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AGPS - 3004 Soil Fertility, 4.00 Credits
Level: Lower
Topics include: current liabilities; nature of corporations and related equity and income reporting issues; long-term liabilities; statement of cash flows; analysis of financial statements; nature and behavior of manufacturing costs; introduction to cost accounting concepts and systems; cost-volume-profit relationships; introduction to budgetary planning.

AGPS - 2224 Managerial Accounting, 4.00 Credits
Prerequisite(s): ACCT 1124 with D or better
Level: Lower
Topics include: current liabilities; nature of corporations and related equity and income reporting issues; long-term liabilities; statement of cash flows; analysis of financial statements; nature and behavior of manufacturing costs; introduction to cost accounting concepts and systems; cost-volume-profit relationships; introduction to budgetary planning.

AGPS - 1103 Soils, 3.00 Credits
Level: Lower
Course Fee $14.00, Gen Ed - Natural Sciences, Liberal Arts and Science
Fundamental principles of soil science are studied in an effort to relate soil characteristics to plant growth; plant growth as influenced by soil factors. Soil parent materials and soil formation, physical, chemical and colloidal properties of soils and soil surveys, life in the soil, soil water, and water conservation, plant nutrition, lime and liming practices are all covered in this course. Laboratory components complement lecture material.

AGPS - 1104 Soils, 4.00 Credits
Level: Lower
Applied Learning-Practicum
Fundamental principles of soil science are studied in an effort to relate soil characteristics to plant growth. Soil parent materials and soil formation, physical, chemical and colloidal properties of soils and soil surveys, life in the soil, soil water, and water conservation, plant nutrition, lime and liming practices are all covered in this course. Laboratory components complement lecture material.

AGPS - 2113 Field & Forage Crops, 3.00 Credits
Level: Lower
Applied Learning-Field Study
The course will combine fundamental knowledge of field crop physiology with practical training in crop production. Crop interactions with other organisms, both beneficial and deleterious (pests), will be studied. Management of synthetic inputs will be included in this course. Emphasis will be given to cultural (or biological) crop management strategies that reduce input costs in crop production and reduce fluctuations (risks) to crop performance and the environment.

AGPS - 3004 Soil Fertility, 4.00 Credits
Prerequisite(s): AGPS 1103 with D or better
Level: Lower
Applied Learning-Field Study, Course Fee $14.00
This course is a comprehensive study of the management of plant nutrients in agronomic systems for economic response and environmental protection. Topics include diagnosis of nutrient availability and prediction of crop response to fertilizers, interactions between nutrient response and chemical, physical, and biological properties of soils.
AGPS - 5003 Integrated Pest Management, 3.00 Credits
Prerequisite(s): AGPS 1104 with D or better or BIOL 1304 with D or better or BIOL 1104 with D or better or BIOL 2803 with D or better
Level: Upper
Applied Learning-Practicum, Course Fee $14.00
This course is an introduction to Integrated Pest Management (IPM): the study of plant pest protection on an interdisciplinary basis. Ecological, biological and economic principles will be emphasized from each of the participating disciplines: entomology, nematology, plant pathology, weed science, engineering, and economics. Reasons and principles for establishing pest management programs will be discussed. Computer-aided instruction is used in portions of the course. The objectives of the course are to: introduce the student to the principles of pest management; develop an understanding of vocabulary and basic concepts; develop an understanding of tactics associated with pest management; and create an awareness of interdisciplinary complexity and necessity of systems approach in IPM.

AGPS - 5103 Sustainable Vegetable Production Tech, 3.00 Credits
Prerequisite(s): AGPS 1103 with D or better
Level: Upper
Applied Learning-Entrepreneur, Course Fee $14.00
Students will learn how to site, design, and manage a small-scale vegetable farm using organic and/or other sustainable practices that support niche-marketing strategies. Particular attention will be paid to crop sequences appropriate for the climates and soils of the Northeastern United States. Students will gain hands-on experience in building soil quality, starting transplants, identifying and managing pests, harvesting and marketing of vegetables. Later in the course students will work with sustainable winter-production technologies, including passively-heated high tunnels and intensive vegetable production using hydroponic techniques. Civic Engagement Intensive (CEI) sections exist.

AGRI - 2001 Farm Practicum II, 1.00 Credit
Level: Lower
Applied Learning-Practicum
The course will give students the opportunity to learn and practice a variety of agriculture skills. Skills will include care and management of dairy animals, machinery and equipment safety and operation, crop, fruit and vegetable production.

AGRI - 2102 Agriculture, 2.00 Credits
Level: Lower
Applied Learning-Practicum
This course will give students the opportunity to learn and practice a variety of agriculture skills. Skills will include care and management of dairy animals, machinery and equipment safety and operation, crop, fruit and vegetable production.

AGRI - 2001 Farm Practicum III, 1.00 Credit
Level: Lower
Applied Learning-Practicum
Students enrolled in this course will work 45 hours at the college farm. They will learn practical farming skills such as mixing feed, spreading manure, milking cows, and other daily duties as assigned by the farm manager. Students will keep a daily journal of their experiences and develop proficiency in basic farm skills. Formal management and team building training will also be incorporated into the experience.

AGRI - 3351 Live Animal Evaluation, 1.00 Credit
Level: Lower
Applied Learning-Practicum
The efficiency of animal husbandry depends on the ability of an individual to evaluate, judge and select animals based on their productive and reproductive abilities. Communication, both oral and written, makes the judges reasons much more effective.

AGRI - 4001 Farm Practicum IV, 1.00 Credit
Level: Lower
Applied Learning-Practicum
Students enrolled in this course will work 45 hours at the college farm. They will learn practical farming skills such as mixing feed, spreading manure, milking cows, and other daily duties as assigned by the farm manager. Students will keep a daily journal of their experiences and develop proficiency in basic farm skills. Formal management and team building training will also be incorporated into the experience.

AGRI - 4002 Senior Seminar/Capstone Proj, 2.00 Credits
Level: Lower
Applied Learning-Practicum
This course is designed for students planning for careers requiring general knowledge and basic skills in agricultural building construction and maintenance. The course content consists of proper and safe hand tool and power tool utilization. Safe utilization of these tools in lab will be a hands-on experience. Various building materials will be explained and demonstrated throughout this course. Construction techniques and methods will be presented in lecture and performed in each lab.

AGRI - 4103 Construction for Agritcr, 3.00 Credits
Level: Lower
Applied Learning-Practicum
This course is designed for students planning for careers requiring general knowledge and basic skills in agricultural building construction and maintenance. The course content consists of proper and safe hand tool and power tool utilization. Safe utilization of these tools in lab will be a hands-on experience. Various building materials will be explained and demonstrated throughout this course. Construction techniques and methods will be presented in lecture and performed in each lab.

AGRI - 5003 Integrated Pest Management, 3.00 Credits
Prerequisite(s): AGPS 1104 with D or better or BIOL 1304 with D or better or BIOL 1104 with D or better or BIOL 2803 with D or better
Level: Upper
Applied Learning-Practicum, Course Fee $14.00
This course is an introduction to Integrated Pest Management (IPM): the study of plant pest protection on an interdisciplinary basis. Ecological, biological and economic principles will be emphasized from each of the participating disciplines: entomology, nematology, plant pathology, weed science, engineering, and economics. Reasons and principles for establishing pest management programs will be discussed. Computer-aided instruction is used in portions of the course. The objectives of the course are to: introduce the student to the principles of pest management; develop an understanding of vocabulary and basic concepts; develop an understanding of tactics associated with pest management; and create an awareness of interdisciplinary complexity and necessity of systems approach in IPM.

AGRI - 5103 Sustainable Vegetable Production Tech, 3.00 Credits
Prerequisite(s): AGPS 1103 with D or better
Level: Upper
Applied Learning-Entrepreneur, Course Fee $14.00
Students will learn how to site, design, and manage a small-scale vegetable farm using organic and/or other sustainable practices that support niche-marketing strategies. Particular attention will be paid to crop sequences appropriate for the climates and soils of the Northeastern United States. Students will gain hands-on experience in building soil quality, starting transplants, identifying and managing pests, harvesting and marketing of vegetables. Later in the course students will work with sustainable winter-production technologies, including passively-heated high tunnels and intensive vegetable production using hydroponic techniques. Civic Engagement Intensive (CEI) sections exist.
ANTH - 5113 Cross-Cultural Encounters, 3.00 Credits
Level: Lower
Gen Ed - Other World Civ, Liberal Arts and Science
This course will examine diversity in contemporary Europe as the continent struggles to find a collective identity in an evolving global environment. Students will explore the development of the European Union and cultural issues relating to gender, migration, religion, nationalism, crime, and social innovation. Specific attention will be paid to foods associated with different European cultures as well as to the life cycles, damage, diagnosis, control and treatment of various internal and external parasites.

ANTH - ANTHROPOLOGY

ANSC - 3202 Dairy Cattle Reprod & A.I. Tech, 2.00 Credits
Prerequisite(s): ANSC 1204 with D or better or VETS 3204 with C or better
Level: Lower
Applied Learning-Practicum, Course Fee $14.00
This course will provide the student with a basic understanding of reproduction and artificial insemination (A.I.) techniques in dairy cattle. The student will gain an understanding of the anatomy of the bovine reproductive tract through examination and palpation of both slaughterhouse specimens and live animal palpations. The student will learn to read sire summaries, use linear scoring, apply recordkeeping approaches and analysis of herd reproductive performance. Common reproductive diseases will be discussed as well as the latest information on heat detection and synchronization programs. The labs and two required field trips provide individual student A.I. training and practice sessions needed for the National Association of Animal Breeders (NAAB) certification.

ANSC - 2114 Dom Animal Anat & Phys, 4.00 Credits
Level: Lower
Applied Learning-Other, Course Fee $14.00, Liberal Arts and Science
This course will examine diversity in contemporary Europe as the continent struggles to find a collective identity in an evolving global environment. Students will explore the development of the European Union and cultural issues relating to gender, migration, religion, nationalism, crime, and social innovation. Specific attention will be paid to foods associated with different European cultures as well as to the life cycles, damage, diagnosis, control and treatment of various internal and external parasites.

ANTH - ANTHROPOLOGY

ANSC - 3103 Livestock Mgmt & Production, 3.00 Credits
Level: Lower
Prerequisite(s): ANSC 1204 with D or better or VETS 3204 with D or better
This course provides the student with an understanding of animal nutrition. Students will learn feeding farm animals for growth, production, and profit, nutrient content and physiological value of feeds; nutrient requirements of farm livestock; physiology of digestion and developing and evaluating rations.

COURSE DESCRIPTIONS
ANTH - 5223 Archaeology - Cities of Fire, 3.00 Credits
Level: Lower
Gen Ed - Social Sciences, Liberal Arts and Science
The discovery of the buried city of Pompeii in the 18th century gave birth to the modern science of archaeology, and at the same time added greatly to our understanding of Roman civilization. "Cities of Fire" is offered to students enrolled in the study abroad program in Sorrento, Italy, and takes advantage of the unique cultural heritage of Campania (the region surrounding the Gulf of Naples). The course is a survey of the techniques of archaeology, the vulcanism of the region, and the history and culture of the Roman civilization in Campania. Field lectures at sites including Pompeii, Herculaneum, Baia, Cumae, Puteoli, Mt. Vesuvius and Napoli enrich classroom presentations, and provide a first-hand experience of the ancient cultures of Greece and Rome. Students investigate specific aspects of Roman architecture, city planning, and culture, and present their findings in research reports during field visits.

ANTH - 5333 Medical Anthropology, 3.00 Credits
Level: Upper
Gen Ed - Other World Civ, Liberal Arts and Science
This course will introduce students to the diversity in health seeking practices and beliefs across the globe. Students will learn how to analyze medical practice, including biomedicine, as a cultural institution. We will explore how culture shapes our perceptions of what it means to be sick or healthy. This course will provide a context for understanding the way in which culture plays an integral role in understanding, maintaining and restoring health. We will also examine how social structures and cultural misunderstandings can lead to inequalities in health outcomes and healthcare experiences.

ARCH - ARCHITECTURE AND DESIGN
ARCH - 1184 Design Fundamentals 1, 4.00 Credits
Prerequisite(s): COMP 1503 with D or better * and ( MATH 1033 with D or better * or MATH 1034 with D or better * or MATH 1054 with D or better * or MATH 1063 with D or better *)
Level: Lower
Course Fee $53.00
An introduction to fundamental design, architectural design drawing and applied drawing techniques. Students are introduced in lecture to design and drawing principles, techniques and conventions used to develop and communicate architectural ideas. Lab assignments emphasize the relationship between drawing and three-dimensional form and space, and include exercises in basic design and model-making. Topics include principles of design and architectural theory, observational sketching, depicting light, texture and depth, analytical drawing, orthographic and paraline projection systems, and professional standards for layout, lettering, use of line weights, and dimensioning of architectural drawings.

ARCH - 2014 Computer Visualization, 4.00 Credits
Level: Lower
Applied Learning-Practicum
This is an introductory course that examines the practical and theoretical issues of the computer as a tool for the production of architectural presentations. Technical skills in SketchUp, Revit and Photoshop are learned through tutorials and projects. Students learn to create and execute projects utilizing the computer as an architectural tool through the application of technical skills.

ARCH - 2394 Design Fundamentals 2, 4.00 Credits
Prerequisite(s): ARCH 1184 with C or better or CIAT 1184 with C or better
Level: Lower
Course Fee $53.00
Introductory course designed to expose students to fundamental design skills, 3D problem solving, color theory, perspective drawing and rendering. The course examines specific issues such as format, figure/ground, rhythm, contrast, datum, value, space definition, color theory/rendering, one and two point perspective methods and basic model building.

ARCH - 2433 Urban Sketching and Journaling, 3.00 Credits
Level: Lower
Applied Learning-Int/ Dom Trav
Urban sketching and Journaling is offered to students enrolled at Sant' Anna Institute as part of the study abroad program in Sorrento, Italy. The course is designed to augment the architecture students' experience of their semester abroad, but is also intended for students of the arts, and for any student wishing to develop drawing skills and observational acuity. Emphasis is placed on the fundamentals of drawing as an invaluable tool for seeing, learning, thinking, and communicating. Lectures are centered on the basics of line drawing, perspective, shade and shadow, observational sketching, and note-taking. Lab exercises will capitalize on the unique urban environments of Sorrento and southern Italy. Students are required to keep a running journal of their thoughts and experiences throughout the semester.

ARCH - 3003 Environmental Controls 1, 3.00 Credits
Prerequisite(s): MATH 1033 with D or better or MATH 1034 with D or better or MATH 1054 with D or better or MATH 1063 with C or better
Level: Lower
This course introduces the student to the fundamental principles of mechanical, electrical and plumbing (MEP) systems for small buildings. Students will explore passive design strategies and their effects on active MEP building systems. The course will emphasize holistic analyses of sites, buildings and small building systems with respect to geographic regions. Instruction will focus on impacts of the built environment on global resources. Tests, calculations and delineation of building systems will form the basis of instruction.

ARCH - 3014 Construction Technology 1, 4.00 Credits
Prerequisite(s): ARCH 2014 with C or better
Level: Lower
This course introduces students to the materials, methods and systems commonly used in residential construction. Students will study the inherent qualities of materials and develop an understanding of their use and integration within a residential structure. The process of construction and the resulting assemblies will be graphically explored using Building Information Modeling (BIM). Emphasis will be placed on the graphic standards used in the architectural industry and developing a basic understanding of construction documents. As the course progresses, each student will apply their understanding of residential construction technology, materials and the software environment by producing a series of architectural documents. As the semester progresses, these drawings, which start as schematic graphics addressing issues of design and organization, will develop into contract documents for construction.

ARCH - 3104 Design Studio 1, 4.00 Credits
Prerequisite(s): ARCH 2394 with C or better or CIAT 2394 with C or better
Level: Lower
Course Fee $106.00
This is a course that presents students with a systematic approach to architectural design methods. Methods of graphic thinking are introduced as a means of exploring and evaluating issues related to the design process. Architectural form and style are investigated relative to human factors and environmental context. Verbal and graphic communication skills are also refined in the development of student design presentations.

ARCH - 4013 Municipal Codes & Regulations, 3.00 Credits
Prerequisite(s): ARCH 3014 with D or better or CIAT 3014 with D or better
Level: Lower
This course covers the municipal code review process and definition of model building and zoning codes. The course emphasizes use and occupancy, special use and occupancy, building heights and areas, types of construction, fire-resistive construction, interior finishes, fire-protection systems, means of egress, accessibility, interior environment, energy efficiency, exterior walls, roof assemblies, structural provisions, building materials and systems and existing structures as described in the Building Code of New York State.

