionally. 3 credit hours.

PSY 1510 General Psychology Students will demonstrate an understanding of theories and research in the field of personality psychology. The aim of the course is to explore the many factors which make up and influence personality. Topics include shyness, thrill-seeking, gender differences, and extraversion. Students will apply class material to real-life situations and will demonstrate an understanding of cultural diversity and interpersonal processes as they relate to individual personality. Prerequisite: PSY 1510; Corequisite: ENG 1530. J spring; C spring. 3 credit hours.

PSY 2510 Life Span Development Students will demonstrate an understanding of human development from conception to late adulthood. Students are expected to engage in critical thinking concerning the developmental processes and issues characterizing the various stages of the life cycle. Emphases will be placed on integrating theory and research and appreciating the practical application of life span development to real-life concerns and problems. Prerequisite: PSY 1510; Corequisite: ENG 1530. J fall, spring; C fall, spring. Online fall, spring. 3 credit hours.

PSY 2520 Child Development Students will demonstrate an understanding of development from conception to adolescence, including knowledge of research methods, theories, and factual information. They will apply that knowledge to important issues that affect children from diverse cultural, ethnic, and socioeconomic backgrounds. Through a series of exercises, students will improve their ability to observe children and write about what they observe. Prerequisite: PSY 1510; Corequisite: ENG 1530. J fall, spring; C fall, spring. Online fall, spring. 3 credit hours.

PSY 2530 Social Psychology Students will demonstrate mastery of theories and research in the field of social psychology. The course focus is on the influence of groups on individuals. Topics include prejudice, aggression, conformity, group decision making, and leadership. Students apply class material to real-life situations and will demonstrate an understanding of cultural diversity, including ethnic, racial, and gender issues. Prerequisite: PSY 1510 or SOC 1510; Corequisite: ENG 1530. J fall, spring; C fall, spring. Online spring. 3 credit hours.

PSY 2540 Interpersonal/Group Dynamics Students will demonstrate mastery of the theories involved in both interpersonal relations and group dynamics and will be able to apply those theories to their own lives. They will be familiar with the research in both areas and be able to critically analyze various types of group process. Students will do a process observation of an interpersonal and/or group interaction. Students will be committed to learning by experiential and more traditional methods. Prerequisite: PSY 1510 or PSY 1520; Corequisite: ENG 1530. J fall, spring; C fall; spring. 3 credit hours.
class exercises and/or projects. Students will also demonstrate an understanding of cultural diversity as it relates to studies of consciousness. Prerequisite: PSY 1510; Corequisite: ENG 1530. J occasionally. 3 credit hours.

RELIGION

REL 1510 Introduction Hebrew Bible/Old Testament Students will examine the background, settings, and writing styles of various authors of the Old Testament books. The basic content of the Old Testament books and how they interrelate will be discussed. Special consideration will be given to the major views of the authorship of the Pentateuch. Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J fall. 3 credit hours.

REL 1520 Introduction to New Testament Students will examine the content, settings, and writing styles of various authors, historical events, and the background of the New Testament. The life of Christ, missionary travels of Paul, and first century apostolic history will be discussed. Corequisite: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J spring. 3 credit hours.

REL 1530 Comparative Religion Students will examine cultural expressions of belief in the supernatural, focusing specifically on people's ideas about magic, witchcraft, and religion. This course takes a wide-ranging and cross-cultural approach to studying religious beliefs and behaviors and incorporates "world religions" such as Christianity, Judaism, and Islam, as well as the "indigenous" religions of Africa, Asia, Australia, and the Americas. Students will have the opportunity to contrast other people's beliefs and practices with their own and develop a deeper understanding of the role of religion in the human experience. Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J occasionally. 3 credit hours.