ARCH - 4014 Construction Technology 2, 4.00 Credits
Prerequisite(s): ARCH 3014 with D or better
Level: Lower
This course builds on the construction topics begun in Construction Technology 1. The course is focused on construction techniques for commercial buildings. Topics covered include steel frame, reinforced concrete, pre-cast concrete and building envelope systems. Emphasis is placed on contemporary details and methods of construction. Student evaluations are based on Building Information Modeling (BIM) computer generated projects and periodic tests.

ARCH - 4304 Design Studio 2, 4.00 Credits
Prerequisite(s): ARCH 3104 with C or better or CIAT 3104 with C or better
Level: Lower
Course Fee $106.00
The course concentrates on problem-solving methods for a variety of architectural project types and sizes. Students working individually and in teams explore and document their work through sketches, study models and preliminary working drawings. The students are encouraged to develop a professional approach to investigating, analyzing and solving architectural problems. This is the second studio course and will help students in preparing for more advanced and challenging studio course work in the curriculum.

ARCH - 4900 Directed Study, 1.00 TO 4.00 Credits
Level: Lower
A student may contract for one to four credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.
ARCH - 8306 Design Studio 3, 6.00 Credits
Prerequisite(s): ARCH 4304 with C or better and ARCH 4013 with D or better and ARCH 4014 with D or better and CIVIL 4103 with D or better
Level: Upper
Course Fee $106.00
This course is designed to develop the student's ability to apply and integrate architectural principles and methods to the design of buildings and spaces. The exploration and study of architectural design and technology makes connections between theory and practice through the design of buildings and environments that explore the relationship between architecture, building systems, and human experience. Students will be expected to progress through the schematic design and design development phases of short-term and extended design projects.

ARCH - 5900 Directed Study, 1.00 TO 6.00 Credits
Level: Upper
A student may contract for one to six credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.

ARCH - 6102 Community-Economic Redevelopment, 2.00 Credits
Level: Upper
Liberal Arts and Science
This course is a multidisciplinary overview of redevelopment process. This course will be run as a seminar that will meet in a seminar and discussion format. Understanding of the course topics will equip students with the knowledge of community economic development and regeneration project development. It will impart valuable skills for staff and leadership in consulting firms, municipalities, agencies and non-profits that do community development and community regeneration.

ARCH - 6306 Design Studio 4, 6.00 Credits
Prerequisite(s): ARCH 5306 with C or better or CIAT 5306 with C or better
Level: Upper
Course Fee $106.00
This studio course concentrates on developing the problem solving skills associated with the design of adaptive reuse and historic preservation building projects. Projects will involve the gathering of information about the historical evolution of the building, the documentation and analysis of the building's structural and material conditions, the understanding of the building's relationship to its wider physical and cultural environment and making appropriate design decisions in respect to new uses. Over the course of the semester, students will creatively synthesize their research, building and site with new program requirements into schematics and design development proposals. Sustainability, standards for documentation of as-built conditions, architectural styles, identifying architectural character, historic construction technology and materials will be addressed.

ARCH - 6406 Studio Sorrento, 6.00 Credits
Prerequisite(s): ARCH 5306 with C or better or CIAT 5306 with C or better
Level: Upper
Applied Learning Intl/Dom Trvl
Studio Sorrento is intended solely for students enrolled in the Junior Year Study Abroad Program in Sorrento, Italy. The course will be structured around the experiences, field trips and other learning opportunities during the semester of study in Italy. Particular attention will focus on elements of traditional town design, sustainable building strategies, historic building analysis, and adaptive/ sustainable re-use of historic structures. Student work for the semester will include: the development of a journal of site visits and analyses, photographic and metric documentation, reflective writing, and small design projects within the Sorrento environment.

ARCH - 7003 Environmental Controls 2, 3.00 Credits
Prerequisite(s): ( ARCH 2123 with D or better or CIAT 2123 with D or better or ARCH 3003 with D or better ) and ( ARCH 3304 with D or better or CIAT 3304 with D or better or ARCH 4014 with D or better )
Level: Upper
This course reinforces advanced technical and design strategies to maximize sustainability in large building design, and their relationship to other building service systems. Emphasis will be placed on applications of photovoltaic, geothermal and wind systems in a sustainable environmental context. Qualitative and quantitative measures of building environments with a focus on efficient use of energy through integrated design practices will be employed. Other topics of discussion include: building design practice related to MEP, acoustic, communication, vertical transportation, security, and fire protection systems. Case studies and projects will form the basis of instruction.

ARCH - 7306 Design Studio 5, 6.00 Credits
Prerequisite(s): ARCH 6306 with C or better or ARCH 6406 with C or better
Level: Upper
Course Fee $159.00
This studio focuses on the design of buildings and places in an urban setting that require an intense concentration of support systems. The course exploration and study of architectural design, technology and planning principles is designed to bridge the gap between architectural theory and practice through the design of structures and places for human use and inspiration. Students will be expected to progress through the schematic design and design development phases of short-term and extended design projects. Conventional medall and three-dimensional computer modeling will be used to define, analyze and present solutions to complex architectural problems. Assignments and in-class exercises related to design, theory, technology and criticism will also be used to reinforce topics discussed in class. Civic Engagement Intensive (CEI) sections exist.

ARCH - 8003 Professional Practice, 3.00 Credits
Prerequisite(s): ARCH 4014 with D or better
Level: Upper
The context within which buildings and spaces are created is rapidly evolving as is the way in which architecture and design is practiced. This advanced course is designed to provide the future practitioner with a comprehensive study of the business and practice of architecture and design. Emphasis will be placed on practical skills and usable information that will enhance the student's ability to function within the design professions and/or related disciplines.

ARCH - 8306 Design Studio 6, 6.00 Credits
Prerequisite(s): ARCH 7306 with C or better or CIAT 7306 with C or better
Level: Upper
Applied Learning Creative Work, Course Fee $159.00
This course is the capstone of the six semester sequence of architectural design studios. Building upon the thesis research completed during the previous semester, students will finalize a design program for their chosen thesis project. They will carry out a comprehensive design development study, present their design solution to a jury of faculty and visiting professionals, and defend the decision making process that gave rise to their design. The student is expected to show competence and care in their technological solutions and in the creation of a livable, efficient, and contextually appropriate structure.

ARCH - 8716 Design Studio 7-Thesis Defintn, 6.00 Credits
Prerequisite(s): ARCH 8306 with C or better
Level: Upper
Course Fee $159.00
This course will consist of lectures and associated projects intended to provide the student with a framework that will support and guide them through the beginning stage of their Bachelor of Architecture thesis project exploration. Emphasis will be placed on developing research and writing skills that will enhance the student's ability to define an acceptable thesis project, develop a program based on a given set of requirements, and select an appropriate project site. The student will complete the Schematic Design of the thesis project for review and approval by the department faculty.

ARCH - 8733 Modern Architectural Theory, 3.00 Credits
Prerequisite(s): FNAT 5303 with C or better and ( ARCH 8306 with B or better or CIAT 8306 with B or better )
Level: Upper
This seminar introduces the student to theories and criticisms of contemporary architecture from the beginnings of the Bauhaus to the issues of contemporary practice. The course is designed to be interactive and will consist of discussion, writing assignments, in class exercises and presentations. Students, singularly and in groups of two, will have the responsibility of initiating weekly discussion of the assigned readings. In class discourse includes discussion and analysis of the central arguments and conclusions of the theoretical constructs presented in the piece. Students will prepare a term paper from selected readings analyzing the author's position and prepare a response that either supports or opposes the stance. A brief oral presentation will accompany the term paper to engage classmates and invited guests in critical commentary.

ARCH - 8753 Advanced Structural Concepts, 3.00 Credits
Prerequisite(s): CIVIL 5213 with C or better
Level: Upper
This course addresses advanced architectural structures, exterior building envelopes and production technologies. It explores structural elements and expands to include more complex determinate, indeterminate, long-span, thin shells and tensile systems. Materials covered are: reinforced concrete, steel and contemporary composites. Material performance and detailing of the exterior envelope are emphasized.
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<td>ARCH - 8776</td>
<td>Design Studio 8-Thesis Develop, 6.00 Credits</td>
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<td>Prerequisite(s): ARCH 8716 with C or better</td>
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<td>Applied Learning Creative Work, Course Fee $159.00</td>
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<td>This course is the capstone of the eight semester sequence of architectural design studios. Building upon the thesis research completed during the previous semester in Design Studio 7 – Studio Definition, students will finalize a design program for their chosen thesis project. They will carry out a comprehensive design study, develop their design solutions to a jury of faculty and visiting professionals, and defend the design making process that gave rise to their design. The student is expected to show competence and care in their technological solutions and in the creation of a viable, efficient, and contextually appropriate structure.</td>
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<td>ARCH - 8793</td>
<td>Professional Development, 3.00 Credits</td>
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<td>Prerequisite(s): ARCH 8005 with C or better or CIAT 8003 with C or better</td>
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<td>This comprehensive course will enhance the student's exposure to the architect's professional role based on case studies of real-world experiences. It expands upon previously introduced architectural business practices such as marketing, responding to client requests for services, assembling project teams, working with the appropriate consultants, and delivering a project, all within financial constraints of both project and business management. The changing role of the architect in nontraditional practice types and project delivery methods will also be explored. Throughout the course, professional written, verbal and graphic communication skills will be emphasized in relation to their importance in the business setting.</td>
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**ASDC - ALFRED STU SUCCESS CENTER**

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<tr>
<td>ASDC - 1012</td>
<td>College and Life Skills*, 2.00 Credits</td>
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<td>Level: Upper</td>
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<td>Remedial</td>
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<td>This course will assist students in making the transition to college and in completing collegiate work successfully. In this course the student will learn strategies for: making use of campus resources; self-awareness and exploration; academic success; effective communication on a college campus; and management of time, health, and financial resources. Students will read and respond to articles, participate in class discussions, summarize topics verbally or in writing, and complete a short research project.</td>
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<tr>
<td>ASDC - 1092</td>
<td>Methods of Inquiry, 2.00 Credits</td>
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<td>Level: Lower</td>
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<td>This college level course introduces students to current and proven research on learning and intelligence. Students will set personal and academic goals and apply methods to reach them through mindsets, critical thinking, and self-management strategies. Students will also be presented with basic information literacy skills, study techniques, as well as effective strategies for critical thinking, problem solving, listening, note taking, test taking, and communication. This course will build on the summer bridge program, incorporate information management aspects, integrate blackboard and include preliminary development of a portfolio.</td>
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<tr>
<td>ASDC - 1901</td>
<td>Structured Learning*, 1.00 Credit</td>
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<td>Level: Lower</td>
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<td>Pass/Fail</td>
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<td>This course will be supplemental instruction and recitation for students who need more structured study and development time. It will be co-taught by a faculty, professional tutor, and/or a student success staff. Faculty develop additional review problems to match homework and topics of need. This course will coincide with a registered course (e.g. math, science or English) and serve as a co-requisite or stand alone. This course will be graded Pass/Fail.</td>
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<td>ASDC - 2011</td>
<td>Career Exploration &amp; Planning*, 1.00 Credit</td>
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<td>Remedial</td>
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<td>This course will assist students with exploring and selecting a college major and/or career goal. The students will learn a decision making model designed to make appropriate, well-informed career/ life choices. The students will engage in a variety of assessments using software programs and self-directed career searches. Students will complete out of class assignments designed to integrate self-awareness with career options and will develop their own marketable materials such as resumes, cover letters, and career portfolios. This is a pass/fail course.</td>
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<tr>
<td>ASDC - 2193</td>
<td>Intro to Academic Literacy, 3.00 Credits</td>
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<td>This course focuses on the continued improvement of literacy skills: reading comprehension skills, reading efficiency and flexibility, critical thinking, development of a college-level vocabulary, and the grammar, writing, and study skills needed for success with college course work. Students may be placed in this course on the basis of their placement test scores or may take it as an elective to expand their basic literacy skill levels.</td>
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<td>ASDC - 2900</td>
<td>Directed Study, 1.00 TO 4.00 Credits</td>
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<td>This a student may contract for one to four credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.</td>
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**AUTO - AUTOMOTIVE**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AUTO - 1109</td>
<td>Brakes, Steering &amp; Susp Sys, 9.00 Credits</td>
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<td>Level: Lower</td>
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<td></td>
<td>Applied Learning Practicum</td>
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<td>This course provides a practical understanding of the principles, operation, diagnosis, and repair of suspension, steering, and brake systems. Vehicle alignment, tire balancing, and vibration diagnosis are included. Students will be trained to operate a variety of brake, suspension, and alignment equipment while performing actual repairs, adjustments, and diagnosis. This training will supplement the students' auto education in preparation for entry-level employment.</td>
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<td>AUTO - 1124</td>
<td>Automotive Welding, 4.00 Credits</td>
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<td>Applied Learning Practicum, Course Fee $54.00</td>
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<td>This course covers all facets of welding as they apply to the servicing of cars and light trucks. Some methods covered are: stick, oxy-acetylene, MIG, and TIG. The safe use of the cutting torch and plasma cutter and booth time is supplemented by the use of various processes in the actual repair of vehicles and equipment.</td>
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<tr>
<td>AUTO - 1135</td>
<td>Bsc Elctrn &amp; Comptn Overhaul, 5.00 Credits</td>
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<td></td>
<td>Applied Learning Practicum</td>
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<td>This course is designed to provide instruction in the diagnosis and repair of electrical circuits, charging systems, and starting systems. OHMS law, alternators, and starters will be investigated.</td>
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<td>AUTO - 1149</td>
<td>Inspec, Main, AC Htg &amp; Clg, 9.00 Credits</td>
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<td>Level: Lower</td>
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<td></td>
<td>Applied Learning Practicum</td>
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<td>This course includes lecture and lab instruction on the diagnosis and repair of automotive cooling, heating, and air conditioning systems. In addition automotive preventive maintenance, exhaust system service, and annual safety inspection checks are also covered.</td>
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<td>AUTO - 1169</td>
<td>Auto Electric, Fuel &amp; Emission, 9.00 Credits</td>
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<td>Applied Learning Practicum</td>
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<td>This unit begins with instruction on basic electrical theory and progresses through the operation and diagnosis of many of the advanced electrical and electronic systems used on modern vehicles. Topics covered include: basic electrical theory, circuit design, common electrical components, fuel, ignition, emission control and electronic engine controls systems.</td>
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<td>AUTO - 1219</td>
<td>Truck Brake, Steer &amp; Sus Sys, 9.00 Credits</td>
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<td>Level: Lower</td>
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<td></td>
<td>Applied Learning Practicum</td>
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<td>This unit of instruction is designed to train high school graduates and adult learners in the service and diagnosis of light truck brake, steering, and suspension systems. Vehicle alignment, tire balancing, and vibration diagnosis are included. Students will be trained to operate a variety of brake, suspension, and alignment equipment while performing actual repairs, adjustments, and diagnosis. This training will supplement the students' truck education in preparation for entry-level employment.</td>
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<td>AUTO - 1224</td>
<td>Welding, 4.00 Credits</td>
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<td>Level: Lower</td>
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<td>Applied Learning Practicum, Course Fee $54.00</td>
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<td>The application of several common welding methods in use in the heavy repair field is covered in this course. Actual welding using arc, gas, MIG, TIG, and spot are practiced in the lab. The safe use of the cutting torch and plasma cutter and &quot;booth time&quot; is supplemented by the use of various processes in the actual repair of vehicles and equipment.</td>
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AUTO - 1239 Trk Insp, Maint, AC, Clng/Htg, 9.00 Credits
Level: Lower
Applied Learning-Practicum
This course includes lab application of vehicle preventive maintenance and mandated annual safety inspection. Training includes techniques to ensure driver comfort and engine efficiency through the control of heat, and how they apply to the truck cooling, heating, and air conditioning systems. Analyzing how refrigerated cargo is maintained is a part of this course.

AUTO - 1245 Trk Bsc Electns & Compnt Ovrhl, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course provides instruction in the diagnosis and repair of electrical circuits, alternators, distributors, starters, and fuel systems. Basic wrecker operation and the use of manuals and computer information services are also included.

AUTO - 1306 Rust Repair, 6.00 Credits
Level: Lower
Applied Learning-Practicum
This course covers welding methods used for securing body sheet metal including the thinner, high-strength, low alloy steels. Some of the methods covered in depth are: arc, oxy-acetylene, MIG, and TIG welding. Emphasis is placed on proficiency in repairing steels found in panels and vehicle frames, the use of heat as a straightening medium is investigated, and choosing welding equipment for a body shop, sheet metal fabrication and fuel tank repairs are included.

AUTO - 1326 Body Welding, 6.00 Credits
Level: Lower
Applied Learning-Practicum, Course Fee $54.00
This course covers welding methods used for securing body sheet metal including the thinner, high-strength, low alloy steels. Some of the methods covered in depth are: arc, oxy-acetylene, MIG, and TIG welding. Emphasis is placed on proficiency in repairing steels found in panels and vehicle frames, the use of heat as a straightening medium is investigated, and choosing welding equipment for a body shop, sheet metal fabrication and fuel tank repairs are included.

AUTO - 1334 Refinishing Basics, 3.00 Credits
Level: Lower
Applied Learning-Practicum, Course Fee $106.00
Develops in the student the basic skills of the refinishing industry and provides the technical knowledge of different types of finishes as well as the sequence of foundation coats.

AUTO - 1344 Recondtnng & Mechancil Componts, 4.00 Credits
Level: Lower
Applied Learning-Practicum
This course provides instruction and practical experience in wrecker operation including hook-ups, winching, dolly use, wheel lifts, and safety. It includes instruction and practical experience in auto body damage estimate writing and analysis.

AUTO - 1369 Truck Eng Tune-up, Electro, 9.00 Credits
Level: Lower
Applied Learning-Practicum
This unit begins with instruction on basic electrical theory and progresses through the operation and diagnosis of many of the advanced electrical and electronic systems used on modern vehicles. Topics covered include: basic electrical theory, circuit design, common electrical components, fuel, ignition, emission control and electronic engine controls systems.

AUTO - 2309 Brakes, Susp & Structrl Anly, 9.00 Credits
Level: Lower
Applied Learning-Practicum
This unit of instruction is designed to train high school graduates and adult learners in the service and diagnosis of automotive brake and suspension systems as they relate to collision repair. Vehicle alignment, tire balancing, and vibration diagnosis are included. Students will be trained to operate a variety of brake, suspension, and alignment equipment while performing actual repairs, adjustments, and diagnosis. In addition, identification and analysis of structural damage, as well as frame and body measuring techniques are covered. This training will supplement the students’ autobody education in preparation for entry-level employment.

AUTO - 2365 Chassis Electrical, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course includes lab application of vehicle preventive maintenance and mandated annual safety inspection. Training includes techniques to ensure driver comfort and engine efficiency through the control of heat, and how they apply to the truck cooling, heating, and air conditioning systems. Analyzing how refrigerated cargo is maintained is a part of this course.

AUTO - 4009 Engine Service, 9.00 Credits
Level: Lower
Applied Learning-Practicum
Theory of operation and repair procedures of gasoline engine valve systems, crankshaft and bearings, connecting rods, cylinders, and pistons, diagnosis of engine malfunctions repair procedures, cooling system repair and diagnosis, cylinder boring, piston pin fitting, connecting rod reconditioning, valve guide resizing and replacement, valve seat replacement, and other machine work and service procedures.

AUTO - 4329 Adv Electr & Engine Perfmcnc, 9.00 Credits
Level: Lower
Applied Learning-Practicum
Lecture sessions cover most areas of the automobile except engine and drivetrain repairs. Designed to update and bring together earlier training with emphasis on diagnosing sophisticated automotive electrical, drivability and emission-related problems. This is an extremely critical area with enhanced inspection programs and OBDII systems.

AUTO - 3504 Motorsport Fabrication I, 4.00 Credits
Level: Lower
Applied Learning-Practicum, Course Fee $138.00
This course is designed to teach the student the fundamental skills of complete chassis and roll cage fabrication. Major topics include principles of layout, bending, bead rolling, riveting and welding processes. Laboratory exercises emphasize technique and skill development to build race cars.

AUTO - 3506 Introduction to Motorsports, 6.00 Credits
Level: Lower
Applied Learning-Practicum
This course is designed to teach the student the fundamental skills of team organization and management. Major topics include introduction to motor sports, team structure, budgeting and finance. Laboratory exercises emphasize technique and skill development for success at the track. A sponsorship proposal is developed by each student.

AUTO - 3514 Racing Suspension Dynamics, 4.00 Credits
Level: Lower
Applied Learning-Practicum
This course is designed to teach the student advanced skills in race car chassis. Major topics include principles of suspension set-up, development and weight transfer. Laboratory exercises emphasize technique and skill development in modified suspension and steering geometry to build race cars to meet different track demands.

AUTO - 3524 High Prfmcnc Tune-up/Electrcns, 4.00 Credits
Level: Lower
Applied Learning-Practicum
This course is designed to teach the student the advanced skills of tuning the race car for optimum performance at the track. Major topics include principles of handling modified race fuels and modified delivery. Laboratory exercises emphasize technique and skills to modify fuel and ignition systems.
COURSE DESCRIPTIONS

AUTO - 3534 High Permnce Sterng/Bks/Chasis, 4.00 Credits
Level: Lower
Applied Learning-Practicum
This course is designed to teach the student the formulas and concepts of race car brakes and steering. Major topics include the principles of modifying chassis, brakes, and steering. Laboratory exercises emphasize technique and skill development in the different modified demands.

AUTO - 3535 High Perfomance Engine Building, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course is designed to teach the student the advanced skills for reconstruction of high performance engines. Major topics include modified engine building and dynamometer testing. Laboratory exercises emphasize technique and skill development in engine assembly and dynamometer testing.

AUTO - 3544 Motorsports Aerodynamics, 4.00 Credits
Level: Lower
Applied Learning-Practicum
This course is designed to teach the student the fundamental principles of aerodynamics for racing and performance cars. Major topics include principles of aerodynamic effects on braking, handling, lift and drag coefficient. Laboratory exercises emphasize technique and skill development to build race cars.

AUTO - 3545 Motorsport Fabrication II, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course is designed to teach the student the advanced skills of complete chassis, cage, and suspension fabrication. This course and its laboratory exercises evaluate the actual process of fabricating a complete racecar.

AUTO - 3609 Heavy Duty Drive Train, 9.00 Credits
Level: Lower
Applied Learning-Practicum
This course consists of the service and repair of heavy duty clutches, transmissions, drive line and rear axle, leaf, torsion bar, and air suspensions, the alignment of front and rear axle, also alignment of trailer suspension and on-vehicle tire balancing. This will include Eaton and Mentor clutches, Mack and Eaton transmissions, and Mentor, Eaton and Mack rear axles. Also covered are Road Ranger auto shift transmissions.

AUTO - 3623 Air Brake Service, 3.00 Credits
Level: Lower
Applied Learning-Practicum
This course consists of maintenance and repair of air brake systems including compressors, valves, tubing, and circuitry. This course will also include troubleshooting of foundation brakes and related components. Also covered is air ABS brake components, operation and troubleshooting.

AUTO - 3649 Diesel Engine Service, 9.00 Credits
Level: Lower
Applied Learning-Practicum
This course consists of the service and repair of heavy duty diesels of the following makes: Cummins, Caterpillar, Detroit Diesel, Mack, John Deere, and Navistar. Covered is the use of special tools and equipment necessary to troubleshoot, maintain, and overhaul these engines and their related components.

AUTO - 3809 Inspc, Gen Alignm & AC, 9.00 Credits
Level: Lower
Applied Learning-Practicum
Includes lab application of body panel alignment and mandated annual safety inspection, repair techniques to insure customer satisfaction with component fit and operation, keeping customer safety in mind when components are replaced, and techniques to insure customer comfort and engine efficiency through control of heat as they apply to auto cooling, heating and air conditioning systems.

AUTO - 3819 Auto Body Skils/Computrzd Est, 9.00 Credits
Level: Lower
Applied Learning-Practicum, Course Fee $106.00
Includes the different states of repair: metal analysis, metal straightening, filling and metal finishing, glass replacement, alignment problems, fender and door replacement, any and all small, quick, one or two day jobs. Also includes how to make manual and computerized estimates.

AUTO - 4383 Heavy Duty Elec/Hydr Special, 3.00 Credits
Level: Lower
Applied Learning-Practicum
This three credit hour course consists of the service and troubleshooting of electrical systems as they pertain to heavy equipment, truck and diesel. This will include series parallel circuits including 12 and 24 volt systems. Included in this course is the service and troubleshooting of hydraulic systems as found in heavy equipment, truck and diesel. This will include pumps, valves, actuators, accumulators and other related components in today’s hydraulic systems.

AUTO - 4439 Shop Management & Enhanced Sys, 9.00 Credits
Level: Lower
Applied Learning-Practicum
This course will provide insight into other aspects of the automotive trade. Covered in shop management is repair order writing, duties of a shop adviser, customer relations, customer communications, questioning and follow-up, estimating repair costs, checking for recalls, searching for technician service bulletins, researching new product information, motorist’s bill of rights, lemon laws and understanding the nature of the automotive business and reviewing Hybrid and Electric vehicle information. The lab portion allows the student to perform as a service manager in one of our many automotive shops. Work scheduling, quality control, maintenance, and record keeping are stressed as part of this program.

AUTO - 4449 Drive Train Service, 9.00 Credits
Level: Lower
Applied Learning-Practicum
Study and actual repair of standard, automatic, and automatic transmissions and transaxles with emphasis on overdrives and electronically controlled units. Full coverage of clutches, axles, drivelines, C-V joints, and 4 x 4 transfer cases, as well as open, limited-slip, and front drive differentials. Extensive hands-on work in a busy "line shop" situation. This is a seven and one-half (7 1/2) week course.

AUTO - 4629 Major Refinishing, 9.00 Credits
Level: Lower
Applied Learning-Practicum
This course is designed to further the student's knowledge and practical experience in the use of painting and refinishing equipment, blending paints, metallic finishes, and hard to match colors, correcting paint failures, custom refinishing and how to solve their problems.

AUTO - 4639 Major Collision Repair, 9.00 Credits
Level: Lower
Applied Learning-Practicum
Provides instruction in the repair procedures of vehicles considered by appraisers to be totals, or near totals. Study and repair of frame and uni-body damage, suspension repairs. This includes computerized measuring systems, plastic welding, use of structural adhesives, and complete vehicle refinishing.

AUTO - 4669 Diesel Fuel System Service, 9.00 Credits
Level: Lower
Applied Learning-Practicum
This nine credit hour course is intended for heavy equipment, truck and diesel mechanic majors. Coverage will include the fundamentals of diesel fuel systems, both mechanical and computer-controlled will be covered. Engine tune-up procedures, and diesel fuel system troubleshooting and computer usage will be included. Injection pumps, governors, injectors, emission control devices, automatic advance units and transfer pumps of the following systems will be covered: American Bosch, Caterpillar, Detroit Diesel, Cummins and Navistar.
BIOL - BIOLOGY

BIOL - 1101 Topics in General Biology, 1.00 Credit
Level: Lower
A one credit hour course to supplement the General Biology (BIOL 1104) course for biology majors. The focus of this course is to expand on topics discussed during the lecture/laboratory portions of BIOL 1104 and to discuss current topics of interest to biology students. The format of the course is reading and discussion. Each participant will be responsible for being a discussion leader at least once during the semester. The discussion leader's role is to introduce the topic, provide background information about the subject, and encourage the group to offer comments and ask questions. Topics for discussion may be directly related to lecture material or may originate from current media sources, as long as that topic was already introduced in the BIOL 1104 class lecture or lab and the students have some familiarity with the subject.

BIOL - 1104 General Biology I, 4.00 Credits
Level: Lower
Applied Learning-Other, Course Fee $7.00, Gen Ed - Natural Sciences, Liberal Arts and Science

This course incorporates a survey of molecular, cellular, and hereditary principles. Topics include the chemistry and physics of cellular activities; the ultra-structure of cells, photosynthesis and cellular metabolism; the structure and function of DNA; recent developments in DNA bio-technology; and hereditary aspects of early embryonic development of plants and animals into complex structures (organogenesis).

BIOL - 1114 Human Anat & Physiology I, 4.00 Credits
Level: Lower
Gen Ed - Natural Sciences, Liberal Arts and Science

This is a lecture and lab based online course that is the first in a two-semester sequence, including laboratory components, that covers the structure and function of the human body. General study covers the organization, covering, support, and movement of the body. Topics include an orientation to the human body, chemistry of life, cells and tissues, and the integumentary, musculoskeletal, nervous, and sensory systems.

BIOL - 1133 Marine Biology, 3.00 Credits
Level: Lower
Applied Learning-Int'l/Dom Trvl, Liberal Arts and Science

This course focuses on the biology of organisms residing in the sea, from the diversity of planktonic communities to marine megafauna, taking into consideration the ecological principles that govern marine life. The course aims to provide a solid educational background in basic and applied marine biology. Emphasis will be placed on marine environment issues and the adaptive and evolutionary mechanisms of organisms that allow them to occupy marine habitats. In particular, the Mediterranean Sea will play a central role in the course subjects, profiling from the availability of unique ecosystems and a nearby renowned marine research institute to conduct thematic field trips and practical tutorials.

BIOL - 1223 Introduction to Forestry, 3.00 Credits
Level: Lower
Applied Learning-Field Study, Course Fee $3.00, Gen Ed - Natural Sciences, Liberal Arts and Science

This course is designed to familiarize students with the sustainable management of New York hardwood forests. Students are introduced to the history of forests and forestry practices in North America and New York State, as well as basic tree biology, silvicultural systems, and forest management. Major emphases are placed on practical management strategies for maintaining and developing wood lots and farm forests for a variety of desired outcomes, including timber, fuel, aesthetic, erosion control, and wildlife habitat. The financial aspects of various forestry strategies also are discussed. As part of the practical component of the course, students will be required to complete a detailed forest management plan.

BIOL - 1304 Botany, 4.00 Credits
Level: Lower
Applied Learning-Field Study, Course Fee $10.00, Gen Ed - Natural Sciences, Liberal Arts and Science

Each of us is intimately involved with plants. We wear them, ingest them, exchange gas molecules with them, live under them, etc. In this course students will develop knowledge of plant morphology (form) and function that later enhances their lives. Topics include the study of human food, ornamental plants, feed, forestry, and any other use of plants to sustain life on the planet Earth or provide other ecosystem services. The laboratory portion of the course includes field ecology and classification of important plant groups in addition to morphological and anatomical study of the major plant organs. Use of the laboratory, the college farm, field trips, and the plant science greenhouse integrates various teaching methods for the above subjects.

BIOL - 1404 Anatomy & Physiology I, 4.00 Credits
Level: Lower
Applied Learning-Other, Course Fee $12.00, Gen Ed - Natural Sciences, Liberal Arts and Science

This course is the study of the gross and microscopic anatomy of various human systems, emphasizing how structure facilitates function. The areas emphasized are: basic anatomical and directional terminology; fundamental concepts and principles of cell biology; histology; the integumentary system; the nervous system and special senses; the skeletal system; and the muscular system.

BIOL - 2111 Biological Sciences Seminar, 1.00 Credit
Prerequisite(s): BIOL 2204 with C or better and BIOL 1104 with C or better and CHEM 1984 with C or better (or CHEM 1114 with C or better and CHEM 2124 with C or better)
Level: Lower

This course is intended for students typically in their fourth semester of the two-year Biological Sciences curriculum. The course is designed to prepare the student for transfer to a four-year institution and/or enter the workforce. Students are introduced to the theoretical and practical aspects of preparing and delivering a full-feature (40-45 minute length) presentation on a given topic within the realm of a biological discipline.

BIOL - 2204 General Biology II, 4.00 Credits
Prerequisite(s): BIOL 1104 with D or better
Level: Lower
Applied Learning-Other, Course Fee $15.00, Gen Ed - Natural Sciences, Liberal Arts and Science

A continuation of BIOL 1104 (General Biology I), with emphasis on animal and plant systematics, evolution and ecology. Laboratory topics include the study of the following mammalian organ systems: digestion, respiration, circulation, homeostasis, reproduction, chemical and nervous control, and musculoskeletal structure and function. Lecture topics include systematics, evolution, ecosystems, and bioenergetics, including human impacts on the environment.

BIOL - 2214 Human Anat & Physiology II, 4.00 Credits
Prerequisite(s): BIOL 1114 with C or better or BIOL 1404 with C or better
Level: Lower
Liberal Arts and Science

The second in a two-semester Internet-based course sequence, including laboratory components, that covers the structure and function of the human body. General issues include the maintenance of the human body, pregnancy, human development and heredity. Topics include the endocrine, blood, cardiovascular, lymphatic, immune, respiratory, digestive, urinary, and reproductive body systems.

BIOL - 2301 Human Biology Laboratory, 1.00 Credit
Prerequisite(s): BIOL 2303 with D or better
Level: Lower
Applied Learning-Other, Course Fee $24.00, Liberal Arts and Science

This course is a group of laboratory exercises to aid in the study of human systems and their physiology. The laboratory sessions are designed to provide students with a basic understanding of the structure and functions of cells, tissues and organ systems. The goals of the course are to promote an appreciation for the remarkable complexity of our bodies; to develop a proficiency in the use of laboratory equipment and the proper handling of materials, and to foster the development of self-sufficiency in the conduct of laboratory experiments and observations.