REL 2570 History of World Religions This interdisciplinary course examines the development and variety of religious belief in the past and present. Historical, pre-historic, and non-literary traditions are examined, including Native American, African, Asian, Indo-European, and Semitic beliefs. Special consideration is given to religious development, assimilation, diffusion, practices, and phenomena. Cross-cultural comparisons and the key tenets of today's world faiths are also emphasized. Eligibility: ENG 1530. J occasionally. 3 credit hours.

REL 2580 Survey of Islamic Studies This class will examine the Islamic religious tradition from its inception to the present. The course will culminate with a few specific modern social issues and political movements important to practitioners of the Islamic faith. Prerequisite: reading score of 80+. Corequisite: ENG 1530. J spring, C spring. 3 credit hours.

RUSSIAN

RUS 1510 Introductory Russian I Students will learn Russian language vocabulary and grammar by completing a series of activities designed for realistic communication, both written and spoken. They will learn the reading and writing of the Cyrillic alphabet. Through reading, dialogue, and associated study, students develop an understanding of the language and cultural distinctions of Russian speakers worldwide. Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J fall. 4 credit hours.

RUS 2560 Russian Civilization & Culture Students will learn about Russian culture and civilization by focusing on the most significant events in Russian history from its formation to the collapse of the Soviet Union through exposure to the best examples of the Russian music, literature, arts and architecture, and exploring the depths of the Russian civilization and so-called Russian soul. Prerequisite: ENG 1510. J occasionally; C occasionally. 3 credit hours.

SOCIOLGY

SOC 1510 Introduction to Sociology Students will use sociological perspectives to critically analyze and understand taken-for-granted aspects of our social world. The institutions of culture, socialization, social groups, and institutions on human behavior are investigated. Cultural diversity and issues related to social inequalities are also explored. Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J fall, spring, C fall, spring. 3 credit hours.

SOC 1550 Drinking 101 Students will use sociological theories and concepts to examine social and cultural forces that influence alcohol consumption. Research about the social and personal consequences of drinking will be investigated. Students will also evaluate theories of alcoholism and the impact of alcohol-related social policies. Eligibility: ENG 1510; must meet minimum college level reading score: Accuplacer 80+. J fall, spring, 2 credit hours.

SOC 2510 Marriage & the Family Students will develop a sociological understanding of marriage and the family as social institutions. Emphasis is placed on challenges facing contemporary American families, from communication and conflict to sexual learning and behavior, changing gender roles, parenting, divorce, remarriage, violence, and abuse. Corequisite: ENG 1530. J fall; C fall. 3 credit hours.

SOC 2520 Social Problems Students will apply the sociological perspective to an understanding of major issues and conflicts in American society. They will explore the impact of social and cultural factors on the creation and definition of social problems and policies, and investigate possible solutions to these problems. Prerequisite: SOC 1510; Corequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.

SOC 2540 Deviant Behavior Deviant behavior is behavior that attracts widespread social disapproval. In this course, students gain the ability to analyze a variety of deviant behaviors from sociological, critical, and cross-cultural perspectives. Topics include homicide, rape, and family violence to prostitution, unconventional sexuality, and suicide. Prerequisite: SOC 1510; Corequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.

SOC 2560 Criminology Students will learn about criminal behavior by evaluating major sociological theories and research. Basic aspects of these theories and their relationship to values, social structures, and the criminal justice system are examined. For both the criminal justice student and those interested in social sciences. Prerequisite: SOC 1510; Corequisite: ENG 1530; must meet minimum college level reading score: Accuplacer 80+. J occasionally; C occasionally. 3 credit hours.

SOC 2580 Race and Ethnicity This course helps students appreciate the multicultural basis of American society. The course is designed to improve understanding of prejudice and discrimination, explore ways to improve intergroup communication and relations, and examine challenges faced by professionals working in settings with racial, ethnic, and religious diversity. Prerequisite: SOC 1510; Corequisite: ENG 1530. J occasionally; C occasionally. 3 credit hours.