BIOL - 2303 Human Biology, 3.00 Credits
Level: Lower
Gen Ed - Natural Sciences, Liberal Arts and Science

An introduction study of human systems and their physiology. Included in the course are examination of how the body normally functions at the cellular, tissue, organ system levels. Topics will include basic chemistry, cell structure and biochemistry, digestion, circulation and blood, immunity, respiration, excretion, nervous integration, senses, endocrine system, and reproduction. Sexually transmitted diseases also will be discussed. Students cannot receive credit for BIOL 2303 if BIOL 1404 or BIOL 1114 is concurrently or previously taken.

BIOL - 2504 Anatomy & Physiology II, 4.00 Credits
Prerequisite(s): BIOL 1404 with D or better
Level: Lower
Applied Learning-Other, Course Fee $17.00, Gen Ed - Natural Sciences, Liberal Arts and Science

This course is a continuation of Anatomy and Physiology I (BIOL 1404). It is a study of the gross and microscopic anatomy of various human systems, emphasizing how structure facilitates function. The areas emphasized are the endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary, and reproductive systems.
BIOL - 2803 Environmental Science, 3.00 Credits
Prerequisite(s): BIOL 2204 with C or better or BIOL 2504 with C or better
Level: Lower
Gen Ed - Natural Sciences, Liberal Arts and Science
This course is an introduction to the science of ecology and the interrelationship between humans and their environment. The physical environment of the Earth's climate, geographic and geologic systems, and the cycling of minerals and water are described. The biology of populations, species, ecosystems and biomes section deals with organisms and their interactions with one another and their environment is discussed. The world's human populations, and their role in the ecosystems is investigated including the history of human populations, current demographic trends, and projected future population parameters. The impacts of human populations on the environment are covered as well.

BIOL - 4254 General Microbiology, 4.00 Credits
Level: Lower
Applied Learning-Field Study, Course Fee $96.00, Liberal Arts and Science
This course is designed to provide an introductory survey to the various microorganisms, prions, viruses, bacteria, protozoans, and multicellular parasites, their structures, physiology, identification, with the various medical and non-medical implications in our daily lives. Lecture topics include prokaryotic cell structure and function, biochemical processes, physical and chemical factors that affect cell growth, classification and identification, physical and chemical methods of control. A major portion of the course deals with the pathogenic properties of microorganisms and the body's defensive mechanisms including the functions of the immune systems. Laboratory topics include bacterial culture and staining, metabolism and biochemical reactions, physiological characteristics, patient specimen collection and processing as done in a microbiology laboratory and pathogen identification and antibiotic sensitivity determination.

BIOL - 4403 Pathophysiology, 3.00 Credits
Prerequisite(s): BIOL 2504 with C or better or BIOL 2214 with C or better
Level: Lower
Gen Ed - Natural Sciences, Liberal Arts and Science
This is a lecture-based online course that includes the study of disruptions of normal physiology, processes that bring about these disruptions, and various ways in which the disruptions manifest themselves as symptoms, signs, physical findings, and laboratory findings. The course will explore the pathophysiology of genetic diseases, hypersensitivity and autoimmune diseases, infectious diseases, neoplasia, diseases due to physical and chemical agents, disturbances of fluid and electrolyte balance, and endocrine dysfunction.

BIOL - 4900 Directed Study, 1.00 TO 4.00 Credits
Level: Lower
Liberal Arts and Science
Elective courses for students interested in advanced work in the biological sciences on problems in their special field of interest. Enrollment limited in order to allow each student the opportunity to pursue his/her field of special interest.

BIOL - 5003 Genomics, 3.00 Credits
Prerequisite(s): BIOL 6534 or D or better
Level: Upper
Applied Learning-Practicum, Liberal Arts and Science
This is a project-based learning course that will introduce the students to the emerging science of genomics and its implications for human biology, medicine, social policy and individual life path choices in the 21st century. Our genome is the blueprint that encodes all the information we need to develop from a single cell into a hugely complicated functional organism. This course will instruct students how to use bioinformatics tools to analyze genes and their expression. The course will explore techniques used to study genomes, what information is available, and how this information is used to understand how organisms differ or match; how different organisms evolved; how the genome is constructed and how it operates. In addition the course will examine genome structure and function in terms of our future health and wellbeing. The laboratory portion of the course will enable students to use bioinformatics tools to annotate genes from the bacterium Kytococcus sedentarius and to participate in a DNA Barcoding project to catalog living organisms such as http://www.studentdnabarcoding.org/.

BIOL - 5013 Biotechniques, 3.00 Credits
Prerequisite(s): ( CHEM 2984 with D or better or CHEM 2124 with D or better ) and BIOL 2204 with D or better
Level: Upper
Applied Learning-Practicum, Liberal Arts and Science
This course focuses on the development of advanced practical skills, competencies, and knowledge in laboratory techniques commonly used in the biological sciences in research and industry. It is based on a full "hands on" approach where all students undertake a variety of practical exercises derived primarily from the areas of DNA science, cellular biology, protein analysis and tissue preparation. This course requires the student to use appropriate professional laboratory protocols that will lead to advanced study and employment.

BIOL - 5223 Ecology, 3.00 Credits
Prerequisite(s): ( BIOL 1104 with D or better and BIOL 2204 with D or better ) or ( BIOL 1304 with D or better and BIOL 2204 with D or better )
Level: Upper
Liberal Arts and Science
The course will analyze the biotic and abiotic factors that influence or limit distributions of organisms. Emphasis will be placed on population and community biology, including evolution, genetics, behavior, models of population growth, species interactions and community structure. Metabolic and energy relationships at the ecosystem level also will be explored. Examples will be drawn from all Domains and Kingdoms of organisms. Students will be required to evaluate the role of a specific "Keystone" species in an ecosystem and how the loss of that species impacts biodiversity in the ecosystem.

BIOL - 5254 Principles of Microbiology, 4.00 Credits
Prerequisite(s): ( BIOL 2204 with C or better or BIOL 2504 with C or better ) or ( VETS 2014 with C or better or VETS 1203 with C or better or VETS 1214 with D or better ) or ( BIOL 1104 with C or better or BIOL 1404 with C or better )
Level: Upper
Applied Learning-Other, Course Fee $26.00, Liberal Arts and Science
A survey of microorganisms, their structures, physiology, and identification, with the various medical and non-medical implications in our daily lives. Topics include prokaryotic cell structure and function, biochemical processes, physical and chemical factors that affect cell growth, classification and identification, and physical and chemical methods of control. A major portion of the course deals with the pathogenic properties of microorganisms and the body's defense mechanisms including the functions of the immune systems. Laboratory topics include bacterial culture and staining, metabolism and biochemical reactions, physiological characteristics, patient specimen collection and processing as done in a microbiology laboratory and pathogen identification and antibiotic sensitivity determination.

BIOL - 5900 Directed Study, 1.00 TO 6.00 Credits
Level: Upper
A student may contract for one to six credit hours of upper-level independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.
BLCT - 1044 Blueprint Reading & Grades-Par, 4.00 Credits
Level: Upper
Liberal Arts and Science
This internet-based course examines abnormal human physiology in a clinical context, with intent to develop specific intellectual skills related to nursing and other allied health professions. Pathophysiology is considered from a systemic perspective, with emphasis given to cellular abnormalities, disruptions of homeostasis, infectious disease, inflammation, and disorders of the blood, immune, cardiovascular, respiratory, digestive, endocrine, neurological, musculoskeletal, integumentary, renal, genitourinary, and reproductive systems. The course concludes with case study presentations to allow students to derive and discuss correlations among clinical healthcare or other related disciplinary settings.

BLCT - 1043 Introduction to Earth Moving, 3.00 Credits
Level: Upper
Liberal Arts and Science
This course is intended for students in the final year of the four-year Health Sciences curriculum. Students are required to complete an approved research project in an area of special interest in health sciences. The student will submit a plan for research acceptable to the Health Sciences program director and the department chair. The instructor and student will confer regularly regarding the progress of study and research. The student will be required to prepare a formal scientific paper and will be required to give a formal presentation to the campus community upon completion of the research project. Students will be encouraged to present their findings at a national or regional health science conference.

BLCT - BUILDING CONSTRUCTION
BLCT - 1016 Operations - Part I, 6.00 Credits
Level: Lower
This course covers the use and maintenance of the most commonly used machines on a construction site. The course emphasizes safe operation as well as basic operating techniques for each machine. This will include safe setup of machines as well as excavating foundations, septic systems, driveways, etc.

BLCT - 1022 Wood Fabrication Technology I, 2.00 Credits
Level: Lower
Course Fee $25.00
This course introduces hand and power tools. Skills are developed through practical experience in tool usage through a series of required projects. Students will learn hand tool skills by completing a series of wood joints using chisels, planes, handsaws, and layout tools. Students will expand on these skills while building two shop projects. One project using only hand tools and the other project introducing them to stationary power tools, usage, setup and safety. Power tools used include: table saws, radial arm saws, jointers, planers, band saws, drills, and sanders.

BLCT - 1024 Construction Essentials II, 4.00 Credits
Level: Lower
This course provides students with a basic knowledge of residential floor and wall framing and introduces them to codes relevant to these systems. The course content includes applicable terminology, plan reading necessary for layout, and instruction in framing conventional floor and wall systems. Units also included are sheathing materials and installation, insulation products with reference to energy code and installation, roofing materials, and hand tool/power hand tool safety.

BLCT - 1034 Workplace Environment & Safety, 4.00 Credits
Level: Lower
This course explores the opportunities provided by the various occupations associated with the construction trades and covers the insurance requirements, as well as the risk management and loss control issues in this industry. Much of this course will follow the training requirements set forth by the Occupational Safety & Health Administration (OSHA) Construction Safety Outreach Program including the use of personal protective equipment, electrical safety, fall protection and the safe use of scaffolding and ladders. Excavation safety and materials handling, proper record keeping requirements, and harassment policies will also be covered in this course.

BLCT - 1043 Introduction to Earth Moving, 3.00 Credits
Level: Lower
Provides a broad introduction to the processes of planning and executing earth moving activities on various types of construction projects. Explains the uses of heavy equipment such as bulldozers, scrapers, excavators, and loaders.

BLCT - 1044 Blueprint Reading & Grades-Par, 4.00 Credits
Level: Lower
This course is an introduction to different types of plans and how they represent finished grades of buildings. The course content includes applicable terminology, plan reading necessary for layout, and instruction in framing conventional floor and wall systems. Units also included are sheathing materials and installation, insulation products with reference to energy code and installation, roofing materials, and hand tool/power hand tool safety.

BLCT - 1052 Soils - Part I, 2.00 Credits
Level: Lower
This course provides an overview of soil composition and characteristics. The students will describe different types of soil classification methods and how to use them. The course introduces the concept of soil compaction in highway and building construction.

BLCT - 1053 Safety & Ident of Hvy Equip, 3.00 Credits
Level: Lower
This course introduces the most used pieces of heavy equipment. The course describes the functional operation for each piece of equipment while providing a comprehensive overview of safety requirements on job sites with emphasis on OSHA, and NIOSH requirements. Basic requirements for personal protection, safely operating equipment, and HazCom will be presented.

BLCT - 1124 Construction Essentials I, 4.00 Credits
Level: Lower
This course provides the student with an introduction to foundation layout, blueprints, and light commercial construction. Course content includes applicable terminology, reading of construction drawings to interpret dimensions, building layout, foundation layout, and light commercial building techniques. Infused in this course will be discussions on critical and creative thinking, methods to optimize personal performance, as well as how goals contribute to a successful construction project.

BLCT - 1132 Estimating I, 2.00 Credits
Level: Lower
This course develops mathematical concepts and application skills necessary for the carpenter and mason to estimate building quantities and associated costs. Topics include arithmetic operations with whole numbers, decimals, and fractional numbers. Formulas for area, volume, board foot quantities, and basic geometry as it pertains to construction will be studied. The quantities estimated are in the framing/sheathing stages of enclosing a building including concrete, brick, and block calculations.

COURSE DESCRIPTIONS
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BLCT - 1142 Masonry I, 2.00 Credits
Level: Lower
Applied Learning-Practicum
This course covers basic block laying, sizes, uses, layout, bonding, and foundations. Mortar mixing is studied along with an introduction to concrete footers and footer forming. Foundation drainage and damp proofing are also covered in this course.

BLCT - 2023 Equipment Safety - Part II, 3.00 Credits
Level: Lower
This course presents safety requirements for operating heavy equipment, activities of the Occupational Safety and Health Administration relative to OSHA inspections and reporting requirements, and use of protective gear. This course will prepare students for the OSHA 10-hour certification exam.

BLCT - 2032 Wood Fabrication Technology II, 2.00 Credits
Prerequisite(s): BLCT 1022 with D or better
Level: Lower
Course Fee $68.00
This course expands on BLCT 1022 Wood Fabrication Technology I, covering hand and power tools usage through practical experience with the tools. Each student will build projects that will require drawing interpretation and copying pieces from a jig or actual item. Compound bevels and cutting techniques are introduced that require advanced setups on the table saw and other power tools in the lab. Students are expected to produce a higher quality project. All tool usage is encouraged (hand and power).

BLCT - 2033 Equip Preventive Maintenance, 3.00 Credits
Level: Lower
This course covers preventive maintenance responsibilities including specifying basic equipment subsystems and major mechanical systems; knowing how and when to service equipment; and how and when to complete routine inspections of equipment.

BLCT - 2034 Grades & Blueprint Reading II, 4.00 Credits
Level: Lower
This course presents proper practices for setting grades off benchmarks and describes methods of setting grades using various types of levels. The student is taught how to read and interpret construction plans to determine grading requirements. The course will review basic grading operations, and also cover site prep, O.S.N.Y., contours, establishing grades, reading and understanding site plans.

BLCT - 2036 Operations Part II, 6.00 Credits
Prerequisite(s): BLCT 2033 with D or better
Applied Learning-Practicum
This course continues the study of tractors, dump trucks and front-end loaders. Safe operation practices as well as preventive maintenance requirements will be covered for each piece of equipment. Common uses of each piece of equipment and their attachments will also be discussed. Site training will also continue on the back hoe and bulldozer. Students will be introduced to advanced positioning systems and automated controls.

BLCT - 2044 Construction Essentials III, 4.00 Credits
Level: Lower
This course is an introduction to drywall, plaster, steel buildings, and transit. An introduction to commercial construction is also included with a focus on apprenticeship training, energy insulated foam systems, and pre-fab concrete systems.

BLCT - 2064 Construction Essentials IV, 4.00 Credits
Level: Lower
This course provides the student with a basic knowledge of residential siding. Course content includes applicable terminology, comparisons of different siding types and installation instruction for several types of siding. A unit on cornice design and installation and a unit on windows are included, covering design criteria as specified by building and energy codes as well as installation.

BLCT - 2064 Structural Components, 4.00 Credits
Prerequisite(s): BLCT 1024 with D or better
Level: Lower
This course explores a variety of structural components and building practices in frame construction. Major topics include manufactured building materials, span and load bearing requirements, floor systems, roof system, fastening techniques, and estimating, as well as common frame construction techniques. The lab exercises allow the student to practice the layout, assembly, and construction of a variety of structural components with concentration on common rafters and manufactured joists, trusses, and beams.

BLCT - 2092 Soils Part II, 2.00 Credits
Prerequisite(s): BLCT 1052 with D or better
Level: Lower
This course describes basic soil classification methods, details factors affecting classification, and presents soil density and compaction requirements. The course also includes requirements for handling and combining different types of materials.

BLCT - 2132 Estimating II, 2.00 Credits
Level: Lower
The Estimating II course is a continuation of Estimating I. This course develops mathematical concepts and application skills necessary for the carpenter and mason to estimate building quantities and associated costs. Topics include formulas for area, linear footage, board foot quantities, and basic geometry as it pertains to construction. The student will be required to figure material takeoffs for sidings, roof materials, and cornice. These are the exterior finish materials for building a house. Upon completion of this course the student will be able to estimate a structure to the point of trimming it out.

BLCT - 2142 Masonry II, 2.00 Credits
Level: Lower
Applied Learning-Practicum
This course covers the various types of mortar mixes and their appropriate uses, reinforces and builds on trade aspects and skills introduced in BLCT 1142. The evolution of the masonry trade, tools, and materials used will be studied. We will develop the skills needed by those restoring or maintaining historic masonry structures. Bricklaying and stone veneers will be introduced. The basics of plasterwork will be covered.

BLCT - 3002 Blueprint Reading Part III, 2.00 Credits
Level: Lower
This course covers the equipment and supplies required to perform structural work. Discussions include the following topics: bridge types and materials, bridge substructures, bridge superstructures, structural concrete and structural steel. Reading and interpreting site plans will also be reinforced.

BLCT - 3003 Advanced Equipment Safety, 3.00 Credits
Level: Lower
This course teaches advanced safety techniques and requirements for heavy equipment operators and emphasizes organizing and conducting safety meetings. Discussions include OSHA hazardous material requirements and safe operation of equipment. Course topics also include safety reporting, inspections and investigations.

BLCT - 3005 Operations Part III, 5.00 Credits
Prerequisite(s): BLCT 1016 with D or better and BLCT 2036 with D or better
Level: Lower
This course presents the use, safe operation, and maintenance of excavators, trucks, and trailers. Students will explain and demonstrate the use of excavators in ditching, grading, and slope-finishing operations, describing various operating techniques. The course describes the types of trucks used in highway/heavy construction including rigid frame trucks, such as dump trucks, transit-mix trucks, and tractor trailer trucks. The trailers discussed include bulk haulers and flatbed trailers. Truck controls and components, preventive maintenance and operation, and required licensing are also covered. This course will continue to reinforce correct operation of backhoes, bulldozers, and front end loaders.

BLCT - 3012 Soils - Part III, 2.00 Credits
Level: Lower
This course addresses problems associated with bridged areas and breakthroughs, as well as soil stabilization. It presents the proper use of geo-textile materials. Students will review soil compaction requirements, specific procedures for running moisture density tests and methods of fixing compaction problems.

BLCT - 3013 Paving Part I, 3.00 Credits
Level: Lower
This course includes the processing and preparation of asphalt and concrete, including quarrying, crushing, screening, and testing. The operation of concrete plants, hot mix asphalt plants, and pug mills is also explained. Students will be prepared for MSHA (Mine Safety Health Administration) certification.
This course also covers the instruction of plumbing fixture specifications and installation. Fixture troubleshooting and repair is also covered in this course.

This course covers the instruction and study of selection and installation of water heaters for industry standards. Instruction is also given on gas and electric water heater troubleshooting and repairs.

This course covers the history of plumbing and how plumbing systems and codes originated. This course also covers the instruction in the proper care, use, and application of various hand and power tools used in the plumbing trade.

This course covers the instruction in the design, joining, installation, and proper application of various types of drainage piping used in drainage and venting systems. Also covered will be instruction and study of public and private sewage systems, their make-up, various aspects of troubleshooting and maintenance.

This course covers the study of safety practices and OSHA training related to the plumbing trades. All students obtain a 10-hour OSHA training card upon successful completion of the course. The history of plumbing and how plumbing systems and codes originated is covered. This course also covers the instruction in the proper care, use, and application of various hand and power tools used in the plumbing trade.

This course covers the instruction and study of selection and installation of water heaters for industry standards. Instruction is also given on gas and electric water heater troubleshooting and repairs.

This course covers the principles of cabinet construction and countertop fabrication. The students will build cabinets and work on fabricating laminate countertops in the laboratory.

This course covers the instruction in drainage and venting systems, their make-up, various aspects of troubleshooting and maintenance.

This course covers the study and installation of various types of copper pipe and tubing and proper methods of joining. Also includes instruction on fitting use and proper code applications. The methods of testing potable water lines are also covered.

This course covers the instruction in the use of appropriate commands, including drawing file management and software settings. CAD basics introduced in lecture are then applied in a laboratory setting with emphasis on developing CAD preliminary residential prints.

This course covers the study and installation of various types of drainage piping used in drainage and venting systems. Also covered will be instruction and study of public and private sewage systems, their make-up, various aspects of troubleshooting and maintenance.

This course covers the principles of cabinet construction and countertop fabrication. The students will build cabinets and work on fabricating laminate countertops in the laboratory.

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This course covers the study of safety practices and OSHA training related to the plumbing trades. All students obtain a 10-hour OSHA training card upon successful completion of the course. The history of plumbing and how plumbing systems and codes originated is covered. This course also covers the instruction in the proper care, use, and application of various hand and power tools used in the plumbing trade.

This course covers the instruction and study of selection and installation of water heaters for industry standards. Instruction is also given on gas and electric water heater troubleshooting and repairs.

This course covers the principles of cabinet construction and countertop fabrication. The students will build cabinets and work on fabricating laminate countertops in the laboratory.

This course covers the instruction in drainage and venting systems, their make-up, various aspects of troubleshooting and maintenance.
BLCT - 3473 Heating Fuels-Comb Theo&Troubl, 3.00 Credits
Prerequisite(s): BLCT 3453 with D or better
Level: Lower
This course is an introduction to the various fuels used in the heating trades and the methods of converting fuels for various applications. The theory of combustion and combustion troubleshooting is also covered in the course. Common forced air furnace parts and components are discussed and various manufactured retrofit products are applied. This course also includes basic wiring of conventional forced air furnaces and principles and troubleshooting of furnace electronic ignition.

BLCT - 3483 Electrical Fundamentals, 3.00 Credits
Prerequisite(s): BLCT 3453 with D or better
Level: Lower
The objective of this course is to develop knowledge of electricity and the units used to describe and measure it. The course will also show how different types of electrical circuits function and what different electrical components do in those circuits. Special emphasis is placed on temperature controls and switching. Elementary wiring diagrams are introduced.

BLCT - 3493 Forced Air Furnace Controls, 3.00 Credits
Prerequisite(s): BLCT 3453 with D or better
Level: Lower
The objective of this course is to develop skills in the installation and service of electrical components of gas and oil forced air furnaces. This includes gas standing pilot and electronic ignition systems. It applies to both 80% and 90% efficient furnaces including those with integrated circuit boards.

BLCT - 3503 Hydro Comp, Circu Pump&Ht Emit, 3.00 Credits
Prerequisite(s): BLCT 3453 with D or better
Level: Lower
Applied Learning-Practicum
This course will look at the evolution of systems used in the construction of wooden house frames throughout the history of building in America. We will begin with an in-depth look at the centuries-old framing techniques discussed as well as procedures for checking the final grade.

BLCT - 3513 Hydronic Controls and Motors, 3.00 Credits
Prerequisite(s): BLCT 3453 with D or better
Level: Lower
This course covers electrical components as they apply to hydronic heating. Students will produce wiring diagrams for external boiler wiring as it applies to zone valves and pumps. Investigation into areas of multiple boiler controls, injection mixing controls and outdoor reset controls are pursued. The theory and application of different motors used in the HVAC industry are also presented.

BLCT - 3523 Hydronic Piping Systems, 3.00 Credits
Prerequisite(s): BLCT 3453 with D or better
Level: Lower
The objective of this course is to develop an understanding of piping materials, fittings and various components used in hydronic heating systems. This includes knowledge about types and performance of circulating pumps. Also included are heat emitters which have been used in the past and several new types which are currently gaining popularity.

BLCT - 3533 Hydronic Piping Systems, 3.00 Credits
Prerequisite(s): BLCT 3453 with D or better
Level: Lower
Applied Learning-Practicum
This course describes the necessary procedures for preparing ground for highway/heavy construction. It explains soil basics, including terminology, identification, and classification. Earthmoving operations, such as laying out slopes and grades, site excavation, and hauling, are addressed along with methods of stabilizing soils.

BLCT - 3535 Earth Moving (Hvy Highway), 2.00 Credits
Prerequisite(s): BLCT 3052 with D or better
Level: Lower
Applied Learning-Practicum
This course introduces students to basic thermodynamic principles. The course will explore the advantages of hot water and steam heating, as well as the various types of boilers used in the industry.

BLCT - 3536 Hydronic Piping Systems, 3.00 Credits
Prerequisite(s): BLCT 3453 with D or better
Level: Lower
The objective of this course is to develop an understanding of various piping systems used in hydronic heating systems including series loop, one pipe two pipe (direct and reverse return) and primary/secondary piping. The course will also cover the applications and installations available for a variety of radiant heating types.

BLCT - 3537 Hydronic Piping Systems, 3.00 Credits
Prerequisite(s): BLCT 3453 with D or better
Level: Lower
Applied Learning-Practicum
This course covers the below grade construction processes that are necessary to perform highway/heavy construction. Excavation support systems, excavation safety, underground piping materials and fittings, joining methods for underground pipe, box culverts, and catch basins are covered.

BLCT - 3538 Operations Part IV, 4.00 Credits
Prerequisite(s): BLCT 3055 with D or better
Level: Lower
Applied Learning-Practicum
This course presents information on the operation and maintenance of excavators. Students learn basic operation of equipment and apply this knowledge in performing earth work activities such as ditching, placing riprap, and slope finishing. Included are safety issues and preventive maintenance activities.

BLCT - 3539 Earth Moving (Hvy Highway), 2.00 Credits
Prerequisite(s): BLCT 3053 with D or better
Level: Lower
Applied Learning-Practicum
This course describes the necessary procedures for preparing ground for highway/heavy construction. It explains soil basics, including terminology, identification, and classification. Earthmoving operations, such as laying out slopes and grades, site excavation, and hauling, are addressed along with methods of stabilizing soils.

BLCT - 3540 Supervision Part II, 3.00 Credits
Prerequisite(s): BLCT 3023 with D or better
Level: Lower
Applied Learning-Practicum
This course will reinforce Supervision - Part I. In addition to this the student will learn about prevailing wage schedules used by DOL, professional ethics, customer focus, ability to listen, teamwork, communication, attitude, responsibility, and patience.

BLCT - 3542 Finish Operations, 2.00 Credits
Prerequisite(s): BLCT 3023 with D or better
Level: Lower
Applied Learning-Practicum
This course contains information about the responsibilities of the finish operator. It discusses leadership abilities in relation to organizing and directing workers and operations, and how to understand and interpret production requirements and specifications. Also the course explains how to set up and adjust leveling instruments.

BLCT - 3543 Historic Framing Techniques, 3.00 Credits
Prerequisite(s): BLCT 3023 with D or better
Level: Lower
This course will look at the evolution of systems used in the construction of wooden house frames throughout the history of building in America. We will begin with an in-depth look at the centuries-old techniques employed in timber framing, and then follow the progression through braced-frame and balloon frame buildings. Students will apply these techniques to new and/or existing structures.

BLCT - 3544 Construct Business Operation, 2.00 Credits
Prerequisite(s): BLCT 3023 with D or better
Level: Lower
This course is an overview of the basic requirements of ownership and operation of a small construction business. The course also covers the building code sections that establish minimum standards for public safety and protect consumers from hazardous design and construction.
BLCT - 4043 Masonry Sketching & Detailing, 3.00 Credits
Prerequisite(s): BLCT 3169 with D or better
Level: Lower
This course will give students the knowledge and ability to use an architect's scale and basic drafting skills to produce shop drawing sketches of masonry wall systems, masonry details, shapes for architectural building stone and architectural pre-cast.
BLCT - 4053 Blueprint Reading for Masonry, 3.00 Credits
Prerequisite(s): BLCT 3169 with D or better
Level: Lower
Students will develop a working knowledge of blueprints and specifications for masonry projects. Topics will include masonry cost and material estimating, jobsite preparation and construction. Students will interpret and apply standards commonly used in masonry construction.
BLCT - 4143 Basic House Wiring-Forced Air, 3.00 Credits
Prerequisite(s): BLCT 3453 with D or better
Level: Lower
Course Fee $24.00
This course offers instruction and application of basic house wiring and theory. The student is also introduced to the heating trade and to the theory of proper furnace installation. Reasons for human comfort and discomfort as it pertains to forced air heat are discussed. Troubleshooting of disturbing and distressing noises and conditions as well as indoor air quality is also covered in this course.
BLCT - 4153 Sheet Metal Fabrication, 3.00 Credits
Prerequisite(s): BLCT 3453 with D or better
Level: Lower
Course Fee $24.00
This course covers the instruction and the application of various materials of the sheet metal trade. Students are also instructed in the forming and use of different seams and edges required for various applications. Instruction and proper application of methods of joining sheet metal such as riveting, welding, brazing, and soldering is also covered.
BLCT - 4163 Mid & Hi Efly Furn-Alt Warm Ar, 3.00 Credits
Prerequisite(s): BLCT 3453 with D or better
Level: Lower
This course covers the proper evaluation and installation of mid and high efficiency furnaces. Fuel oil burner breakdown, maintenance, and installations are covered in this course. Instruction is given on the proper sizing and installation of natural gas and propane gas distribution pipelines. Alternate warm air heat sources, types, and installations are also taught. Proper trade practices of the HVAC technician, heat system analysis, and maintenance are also covered in this course.
BLCT - 4173 Sheet Mtl Air Dist Systm &Vent, 3.00 Credits
Prerequisite(s): BLCT 3453 with D or better
Level: Lower
This course covers the many types of furnace ductwork and proper application of various duct fittings. Proper application and installation of furnace air distribution systems is also covered. Instruction on Type B galvanized sheet metal vent pipe and components is given and the proper sizing and installation of this metal piping is covered. Sheet metal math such as perimeter, area, and volume is also included in this course.
BLCT - 4176 Masonry V, 6.00 Credits
Level: Lower
To give the student a working knowledge of the concrete industry by showing form construction as well as various types of concrete and their uses. Stair building, brick and concrete are also included within this course. This is a five (5) week course.
BLCT - 4183 Sheet Metal Trade Safety, 3.00 Credits
Prerequisite(s): BLCT 3453 with D or better
Level: Lower
This course covers instruction in the proper use and application of various hand and power tools used in the sheet metal trade. Sheet metal trade and tool safety is also covered in this unit. Students will be introduced to different sheet metal types and their proper applications as well as mechanical drawing. Students will develop and lay out patterns for sheet metal to be cut and formed.
BLCT - 4186 Masonry VI, 6.00 Credits
Level: Lower
This course serves as an overview of contracting, applying for jobs, small business and structural details on commercial and heavy construction. This is a five-week course.
BLCT - 4203 Air Cond Components & Install, 3.00 Credits
Level: Lower
Students will learn about air conditioning components and accessories. Students will learn how to install air conditioning including pressure testing, evacuation, and charging.
BLCT - 4212 Construction Safety, 2.00 Credits
Prerequisite(s): BLCT 1034 with D or better
Level: Lower
Construction Safety is a comprehensive study of the requirements of an effective safety and health program that focuses on worker safety, improved productivity and accident risk management. This is done using an OSHA Outreach safety training format designed to provide students with a basic understanding and application of the OSHA standards relative to their field of study.
BLCT - 4213 Air Conditioning Fundamentals, 3.00 Credits
Level: Lower
This course teaches the fundamentals of air conditioning and how the components of the system work together to perform the cooling process. This includes an examination of types of systems, and detailed look at the types and performance of evaporators and compressors.
BLCT - 4223 Air Cond Perf & Trou & Hi Pump, 3.00 Credits
Level: Lower
This course teaches electrical and mechanical troubleshooting capabilities that are usable in real life applications. Students will also study heat pumps and a variety of applications in which they are feasible.
BLCT - 4233 Heat Loss & Heat Gain, 3.00 Credits
Prerequisite(s): BLCT 3523 with D or better
Level: Lower
Students will determine the heat loss and heat gain in a residential or small commercial building, which would allow a technician to determine what size equipment and to select and size heating and cooling ductwork and diffusers.
BLCT - 4243 Refrigeration Handling Cert, 3.00 Credits
Level: Lower
This course prepares students to take the EPA Refrigerant Handling Certification test.
BLCT - 4253 Residential Duct System Design, 3.00 Credits
Prerequisite(s): BLCT 4233 with D or better
Level: Lower
Students will learn the fundamentals of duct system design as it applies to residential forced air heating and cooling systems. This includes an in-depth look at blower performance and equipment which affects airflow in ductwork.
BLCT - 4303 Interior Surfaces, 3.00 Credits
Prerequisite(s): BLCT 3333 with D or better
Level: Lower
This course covers the installation of finished ceiling, floor, and wall materials as well as the principles of stair building. The student will install floor and wall materials as well as calculate, cut and assemble stair parts in the laboratory.
BLCT - 4312 Intro to Resid Jobsite Manage, 2.00 Credits
Level: Lower
Course instruction provides basic management skills for a residential jobsite lead carpenter or supervisor. This course includes information on hiring workers, managing sub-contractors, material deliveries, scheduling, contracts, and documentation.
This course will introduce students to multiple aspects of business computer applications used in the business environment using current computer software packages to include: representing, financial statements, plans, budgets, time value of money, money management, credit management, tax planning, insurance, investments, retirement planning, and estate planning. Computer, a career in the fields of life, health and disability, and property and casualty insurance. posed by such risk. Insurance is an integral part of the personal financial planning process; therefore the course is designed to be consumer oriented. The course can also be useful in preparation for the job search, application and interview process in the digital age. Workplace professionalism will be modeled, preparing students for workplace communication success.