SPANISH

SPA 1500 Spanish in the Workplace Students will develop basic communication skills in Spanish appropriate to careers or services whose clients are Spanish speakers. Recommended primarily for students who have had some introduction to Spanish, the focus is on proficiency in comprehension and oral response. Students are introduced to relevant aspects of Hispanic culture. Prerequisite: ENG 1530. Strongly recommend completion of SPA 1510, SPA 1520, or equivalent. J fall, spring; C occasionally. 2 credit hours.

SPA 1510 Introductory Spanish I Students will learn Spanish language vocabulary and structure by completing a series of activities designed for realistic communication, both written and spoken. Through reading, dialogue, and associated study, students develop an understanding of the language and cultural distinctions of Spanish speakers worldwide. Eligibility: ENG 1510. J fall, C fall. 4 credit hours.

SPA 1520 Introductory Spanish II Students will learn Spanish language vocabulary and structure by completing a series of activities designed for realistic communication, both written and spoken. Through reading, dialogue, and associated study, students develop an understanding of the language and cultural distinctions of Spanish speakers worldwide. Prerequisite: SPA 1510 or two years high school Spanish; Eligibility: ENG 1510. J spring; C spring. 4 credit hours.

SPA 2510 Intermediate Spanish I Although a review of the fundamentals of the Spanish language is integral to this course, special attention is given to the continuing development of students' conversational and reading skills. Students build upon their understanding of literature in Spanish through study of the works of Spanish and Spanish-American authors. Prerequisite: SPA 1520
or three years high school Spanish; Eligibility: ENG 1510. J occasionally. 3 credit hours.

SPA 2520 Intermediate Spanish II Although a review of the fundamentals of the Spanish language is integral to this course, special attention is given to the continuing development of students’ conversational and reading skills. Students build upon their understanding of literature in Spanish through study of the works of Spanish and Spanish-American authors. Prerequisite: SPA 2510 or four years high school Spanish; Eligibility: ENG 1510. J occasionally. 3 credit hours.

SPA 2530 Introduction to Spanish Literature Students will examine representative works of prose, poetry, and drama of the 20th century literature of Spain and the Americas. Readings emphasize the close connection between style and content, as well as the historical and cultural influence of each. Includes lectures, class discussions, and student’s written work in Spanish. Prerequisites: SPA 2510-2520; Eligibility: ENG 1510. J occasionally. 3 credit hours.

SPA 2550 Spanish Conversation Students will enhance their ability to express themselves verbally in Spanish. Conversations, prepared and spontaneous, will be based on everyday situations and contemporary topics. Spanish grammar is reviewed as needed. Prerequisite: SPA 2510 or a minimum of three years high school Spanish; Eligibility: ENG 1510. J occasionally. 3 credit hours.

SPA 2560 Latin American Civilization & Culture This course introduces the political history of Latin America from pre-Columbian times to the present. The course will explore the diverse expressions of the region, ranging from economic structures, power, and politics to the cultural traditions of complex societies in order to trace the circular movements of colonized peoples passing from conquest to liberation and back again. Prerequisite: ENG 1530. J occasionally. 3 credit hours.

THEATRE

THE 1510 Introduction to Theatre Students will obtain an understanding and appreciation of theatre from early ritual through post-war American drama. Plays are viewed in class and read independently. Students will discuss a variety of dramatic forms. Acting styles and the elements of costuming, makeup, scenic design, and the lighting necessary to stage a show are also examined. Corequisite: ENG 1510 and a reading score of 80+. J occasionally. 3 credit hours.

THE 1520 Modern Drama Students will discover the turning point that led to a new direction for contemporary drama. The musical in post-war America is examined, and African-American, Latino, Asian-American, women’s theatre, and such styles as Absurdism are investigated. Plays and performances are viewed in class and independent reading is assigned. Playwriting styles and a discussion of directing and producing approaches will help the student discover modern ways of presentation. A continuation of THE 1510. Corequisite: ENG 1530. J spring. 3 credit hours.