BUAD - 3043 Business Law I, 3.00 Credits
Level: Lower
This course offers a general inquiry into the nature of law and the legal system in the United States. Areas covered include, but are not limited to, the different schools of jurisprudential thought, the Common Law tradition, Alternative Dispute Resolution, court procedures, legal research and case citations. Special attention is given to Constitutional Law and business, Torts and Crimes, Intellectual Property and the Common Law of Contracts.

BUAD - 3114 Intl Tourism: Ital Food & Geog, 4.00 Credits
Level: Lower
The course presents concepts of tourism relating to food and geography, using Italy as its example. The course is relevant to students of all backgrounds but was designed specifically for students of hospitality, business, and culinary arts. Students will study international organizations operating in tourism (i.e. WTO) and the different types of tourism, with particular attention paid to sustainable tourism. Students will be asked to investigate the tourism geography of Italy, becoming familiar with the most important tourist sites in Italy and Campania (through several excursions). The third module of the course will be dedicated to a very important kind of tourism in Italy and of the Campania Region: Food and Wine Tourism. Students are expected to actively participate and contribute to class discussion. Students will learn about marketing and/or sales activities such as marketing research and advertising, promotional campaign organization, and media relations connected with the promotion of tourism in Italy and Campania.

BUAD - 3153 Fundamentals of Management, 3.00 Credits
Level: Lower
This course deals with the skills necessary to become a manager. The students will develop an understanding of management theories and management skills through an examination of the basic functions of management. The concepts of planning, organizing, leading, and controlling a business organization are examined to show how these basic principles can be used to create a healthy and thriving organization in today's global environment. Special attention will be given to decision making, problem solving, and leadership in an environment where productivity improvements are a major concern.

BUAD - 4004 Ess of Enterp & Sm Bus Mgmt, 4.00 Credits
Level: Lower
This course offers the student a step-by-step approach to starting a business. The course covers the fundamental principles of marketing, law, management, and office administration as applied to beginning a new venture. The class will be divided into teams that will prepare a comprehensive individualized business plan to include a market profile, site analysis, competitive analysis, financial goals and objectives, pricing and marketing strategies, and executive summary. A major focus of this course is to explore each step necessary in structuring and launching a new venture, and discussing ways of recruiting the necessary resources to accomplish this venture.

BUAD - 4053 Business Law II, 3.00 Credits
Level: Lower
This course is an examination of the law of sales, commercial paper, agency-employment relationships, business organizations and government regulation of same. Article 2 of the UCC is used in the sales area with special attention paid to contract formation, title and risk of loss, performance and product liability. In examining commercial paper, Article 3 of the UCC is referenced with emphasis on function and form, holders in due course and liability and discharge. Attention is also given to employer/employee relationships, and distinguishing between sole proprietorships, partnerships, limited liability companies and corporations. Finally, government regulation of business is examined, especially in the areas of anti-trust and restraint of trade.

BUAD - 4133 Investments, 3.00 Credits
Level: Lower
This course is designed to be an introductory course in investments. Topics covered are sources of information, establishing investment goals, investment returns and risks, time value of money, investing in common stocks, bonds, and mutual funds, tax aspects of investing, analysis of financial statements, portfolio management techniques, and introduction to futures and options.

BUAD - 4193 Insurance and Risk Management, 3.00 Credits
Level: Lower
This course covers one of the six components of financial planning. This course will describe the techniques a financial planning/risk manager will use to analyze risk and assess alternate strategies. The course begins by examining the pervasive nature of risk and its impact on both the individual and society. It also demonstrates the ways in which insurance can be used to deal with the problems posed by such risk. Insurance is an integral part of the personal financial planning process; therefore the course is designed to be consumer oriented. The course can also be useful in preparation for a career in the fields of life, health and disability, and property and casualty insurance.

BUAD - 4203 Intro Personal Financial Plan, 3.00 Credits
Level: Lower
This course is an introduction to personal finance covering those areas that are necessary for an individual to make better financial decisions throughout one’s lifetime. Topics include: developing financial statements, plans, budgets, time value of money, money management, credit management, tax planning, insurance, investments, retirement planning, and estate planning. Computer, business calculator applications, and case studies will be used throughout the course. The creation of a comprehensive financial plan will be required.

BUAD - 4403 Business Computer Applications, 3.00 Credits
Level: Lower
This course will introduce students to multiple aspects of business computer applications used in the business environment using current computer software packages to include: representing, storing, manipulating, and using digital information. Topics include: essential applications; information collection and analysis; research methods; and using digital information to enhance presentations in the workplace. This course prepares students to work with Microsoft Office in a career setting or for personal use. Students also develop an understanding of key ethical issues they will face in the context of using information technology.
This course offers the student a step-by-step approach to starting and managing a small business. The course covers the fundamental principles of marketing, law, management, and office
entire process. Students will learn how supply chain strategies support corporate strategies. It will discuss what human resource management contributes to the organization in terms of effectiveness and competitiveness. Discussion and research will take place on some of the challenges and workplace issues being faced in this area. Some of the topics covered include strategic human resource planning, staffing, training and development, compensation, employee and labor relations, and workplace safety.

This course is designed to provide the students with an understanding of human resource management, and how they can improve their use of human resources through management tactics. It will discuss what human resource management contributes to the organization in terms of competitiveness. Discussion and research will take place on some of the challenges and workplace issues being faced in this area. Some of the topics covered include strategic human resource planning, staffing, training and development, compensation, employee and labor relations, and workplace safety.

This course provides an overview of the retirement planning process. It will describe the ongoing, systematic procedures a financial planner will utilize to assist a client in establishing meaningful retirement objectives and creating appropriate strategies. Topics will include employer sponsored retirement plans, Social Security, Medicaid, Medicare, post retirement health and quality of life issues, as well as investment, estate, and tax planning strategies.

This course explores the complex nature of ethical issues confronted by modern business leaders and managers. It integrates perspectives from a variety of disciplines, including, but not limited to, philosophy, law, management, economics, marketing, and public policy. Coursework is designed to illustrate the ethical principles applicable in a business setting while considering policies concerning employees, customers, and the general public, and while building trust, commitment, and effort within the business organization.

This course offers the student a step-by-step approach to starting and managing a small business. The course covers the fundamental principles of marketing, law, management, and office administration as applied to beginning a new venture. Each student will prepare a comprehensive individualized business plan to include a market profile, site analysis, competitive analysis, financials, goals and objectives, pricing and marketing strategies, and executive summary. A major focus of this course is to explore each step necessary in structuring and launching a new venture, and discussing ways of recruiting the necessary resources to accomplish this venture.

For some aspects of the case study work, but instruction in use of the software will be limited to its basic functions (task listing, sequencing, and scheduling; resource identification and allocation; and

Prerequisite(s): ( CISY 1103 with D or better or CISY 1003 with D or better or CISY 1023 with D or better ) and ( BUAD 3153 with D or better or TMGT 7153 with D or better )

This course provides a comprehensive introduction to the standards, principles, guidelines, and processes for project management in business, government, and non-governmental organizations. The primary focus of this course will be the business project management processes identified in the Project Management Institute (PMI) Guide to the Project Management Body of Knowledge (PMBOK Guide). With the PMBOK Guide as the primary text, students will use a personal case study to illustrate business applications of social media, and hands-on projects in which students will create their personal social “brand” online. Students will also work on a larger team project that involves the development of a social media project for a not for profit organization that is selected and approved in coordination with the faculty.

Prerequisite(s): ( CISY 1103 with D or better or CISY 1003 with D or better or CISY 1023 with D or better or BUAD 4403 with D or better ) and ( BUAD 3153 with D or better or TMGT 7153 with D or better )

Prerequisite(s): ( BUAD 4203 with D or better )

Prerequisite(s): BUAD 3153 with D or better or TMGT 7153 with D or better

Prerequisite(s): ( ACCT 1124 with D or better and ACCT 2224 with D or better ) or ACCT 5043 with D or better

Prerequisite(s): BUAD 3153 with D or better or TMGT 7153 with D or better

Prerequisite(s): ( ACCT 1124 with D or better and ACCT 2224 with D or better ) or ACCT 5043 with D or better

Prerequisite(s): BUAD 4003 with D or better

Prerequisite(s): BUAD 3153 with D or better or TMGT 7153 with D or better

Prerequisite(s): BUAD 4003 with D or better or BUAD 2003 with D or better

Prerequisite(s): ( CISY 1103 with D or better or CISY 1003 with D or better )

Prerequisite(s): BUAD 4003 with D or better or BUAD 2003 with D or better

Prerequisite(s): BUAD 3153 with D or better or TMGT 7153 with D or better

Prerequisite(s): ( BUAD 3153 with D or better or TMGT 7153 with D or better )

Prerequisite(s): BUAD 3153 with D or better or TMGT 7153 with D or better

A student may contract for one to six credits of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.

Level: Upper

Prerequisite(s): BUAD 4003 with D or better

Prerequisite(s): BUAD 3153 with D or better or TMGT 7153 with D or better

Prerequisite(s): BUAD 4003 with D or better or BUAD 2003 with D or better

Prerequisite(s): BUAD 3153 with D or better or TMGT 7153 with D or better

Prerequisite(s): BUAD 3153 with D or better or TMGT 7153 with D or better

Prerequisite(s): BUAD 3153 with D or better or TMGT 7153 with D or better

Prerequisite(s): BUAD 3153 with D or better or TMGT 7153 with D or better

Prerequisite(s): BUAD 3153 with D or better or TMGT 7153 with D or better
BUAD - 7273 Organizational Behavior, 3.00 Credits
Prerequisite(s): TMGT 7153 with D or better or BUAD 3153 with C or better
Level: Upper
This course is designed to create an understanding of the behavior of people in organizations. The purpose of this course is to improve the effectiveness of human resources, both at the individual's level and organizational level. Students will integrate their learning through active participation in experiential exercises, personal experiences, case analysis, and general behavior experiments and study. The course will also focus on personal growth and development.

BUAD - 8003 Management Info Systems - MIS, 3.00 Credits
Prerequisite(s): ( CISY 1003 with D or better or CISY 1103 with D or better or CISY 1023 with D or better ) and ( BUAD 3153 with D or better or TMGT 7153 with D or better )
Level: Upper
This course focuses on a management perspective of information systems activity from development through implementation. The goal of this course is to help business students learn how to use and manage information technologies to revitalize business processes, improve business decision making, and gain competitive advantage. This course places major emphasis on up-to-date coverage of the essential role of Internet technologies in providing a platform for business, commerce, and collaboration processes among all business stakeholders in today's networked enterprises and global markets. This course places a major emphasis on the strategic role of information technology in providing business professionals with tools and resources for managing business operations, supporting decision making, and gaining competitive advantage.

BUAD - 8013 International Business, 3.00 Credits
Prerequisite(s): BUAD 3153 with D or better or TMGT 7153 with D or better
Level: Upper
This course is an application of theoretical approaches to the globalization of business. Major concepts, tools, and processes will be explored through lecture, readings, team activities, and case study applications. Major topics include the examination of how businesses and managers focus and succeed in the global economy including an overview of the economic, political, legal, social, and cultural systems involved. Emphasis is given to the scope and theories of international business, the framework for international transactions, relations with host countries and host cultures, global business strategies, and the contrasting international management and ethical issues managers may face.

BUAD - 8023 Strategic Management Capstone, 3.00 Credits
Prerequisite(s): ( BUAD 3153 with D or better or TMGT 7153 with D or better ) and BUAD 5023 with D or better and BUAD 6003 with D or better and ( MKTG 2073 with D or better or MKTG 6003 with D or better ) and BUAD 7033 with D or better
Corequisite(s): ( BUAD 3153 with D or better or TMGT 7153 with D or better ) and BUAD 5023 with D or better and BUAD 6003 with D or better and ( MKTG 2073 with D or better or MKTG 6003 with D or better ) and BUAD 7033 with D or better
Level: Upper
Applied Learning-Other
This course is an application of theoretical approaches to Strategic Management. Major concepts, tools, and processes will be explored through lecture, readings, team activities, and case study applications. Major topics include creating a competitive advantage, analyzing the external and internal environment of an organization, recognizing an organization's intellectual assets, developing business level, corporate level, and international level strategies, strategic control and corporate governance, creating organizational designs, creating a learning organization and an ethical organization, and managing innovation and fostering corporate entrepreneurship. The completion of a business simulation will be required.

CHEM - CHEMISTRY

CHEM - 1013 Introductory Chemistry, 3.00 Credits
Level: Lower
Gen Ed - Natural Sciences, Liberal Arts and Science
This non-laboratory course is designed for students who need to understand the basic concepts of chemistry. Students will explore mathematical relationships using the factor labeling (conversion factor method), atomic and molecular structures (with emphasis on the special nature of carbon), pH, essential building block molecules, water, ions and ionization, and other topics of interest to those who live in our chemical world. Students cannot receive credit for CHEM 1013 if CHEM 1101 or CHEM 1014 is concurrently or previously taken.

CHEM - 1114 General Chemistry I, 4.00 Credits
Level: Lower
Applied Learning-Other, Course Fee $6.00, Gen Ed - Natural Sciences, Liberal Arts and Science
This course is designed for science majors particularly focused in the health or agricultural areas who have had high school chemistry. It can be a terminal course in chemistry for those seeking an AAS in veterinary technology. Topical coverage includes: metric units and conversions, atomic theory, periodicity, electronic bonding models (Lewis, Pauling, Gillespie VSEPR), inorganic nomenclature, inorganic reactions (metathesis, acid-base, redox), stoichiometry and the mole concept, gas laws, phase transitions (phase diagrams, cooling curves, critical phenomena, heat capacities, intermolecular interactions), equilibrium (calculations involving K, Le Chatelier's principle) and elementary kinetics (Arrhenius model).

CHEM - 1984 Chemical Principles I, 4.00 Credits
Level: Lower
Applied Learning-Other, Course Fee $10.00, Gen Ed - Natural Sciences, Liberal Arts and Science
This course is a continuation of Chemical Principles I and is intended for physical science and engineering majors. Those basic concepts from the first semester are applied to more complex aspects of chemistry which include the states of matter, solutions, thermodynamics, equilibrium, electrochemistry and nuclear chemistry. In addition, the course is designed to have more out-of-class activities related to these topical areas which are completed by a team of students.
COURSE DESCRIPTIONS

CHEM - 3514 Organic Chemistry I, 4.00 Credits
Prerequisite(s): CHEM 2124 with D or better or CHEM 2984 with D or better
Level: Lower
Applied Learning-Other, Course Fee $22.00, Gen Ed - Natural Sciences, Liberal Arts and Science
This course is the first semester of a two semester sequence in organic chemistry and is a thorough introduction to the language, mechanisms, materials and concepts fundamental to organic chemistry. Lecture topics include: VSEPR and atomic orbital models; basic valence hybrid and molecular orbital theory; the language of stereochemistry; the basic activated complex model of Eyring and Polanyi; free radical reactions, notably as they occur in alkenes, alkene preparation and synthesis; SN1 and SN2 substitution reaction pathways notably as they occur in alkyl halides and alcohols, E1 and E2 elimination pathways, notably as they occur for alcohols and alkyl halides; the stereochemistry and energetics of cycloalkanes, and an introduction to retrograde, multi-step synthesis. Lab skills taught include: principles and practice of simple, fractional and steam distillation; recrystallization, solvent extraction, melting point, refractive index determination, IR and GC instrumental characterizations of compounds. Students are also required to synthesize three different compounds, including a multi-step Grignard synthesis to 2-methyl-2 hexene starting from 2-propanone and 1-bromobutane.

CHEM - 4524 Organic Chemistry II, 4.00 Credits
Prerequisite(s): CHEM 3514 with D or better
Level: Lower
Applied Learning-Other, Course Fee $22.00, Gen Ed - Natural Sciences, Liberal Arts and Science
This course is the second semester of a two semester sequence in organic chemistry starting with Organic Chemistry I. Lecture topics include: synthetic routes to and from unsaturated aliphatics, notably: alkenes, alkynes, allylic and alkenedia with emphasis on accompanying mechanistic pictures notably: radical and carbocation additions, concerted additions, radical substitutions; synthetic routes to and from substituted aromatic compounds with emphasis on the electrophilic substitution mechanism; synthetic routes to and from carboxylic acids, including: aldehydes, ketones, carboxylic acids and their derivatives with particular focus on the special role played by the beta hydrogen; a brief survey of reactions and properties of amine, ester enolates, and a survey of carbohydrate structure and chemistry. A thorough introduction to stereochemical language not covered in the first semester is also carried out. Lab topics include mastery of organic techniques not covered in the first semester, e.g. NMR and polarimetry, mass spectrometry and, hands-on experience with the various reactions discussed in lecture, notably: ring substitution, cycloaddition, stereoaddition, carbonyl condensations, and esterification.

CHEM - 4900 Directed Study, 1.00 TO 4.00 Credits
Level: Lower
Liberal Arts and Science
A student may contract for one to four credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chair. The instructor and student will confer regularly regarding the process of the study.

CHEM - 5013 Applied Chemical Principles, 3.00 Credits
Prerequisite(s): MATH 1033 with C or better or MATH 1054 with D or better or MATH 1063 with D or better or MATH 1084 with D or better
Level: Upper
Applied Learning-Practicum, Course Fee $3.00, Liberal Arts and Science
This course is designed to provide engineering students with a foundation in the important concepts and principles of chemistry needed to communicate effectively with colleagues, develop manufacturing processes, and solve industrial problems related to Chemistry. Emphasis will be placed on those areas considered most relevant in an engineering context, and practical applications in engineering and technology will be examined. Topics include: atomic theory, bonding, stoichiometry, acid-base chemistry, oxidation-reduction, gases, and chemical equilibrium.

CHEM - 5414 Analytical Principles, 4.00 Credits
Prerequisite(s): CHEM 2124 with C or better or CHEM 2984 with C or better
Level: Upper
Applied Learning-Practicum, Course Fee $62.00
This course is an in-depth examination of the chemistry and mathematical underpinnings connected to classical chemical calculations and wet chemical methods that form the foundation of modern quantitative chemistry. Using only a balance, buret and various classical volumetric devices, students will develop skills and understanding of gravimetric, titrimetric, complexometric, argentometric and redox methodologies. The course contains a thorough coverage of the manifold concentration systems and conversions as well as complete treatment of the details of equilibrium equations connected to precipitation, acid-base reactions, buffers, complexation and redox. Non-ideal corrections, notably Debye-Huckel theory, will also be covered.

CHEM - 6614 Instrumental Analysis, 4.00 Credits
Prerequisite(s): CHEM 4524 with D or better
Level: Upper
Applied Learning-Practicum, Course Fee $55.00
A strongly lab-focused course devoted to providing students a thorough exposure to the most common instrumental methods found in modern chemistry and material science labs including: UV-VIS spectroscopy, Atomic Absorption Spectroscopy (AAS), Infrared Spectroscopy (IR), Gas Chromatography (GC), Mass Spectroscopy (MS), High Performance Liquid Chromatography (HPLC), optical and electron microscopies, calorimetric methods including Differential Scanning Calorimetry (DSC) and X-ray Diffraction (XRD). Additionally, fundamentals of glass, glass blowing and basic electronics including passive component behavior as well as some exposure to the fundamentals of semi-conductor devices (transistors, op amps) will be explored.

CHEM - 6854 Physical Chemistry, 4.00 Credits
Prerequisite(s): CHEM 2984 with C or better and PHYS 1064 with C or better and MATH 1114 with C or better
Level: Upper
Applied Learning-Practicum, Course Fee $57.00
This course provides students who plan future studies in forensic science technology, chemical sciences or chemical engineering a firm grounding in the quantum mechanical description of molecules, as well as a critical set of insights into thermochemical reasoning. The quantum mechanical focus will be on key model systems, notably the 1- and 2D particle-in-a-box, the rigid rotor, the harmonic oscillator and hydrogen atom. Selected approximation methods applicable to multi electron atomic systems and applications of infrared and visible spectroscopy will be explored, and students will be given experience in using current quantum calculation software to estimate optimal structures, predict IR spectra and estimate activated complex geometries. It is expected that students taking this course will have already taken a course of ordinary differential equations, but some of the course will also include mathematical excursions developing necessary mathematical tools, notably eigenvalue problems, series solutions of differentials and various matrix algebraic methods. The thermodynamic focus will be on efficiently developing the laws of thermodynamics into useful forms whereby chemical equilibria and phase change of chemical systems can be predicted and described. A strong emphasis will be laid on using the practical chemical results of thermodynamic reasoning (K and Q predictions, Clausius-Clapeyron, Gibbs-Helmholtz and Nernst equation, phase rules and Gibbs-Duhem equations) rather than deriving the abstracted expressions of the several thermodynamic laws.

CHEM - 7784 Biochemistry, 4.00 Credits
Prerequisite(s): CHEM 4524 with C or better and BIOL 2204 with C or better
Level: Upper
Applied Learning-Practicum, Course Fee $109.00
This course is a comprehensive course intended for science majors. Topics covered include the basic structure and reactions of biological compounds (carbohydrates, lipids, proteins, enzymes, and nucleic acids), the digestion and absorption of nutrients, bioenergetic principles, and catalytic and anaerobic metabolism of major biochemistry in the human body. The laboratory exercises include classic techniques in isolation, purification and assay of proteins, enzymes (and kinetics), carbohydrates, lipids, and nucleic acids as well as polypeptide and polynucleotide sequencing and synthesis.

CISY - COMPUTER INFORM SYSTEMS

CISY * 1003 Intro to Microcomputer Appl, 3.00 Credits
Level: Lower
An introductory course in business computing, focusing on microcomputer technology utilizing operating system commands, word processing, spreadsheets, and database software used in business organizations.

CISY * 1023 Intro to Information Tech, 3.00 Credits
Level: Lower
Applied Learning-Practicum
This is an introductory course in information technology and computer applications. The course focuses on computer concepts and technology emphasizing secure file and memory management within various operating systems. The course also covers operating system commands, spreadsheets, databases, web tools and other applications used in business and scientific environments.

CISY * 1103 Info Technology Management, 3.00 Credits
Level: Lower
Applied Learning-Practicum
This course will introduce the student to multiple aspects of information technology management including: representing, storing, manipulating, and using digital information. Topics include: computer hardware and software fundamentals, essential applications, networking and the Internet, and computer user security and risks. Students will develop skills in collecting, analyzing, and using information from a variety of resources in order to complete class projects.
CISY - 1113 Computer Programming I, 3.00 Credits
Level: Lower
Applied Learning-Practicum

This course covers the fundamentals of computer problem solving and programming. Topics include: problem development process, differences between the object-oriented, structured, and functional paradigms, phases of language translation (compiling, interpreting, linking, executing), and error conditions associated with each phase, primitive data types, memory representation, variables, expressions, assignment, fundamental programming constructs (sequence, selection, iteration), algorithms for solving simple problems, tracing execution, subprograms/functions/methods, parameter passing, secure coding techniques (criteria for selection of a specific type and use, input data validation), and professional behavior in response to ethical issues inherent in computing.

CISY - 1123 Intro to Programming for IT, 3.00 Credits
Level: Lower
Applied Learning-Practicum

An introductory programming course for information technology or CIS majors. The development of solutions through a set of logical steps and basic control structures (including selection and iteration) will be introduced. Students will write, debug and execute programs using a high level visual programming language.

CISY - 2133 Computer Programming II, 3.00 Credits
Prerequisite(s): CISY 1113 with D or better
Level: Lower
Applied Learning-Practicum

This course covers the fundamentals of algorithms and object oriented software development. Topics include: modern IDE for software development, primitive and reference data types, encapsulation, information hiding, selection, iteration, functions/methods, parameters, recursion, exception handling, generic linear data structures (arrays, records/structs) and maps, file types, file I/O, simple GUIs with event handling, programming to an interface, lambda expressions, semantics of inheritance and use of polymorphism, and relation with subtyping. Additionally focus will be given to searching (sequential, binary), selecting (min, max), and sorting (bubble, insertion, selection) algorithms, complexity notation, documentation using standard tools, program testing (unit testing) and debugging, reasoning about control flow in a program, and societal impacts related to computing and software.

CISY - 2143 Microcomputer Systems I, 3.00 Credits
Level: Lower
Applied Learning-Practicum

This course provides an exposure to computer operating systems and hardware. Topics include hardware, trouble-shooting, operating system commands, system utilities, memory managers, graphical user interface (GUI) software and computer security.

CISY - 2153 Database Appl and Programng I, 3.00 Credits
Prerequisite(s): CISY 1023 with D or better
Level: Lower
Applied Learning-Creative Work

A comprehensive exposure to the use of database software concepts, capabilities and application; focusing on relational database techniques. SQL, normalization, database programming and developing application systems. A final/comprehensive project will be required.

CISY - 3023 Advanced Microcomptr Spreadshts, 3.00 Credits
Prerequisite(s): CISY 1003 with D or better or CISY 1023 with D or better or CISY 1103 with D or better
Level: Lower
Applied Learning-Practicum

A comprehensive exposure to the use of microcomputer spreadsheet concepts, capabilities and applications beyond the introductory level focusing on developing expertise in using a contemporary spreadsheet software package and companion products to develop business systems.

CISY - 3193 Computer Architecture & Organi, 3.00 Credits
Prerequisite(s): CISY 1113 with D or better
Level: Lower

This course covers fundamentals of computer architecture and organization. Topics include: classical von Neumann machine, major functional units, primary memory, representation of numerical (integer and floating point) and nonnumerical data, CPU architecture, instruction encoding, fetch-decode-execute cycle, instruction formats, addressing modes, symbolic assembler, assembly language programming, handling of subprogram calls at assembly level, mapping between high level language patterns and assembly/machine language, interrupts and I/O operations, virtual memory management, and data access from a magnetic disk.

CISY - 3223 Intro to Web Page Development, 3.00 Credits
Prerequisite(s): CISY 1023 with D or better
Level: Lower

An introductory course in web page development with HTML and XHTML. Also included will be various software packages that automate the web page design process. These may include Dreamweaver, Front Page, and others. This course is suitable for anyone who would like to create simple, but useful web pages. Topics include: the internet, tables, frames, forms, scripting language(s), multi-media.

CISY - 3283 Internetworking I, 3.00 Credits
Level: Lower
Applied Learning-Practicum

This is the first of two courses in a series to be offered covering the Cisco academy semesters 1 and 2. Students will develop skills and knowledge in Network media installation and testing, router and switch installation and configuration, and concepts of Local Area Networks (LANs) and Wide Area Networks (WANs). Instruction will be completed through on-line resources, lecture, and hands-on skills development. Students will be prepared for Cisco Certified Network Associate certification exams upon completion of both courses.

CISY - 4003 Comp Prgrmming III/Data Strctu, 3.00 Credits
Prerequisite(s): CISY 2133 with D or better
Level: Lower

This course covers the fundamentals of data structures and software modeling. Topics include: modern IDE for software development and code version management systems, design and development of reusable software, software modeling (class diagram, use case, CRC card), introduction to analysis of algorithms (order notation), abstract properties, implementation and use of stacks, queues, linked lists, binary trees, binary search trees, and recursion and efficiency of recursive solutions. Additional focus will be given to range of searching (sequential, binary), selecting (min, max, median) and sorting algorithms (quicksort, merge sort, heap sort) and their time and space efficiencies. Software quality assurance (pre and post conditions, program testing), team development of software applications, and professional responsibilities and liabilities associated with software development will be discussed.

CISY - 4033 Networking I, 3.00 Credits
Level: Lower
Applied Learning-Practicum

This course is an introductory course in networking with a survey and evaluation of network media, access methods, topologies, and terminology. Topics will include end user perspective, network cabling, hardware and software protocols, internetworking, network operating systems, and system administration. Included will be basic server installation, configuration, and management. A variety of workstation and server operating systems will be explored through extensive hands-on labs with an emphasis on network security.

CISY - 4053 Linux/Unix Admin and Scripting, 3.00 Credits
Prerequisite(s): CISY 4033 with D or better
Level: Lower
Applied Learning-Practicum

This course will take a more in depth look at Linux and Unix-like system administration. This will include console and graphical interfaces. Major topics include file systems, text processing, installation, system configuration, software packages, network configuration, backup, and kernel management. A significant portion of the course will concentrate on script analysis and creation. Laboratory exercise will provide hands-on exercise in each of these topics.

CISY - 4063 Systems Analysis & Design, 3.00 Credits
Prerequisite(s): CISY 1113 with D or better or CISY 1123 with D or better
Level: Lower
Applied Learning-Practicum

This course covers the fundamental concepts underlying all business information systems including security. Emphasis is on a structured process in the design of computer-based information systems. Current tools and techniques are applied to a case study project.
CISY - 4103 Visual Programming & Developmt, 3.00 Credits
Prerequisite(s): CISY 1113 with D or better or CISY 1123 with D or better
Level: Lower
A visual programming environment will be used in a continuation of Computer Programming I. Emphasis will be placed on advanced algorithms, program design and development. Topics included will be sub-programs, arrays, files, and data abstraction. Debugging and proper program design and documentation will be stressed.

CISY - 4283 Internetworking II, 3.00 Credits
Prerequisite(s): CISY 3283 with D or better
Level: Lower
Applied Learning-Practicum
Students will develop skills and knowledge in network media installation and testing, router and switch installation, and concepts of Local Area Networks (LANs) and Wide Area Networks (WANs). Instruction will be completed through on-line resources, lecture, and hands-on skill development. Students will be prepared for Cisco Certified Network Associate certification exams upon completion of CISY 3283 and this course.

CISY - 4423 Intro to Mobile Robotics & Ani, 3.00 Credits
Level: Lower
Applied Learning-Practicum
The course covers basic programming techniques of mobile and stationary robotic systems with respect to autonomous function and interaction with the environment. Topics include basic programming techniques, robot platforms, use of sensors, embedded control, pre-programmed problem solving, robot construction, and human-robot interaction. Students will complete programming and robot construction projects. Theoretical concepts presented in the lecture will be reinforced in the laboratory.

CISY - 4723 Essentials of Info Security, 3.00 Credits
Prerequisite(s): CISY 4033 with D or better or ELET 2012 with D or better
Level: Lower
This course is a comprehensive survey of all aspects of computer security. This includes local host, network, web, and database security as well as other objects that are prone to attack. Special focus will be given to the identification of security threats and countermeasures that can be taken to make these systems more secure. Students will develop a security plan for a small to mid-sized organization.

CISY - 5123 Scientific Programming, 3.00 Credits
Prerequisite(s): MATH 1033 with D or better
Level: Upper
Applied Learning-Practicum
In this course students will learn structured programming techniques to solve scientific and engineering application using conventional programming languages. Topics include data types, flow control structures, functions, I/O pointers, program design and maintenance, top-down design and programming techniques.

CISY - 5133 Sec Policies, Recov & Risk Man, 3.00 Credits
Prerequisite(s): CISY 1113 with D or better or CISY 1123 with D or better
Level: Upper
Applied Learning-Practicum
Students will be introduced to security policies, the tools and techniques used in security management, and risk management procedures. They will analyze risk and security threats in the organization as well as manage, test, and establish security policy. Topics such as information protection, code of practice for information security, risk management, security awareness and security evaluations will be explored. A final project in security assessment will be required.

CISY - 5203 Network Administration, 3.00 Credits
Prerequisite(s): CISY 4033 with D or better or ELET 2012 with D or better
Level: Upper
Applied Learning-Practicum
Students will use a variety of network management tools to manage, monitor, support and troubleshoot network operations. Topics will include performance issues, end-user accounts, data security, disaster recovery, supporting applications, and documentation.

CISY - 5233 Human Computer Interaction, 3.00 Credits
Prerequisite(s): CISY 4103 with D or better and CISY 3223 with D or better
Level: Upper
Applied Learning-Practicum
This course will cover the design, prototyping, and evaluation of user interface to computers. This will include the implementation of interactive computing systems for human use and the study of major phenomena surrounding them. In addition, the course will stress the importance of good interfaces and the relationship of user interface design to human-computer interaction within multi-disciplinary dynamics. Example systems, case studies, methodologies and models will be used to demonstrate the concepts and the importance of human computer interaction.

CISY - 5303 Web Programming I, 3.00 Credits
Prerequisite(s): CISY 3223 with D or better
Level: Upper
A comprehensive survey of HTML and web publishing software to create robust, functional web pages. This course will examine HTML standards, browser capabilities, information architecture, bandwidth considerations, image format, maps, frames, forms, and server/client side scripting. Topics of current interest will be included, such as: JavaScript, VBScript, ActiveX, Active Server Pages, Dynamic HTML, and Cascading Style Sheets.

CISY - 5403 Database Concepts, 3.00 Credits
Prerequisite(s): CISY 2153 with D or better
Level: Upper
Applied Learning-Practicum
This course is a study of the terminology, design, implementation and software associated with database systems. Topics include the need for database management systems, file organization, sequential and direct access methods and physical implementation. Other topics covered are relational database design, entity and semantic models, hierarchical and network models, SQL, database applications using the internet, and sharing enterprise data. Students will design, implement, test, and debug database management systems according to industry standards.