THE 1550 Stagecraft Students will gain a working knowledge of the tools, equipment, language, and procedures used in set construction. Construction documents and rigging, as well as practical application, are given special consideration. Corequisite: ENG 1530. J fall, spring. 3 credit hours.

THE 1570 Acting Students use the physical and mental processes of acting to build self-confidence. Both improvised and rehearsed scenes are practiced in class to discover how to be at home in front of an audience. Performance skills are strengthened through acting exercises and methods. Corequisite: ENG 1510 with a reading score of 80+. J fall. 3 credit hours.

THE 1620-1623 Theatre Practicum I-IV Through hands-on application, students involved in mounting a stage production work in teams to learn group dynamics, problem solving, and time management skills. Students will gain a working knowledge in either lighting, sound, costuming, publicity, or props. May be taken for a total of 4 credit hours. Prerequisite: permission of instructor. Required. J fall, spring. 1 credit hour.

THE 1630 London Theatre Seminar Students are introduced to the practice and production of theatre in London, England, one of the world’s theatre centers. Following six seminar meetings, students spend two weeks in London viewing theatre productions and visiting theatres, galleries, and museums. No prerequisites. J occasionally. 3 credit hours.

THE 2570 Acting II Students expand upon the growth begun in THE 1570, experiencing an in-depth, cumulative, and progressive study of acting. An increased character exploration and the ability to incorporate it into scene study are learned. Students are given individual attention in voice and body control and audition techniques. Prerequisite: THE 1570. J spring. 3 credit hours.

WELDING

WLD 1200 Safety and Cutting Processes This WLD 1200 Safety and Cutting Processes course introduces oxy-fuel and plasma-arc cutting systems. Topics include an intensive introduction to welding safety, proper equipment setup, and operation of oxy-fuel and plasma-arc cutting equipment with emphasis on straight line, curve and bevel cutting. Upon completion, students should be able to perform oxy-fuel and plasma-arc cut metals of varying thicknesses as well as have an appropriate understanding of welding safety. Corequisite: MAT 0500; must meet minimum college level reading score: Accuplacer 70+. J fall. 3 credit hours.

WLD 1240 Applied Welding Students will understand the three most common welding processes that are available to perform welds and the numerous ways to cut various materials. The welding processes included are oxy-fuel, plasma, and use of various mechanical cutting machines. Upon completion, students will be able to perform code quality welds on plates of various thicknesses in all three processes, as well as perform cutout operations on plates using all cutting equipment. Corequisite: MAT 0500 and reading score of 80+. J, spring. 3 credit hours.

WLD 1350 Shielded Metal Arc Welding This course introduces the shielded metal arc (stick) welding process. Emphasis is placed on padding, fillet, and groove welds in various positions with SMAW electrodes. Upon completion, students should be able to perform SMAW fillet and groove welds on carbon plate with prescribed electrodes. Corequisite: MAT 0500; must meet minimum college level reading score: Accuplacer 70+. J spring. 3 credit hours.

WLD 1360 Gas Metal Arc Welding This course introduces gas metal arc (GMAW) welding and flux core arc welding processes (FCAW). Topics include equipment setup and fillet and groove welds with emphasis on application of GMAW and FCAW electrodes on carbon steel plate. Upon completion, students should be able to perform fillet welds on carbon steel in the flat, horizontal, and overhead positions. Corequisite: MAT 0500; must meet minimum college level reading score: Accuplacer 70+. Five hours of combined lecture and laboratory per week. J spring. 3 credit hours.

WLD 1370 Gas Tungsten Arc Welding This course introduces the gas tungsten arc (GTAW) welding process. Topics include correct selection of tungsten, polarity, gas, and proper filler rod with emphasis placed on safety, equipment setup, and welding techniques. Upon completion, students should be able to perform GTAW fillet and groove welds with various electrodes and filler materials. Corequisite: MAT 0500; must meet minimum college level reading score: Accuplacer 70+. J spring. 3 credit hours.

WLD 2250 Advanced Shielded Metal Arc Welding Advanced shielded metal arc (stick) welding techniques will be performed using mild steel electrodes in the flat, horizontal, vertical, and overhead positions on structural plate. Identifying and analyzing defects in welding joints is emphasized. Carbon steel plate is welded using shielded metal arc welding (SMAW) to American Welding Society (AWS) Code. Students will develop skills necessary to make quality welds on carbon steel pipe with open root and backing rings according to AWS, American Society of Mechanical Engineers (ASME), and American Petroleum Institute (API) code. Prerequisite: WLD 1350, Corequisite: MAT 1220 or MAT 1590 or higher. J fall. 3 credit hours.

WLD 2260 Advanced Gas Metal Arc Welding Advanced gas metal arc welding practices and power source technology, including programmable and Pulse constant voltage machines, will be used. Machine set-up and techniques for nonferrous metals, including aluminum and stainless steel, will be practiced. Advanced arc welding techniques will be performed in the flat, horizontal, vertical, and overhead positions on structural plate. Identifying and analyzing defects in welding joints is emphasized. Carbon steel plate is welded using Gas Metal Arc Welding (GMAW) to American Welding Society (AWS) Code. Students will develop skills necessary to make quality welds on carbon steel pipe with open root and with backing rings according to AWS, American Society of Mechanical Engineers (ASME), and American Petroleum Institute (API) code. Prerequisite: WLD 1360, Corequisite: MAT 1220 or MAT 1590 or higher. J fall. 3 credit hours.

WLD 2270 Advanced Gas Tungsten Arc Welding Advanced study and practice of the gas tungsten arc welding process are emphasized. Advanced joint designs are mastered on carbon steel, aluminum, and stainless steel. A required American Welding Society Workmanship sample will be fabricated and welded. Students will
also weld GTAW on pipe according to ASME (American Society of Mechanical Engineers) procedures. Theory and practice of GTAW on ferrous and non-ferrous metals in all positions will be covered. Upon completion, students should be able to perform GTAW welds with prescribed electrodes and filler materials on various joint geometries. Prerequisite: WLD 1370; Corequisite: MAT 1220 or MAT 1590 or higher. J fall. 3 credit hours.

WLD 2350 Fabrication Students will learn how to read blueprints with an emphasis on weld symbols, joint design, and layout techniques. Students will be introduced to equipment such as the iron worker, hand tools, press brake, and shear. The principles behind bending, punching, and fastening technologies will be discussed. Prerequisites: WLD 2260 and PHY 1250; Eligibility: ENG 1510. J spring. 3 credit hours.

WLD 2360 Alternate Processes Machine setup and techniques for nonferrous metals, including aluminum and stainless steel, will be practiced. Welding applications of special metals such as copper, nickel, cobalt, and titanium will be discussed. Non-traditional or advanced welding and processing procedures such as resistance welding, plasma arc welding and cutting, and submerged arc welding are demonstrated. Laser and electron beam welding techniques are also reviewed. Prerequisites: WLD 2250, WLD 2260, and WLD 2270. J spring. 3 credit hours.

WLD 2370 Metallurgy Students will learn the basic properties, characteristics, and production of the major metal families and processes for ferrous and nonferrous metals. General metal properties, testing, and heat treatments are covered, along with crystal structures in metals, iron-carbon phase diagrams, and isothermal transformation diagrams. Prerequisite: PHY 1250; Corequisite: ENG 1530. J spring. 3 credit hours.

WLD 2450 Capstone Project Through research, discussion, and presentation, students will apply welding technology knowledge toward a real life problem. Each student will prepare a case study of a local industry problem or application as well as a solution to the problem. Process selection, joint design, cost estimating, and design of a welded project are required. Prerequisite: student must be within one semester of graduation or have permission of instructor. J spring. 2 credit hours.