CISY - 5613 UNIX/Linux Server Admin, 3.00 Credits
Prerequisite(s): CISY 4053 with D or better
Level: Upper
This course will introduce students to the techniques and practices associated with the installation, configuration, troubleshooting, and maintenance of a UNIX/Linux based network. Students will create an operational UNIX/Linux server within a network domain to support DNS, DHCP, gateway, file, print, and other services. Applications will be installed and supported for network users. Operational practices including security, user and group management, backups, logging, script use, and documentation will be addressed as a final project.

CISY - 5723 Essentials of Info Security, 3.00 Credits
Prerequisite(s): CISY 4033 with D or better or ELET 2012 with D or better
Level: Upper
This is a comprehensive survey of all aspects of computer security. This will include local host, network, web, database security as well as other objects that are prone to attack. The student will focus on the identification of security threats and countermeasures that can be taken to make these systems more secure. Students will develop a security plan for a small to mid-size company.

CISY - 5900 Directed Study, 1.00 TO 6.00 Credits
Level: Upper
Applied Learning-Practicum
A capstone course which provides an integrative experience in applying the knowledge and skills of earlier course work, with particular emphasis on computer science management information systems, and communications skills in an integrated internship setting; requires student to present and defend, orally and in writing, solutions to experienced real-world problems encountered.

CISY - 6103 Web Server Administration, 3.00 Credits
Prerequisite(s): CISY 4053 with D or better and CISY 3223 with D or better
Level: Upper
Applied Learning-Practicum
This is a comprehensive survey of all aspects of web server administration. Students will gain hands-on experience by actually installing and administering their own web servers. Topics include: server installation and configuration, site planning, supporting dynamic content, security, and maintenance.
CISY - 6123 Adv Pro with Vid Game Des & Dev, 3.00 Credits
Prerequisite(s): CISY 4003 with D or better or CISY 6503 with D or better
Level: Upper
Applied Learning-Practicum
This course is an advanced study of programming using current tools to create video games. Topics covered include higher-level programming techniques, writing programs that use the windows user interface, and creating and using graphic objects. The gaming topics of data structures and algorithms, artificial intelligence, physics modeling, and mathematics will also be covered. A final project will be required incorporating AI and physics.

CISY - 6503 Object-Oriented Programming, 3.00 Credits
Prerequisite(s): CISY 4103 with D or better
Level: Upper
Applied Learning-Practicum
Object-oriented analysis (OOA) and object-oriented design (OOD) concepts will be covered using an object-oriented programming (OOP) language such as Java. Topics include: objects, messages, classes, encapsulation, inheritance, polymorphism, code reuse, and method-driven and model-driven object-oriented approaches, methodologies and tools. Students will formulate object solutions to practical problems in the business and scientific areas.

CISY - 7023 Compu Forensics & Legal Issues, 3.00 Credits
Prerequisite(s): CISY 5203 with D or better or CISY 5613 with D or better
Level: Upper
Applied Learning-Practicum
This course will provide a practical, hands-on approach to the security of both hosts and networks. Students will be provided with the opportunity to perform penetration testing and then apply results to updating and patching hosts to mitigate discovered vulnerabilities. It includes access control and authentication, systems as well as planning and implementation for wireless network security. A variety of client and network operating systems will be used. This course assumes a prerequisite knowledge of network operating systems and introductory security concepts. A major network security project is a requirement of the course and will be presented in written and oral formats.

CISY - 7003 Project Management, 3.00 Credits
Prerequisite(s): CISY 1003 with D or better or CISY 1023 with D or better or CISY 1113 with D or better or CISY 1123 with D or better or BUAD 5053 with D or better
Level: Upper
Applied Learning-Practicum
A comprehensive approach to project management tools and applications in an interdisciplinary and global environment. Emphasizing concepts, techniques, and principles associated with project management, this course is vital to students entering the IT management field. The course will focus on the changes in the computing environment including hardware, software, and networking. Students will be able to plan, schedule, budget, estimate, control, and monitor projects. In addition, they will become familiar with resource allocation, resource loading, CPM, CMM, GANTT, and PERT. The use of project management software will be a major component of the course.

CISY - 7013 Network & Host Security, 3.00 Credits
Prerequisite(s): CISY 4003 with D or better and CISY 4503 with D or better
Level: Upper
Applied Learning-Practicum
This course will provide a practical, hands-on approach to the process of scientifically retrieving, examining and analyzing data from computer storage media so that data can be used as evidence in court. This course assumes a prerequisite knowledge of network operating systems and security concepts. A final project will be required.

CISY - 7033 Security Tools, 3.00 Credits
Prerequisite(s): CISY 5203 with D or better or CISY 4043 with D or better or CISY 4053 with D or better
Level: Upper
Applied Learning-Practicum
This course provides a practical, hands-on approach to a myriad of security tools employed in wired and wireless networks. These security tools will include Industry Standard Firewalls, Virtual Private Networks (VPNs), wired network vulnerability scanners, wireless security probes, wireless intrusion detectors, wireless scanners and wireless encryption cracking utilities. Advanced firewall concepts and technologies will be covered in depth and include design considerations for enterprise networks, large company networks and medium business networks. The course will include VPN concepts, technologies, and configurations for site to site VPNs as well as configurations for client remote access VPNs. The course will cover various vulnerability scanners for networks with heterogeneous operating systems and advanced firewall configurations. Students, in a laboratory environment, will attack and defend networks and submit a project paper detailing lessons learned and how to best defend both wired and wireless networks. The course assumes a prerequisite knowledge of network operating systems and security concepts.

CISY - 7203 Web Programming II, 3.00 Credits
Prerequisite(s): CISY 5303 with D or better
Level: Upper
Applied Learning-Practicum
A survey of programming languages and techniques for Web development. Topics include CGI's (Common Gateway Interface), client side programming with JavaScript, dynamic content using Java and ActiveX, server side programming using Active Server Pages and VBScript, creating dynamic database driven content, and developing web based client/server database applications.

CISY - 8303 S/w Intrlgn & Interoperability, 3.00 Credits
Prerequisite(s): CISY 6703 with D or better and CISY 4723 with D or better
Level: Upper
Applied Learning-Practicum
In this course, students will integrate network system components to construct a working enterprise network. Topics addressed include integration of different network topologies, interoperability between network operating systems, integration of client-server applications, web based information systems, other support systems and support of end-user needs.

CISY - 8403 Web Applications, 3.00 Credits
Prerequisite(s): CISY 7203 with D or better
Level: Upper
Applied Learning-Creative Work
In this capstone course, students will create web based multi-media applications for companies and/or organizations. These applications will demonstrate client and server side design, programming and maintenance. Additional topics include: systems development life cycle, web site hosting and administration, e-commerce, and integrated software applications.

CISY - 8503 Appl Database Management, 3.00 Credits
Prerequisite(s): CISY 5403 with D or better and CISY 6503 with D or better
Level: Upper
Applied Learning-Creative Work
In this capstone course, students will create and maintain Database Applications in a commercial and/or academic setting. This course provides an integrative experience in applying the knowledge and skills of earlier course work, focusing on multi-user database systems. A major portion of this course will be design, implementation, and documentation of an enterprise data system. Additional topics may include: systems development life cycle, web applications, and application reliability and security.

CISY - 8603 Seminar Critical Issues in IT, 3.00 Credits
Prerequisite(s): CISY 4103 with D or better
Level: Upper
Applied Learning-Creative Work
This is a research-oriented and performance-oriented course. The course addresses critical (both theoretical and pragmatic) issues in information technology (IT). Issues of concern may include, but are not limited to, IT systems security, ethics of using IT systems, human-IT systems interface, and data analysis requirements at different organizational levels. Students are expected to conduct research, present their findings, accept feedback on their presentations, and document their knowledge of their topics. Students will also complete a project working with a cross-disciplinary team and prepare strategies/materials for an effective job search. Every student is expected to attend all class presentations and guest speaker sessions.
<table>
<thead>
<tr>
<th>COURSE DESCRIPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CISY - 8703 Information Security Capstone, 3.00 Credits</strong></td>
</tr>
<tr>
<td>Prerequisite(s): CISY 5133 with D or better</td>
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<tr>
<td>Level: Upper</td>
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<tr>
<td>Applied Learning-Creative Work</td>
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<tr>
<td>In this course, students will integrate, configure and analyze network system components, security tools and procedures necessary to create enterprise class network security perimeters. Topics addressed include a combination of open source and proprietary security applications covering the fundamental components of an effective network security perimeter. These components include: firewalls, Intrusion Detection Systems (IDSs), Intrusion Prevention Systems (IPS) Virtual Private Networks (VPN), authentication systems, port scanning, vulnerability scanning penetration testing, disaster recovery systems and security management systems. An in-depth analysis of the security risks associated with the TCP/IP protocol and associated sub-protocols will also be included as part of a final project.</td>
</tr>
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| **CISY - 8706 Info Technology Internship, 6.00 Credits**  |
| Level: Upper  |
| Applied Learning-Internship, Pass/Fail  |
| Students will complete supervised field work in a selected business, industry, government or educational setting. Students carry out a planned program of educational experiences under direct supervision of an owner, manager or supervisor of information technology in an organization. Each intern will be supervised by a member of the faculty. Written and oral reports and a journal of work experience activities will be required. Evaluation will be based on the quality of experiences gained from the internship. Students will be required to complete a series of 4 brief investigative or evaluative papers while completing the internship in areas such as career development, organizational structures, organized labor, business management, security, policies, and/or industry and market trends. Two papers will be completed in each of the 6 hour internships. These courses are offered as a two-part alternative to CISY 8712, 8706 and 8716 are to be taken in sequence as two 6 credit hour classes. These 12 hours will be equivalent of CISY 8712. Students may not enroll in CISY 8712 and CISY 8706 / 8716. |

| **CISY - 8712 Info Technology Internship, 12.00 Credits**  |
| Level: Upper  |
| Applied Learning-Internship, Pass/Fail  |
| Students will complete supervised field work in a selected business, industry, government or educational setting. Students carry out a planned program of educational experiences under direct supervision of an owner, manager or supervisor of information technology in an organization. Each intern will be supervised by a member of the faculty. Written and oral reports and a journal of work experience activities will be required. Evaluation will be based on the quality of experiences gained from the internship. Students will be required to complete a series of 4 brief investigative or evaluative papers while completing the internship in areas such as career development, organizational structures, organized labor, business management, security, policies, and/or industry and market trends. Two papers will be completed in each of the 6 hour internships. These courses are offered as a two-part alternative to CISY 8712, 8706 and 8716 are to be taken in sequence as two 6 credit hour classes. These 12 hours will be equivalent to CISY 8712. Students may not enroll in CISY 8712 and CISY 8706 / 8716. |

| **CIVL - CIVIL ENGINEERING TECH**  |
| **CIVL - 1011 Civil AutoCAD, 1.00 Credit**  |
| Level: Lower  |
| This course will give the student the basic skills necessary to complete dimensioned drawings in AutoCAD. Topics include: setting up a drawing, basic lines and coordinates, geometric shapes, layering, editing commands, dimensioning, creating text, hatching and plotting to scale. |

| **CIVL - 1013 Portland Cement Concrete, 3.00 Credits**  |
| Level: Lower  |
| Applied Learning-Field Study, Course Fee $15.00  |
| This course introduces aggregates and concrete as construction materials. Standard techniques of measurements and computation are presented and then applied to testing materials. The student is prepared to reach the level of Concrete Field Testing Technician Grade 1, with emphasis on the American Concrete Institute studies of Portland Cement Concrete, and on quality control in the field. Concrete masonry block is reviewed as a product of cement. |

| **CIVL - 1182 Civil Technology Graphics, 2.00 Credits**  |
| Level: Lower  |
| Applied Learning-Practicum  |
| This is an introductory course in construction/civil surveying graphics. The student will be introduced to scales, dimensioning, surveying maps, house plans, building codes, and construction terminology. Contour maps, wall sections, foundation plans, floor plans, and house elevations will be drawn and plotted using AutoCAD. |

| **CIVL - 1204 Surveying I, 4.00 Credits**  |
| Level: Lower  |
| Applied Learning-Field Study  |
| This course is a study of the fundamentals of plane surveying. Emphasis will be placed on the use and care of total station, level, tape and leveling rod, note keeping and basic surveying calculations and adjustment of data. The course introduces measurement techniques through applications in an outdoor laboratory environment. |

| **CIVL - 2154 Quality Control of Const Matl, 4.00 Credits**  |
| Level: Lower  |
| Applied Learning-Field Study  |
| This course equips the student with entry level skills as a quality control technician in Soil and Asphaltic Concrete. Students will design and test asphaltic concrete mixes using industrial procedures and standards. Soil classification, permeability, sampling, and composition are studied and applied in laboratory. |

| **CIVL - 2204 Surveying II, 4.00 Credits**  |
| Prerequisite(s): CIVL 1204 with D or better  |
| Level: Lower  |
| Applied Learning-Field Study  |
| This is the second course of a two-semester sequence emphasizing plane and route surveying theory and techniques. Emphasis will be on circular curves, vertical curves, profiling, cross-sectioning, realignment of circular curves, spiral curves, earthwork calculations, construction stakeout procedures and an introduction to electronic distance measurement. |

| **CIVL - 3204 Legal Asp & Prac of Land Surv, 4.00 Credits**  |
| Prerequisite(s): CIVL 2204 with D or better  |
| Level: Lower  |
| In this course students will develop an understanding of the professional land surveyor's role in society and legal responsibility. Emphasis will also be placed on systems used to describe real property, types of transfer of real property, techniques of record research, as well as locating sequential and simultaneous real property conveyances. |

| **CIVL - 3214 Geodesy, 4.00 Credits**  |
| Prerequisite(s): MATH 1054 with D or better or MATH 2043 with D or better or MATH 1063 with D or better  |
| Level: Lower  |
| Course emphasizes the techniques of precise horizontal and vertical control surveying used by government or private surveyors and engineering consultants. Use of directional theodolites, precise levels and total station measurement equipment are stressed. Projects are used to present underlying theory of field work, standards, specifications, and adjustment of horizontal and vertical data. |

| **CIVL - 3553 Comm Bldg Const Methods & Prac, 3.00 Credits**  |
| Prerequisite(s): CIVL 1011 with D or better and CIVL 1182 with D or better  |
| Level: Lower  |
| This course is a study of materials and methods of construction employed in commercial building construction. This course will be used to extend the students' graphics skills using BIM/3-D software as well as their knowledge of the building construction process. Topics include: foundation, steel frame and reinforced concrete construction. Throughout the course, attention will be given to sustainability of construction materials and methods. |

| **CIVL - 4043 Construction Management, 3.00 Credits**  |
| Level: Lower  |
| This course is a study of the business organizations, contracts, personnel and ethics used in construction projects. Topics include the stakeholder, contracts, cost accounting, construction documentation, planning and scheduling, bonding, insurance, labor relations and ethics as specifically experienced in the construction industry. |
CIVL - 4103 Structures I, 3.00 Credits
Prerequisite(s): ( MATH 1054 with D or better or MATH 1063 with D or better or MATH 1084 with D or better or MATH 2043 with D or better ) and ( PHYS 1024 with D or better or PHYS 1044 with D or better )
Level: Lower
This course provides the students with a quantitative understanding of the effect of loads on structural elements in a building. Principles of structural mechanics are covered from forces and stresses to properties of section, and finally to shear and bending moments on beams. The designs of basic timber and steel beams and columns are also presented.

CIVL - 4143 Contracts, Specs, & Estimating, 3.00 Credits
Prerequisite(s): CIVL 3553 with D or better or ARCH 4014 with D or better
Level: Lower
Applied Learning-Creative Work
This course is a study of contracts and specifications governing contractors in the construction phase of a project. Students will practice the estimating of earthwork, masonry, concrete, steel, and wood. Students will progress through manual takeoffs to electronic spreadsheets. At the completion of this course, the student will be able to create an estimate for a construction project.

CIVL - 4204 Subdivision Theory & Appli, 4.00 Credits
Prerequisite(s): CIVL 3204 with D or better
Level: Lower
Applied Learning-Practicum
This course is an introduction to the U.S. Public Lands Survey System, the laws of simultaneous conveyances, and subdivision of lands. Governmental regulations and environmental considerations will be addressed. Industry standard software will be utilized in the laboratory.

CIVL - 4214 Surveying Practicum, 4.00 Credits
Prerequisite(s): CIVL 3214 with D or better and CIVL 3204 with D or better
Level: Lower
Applied Learning-Practicum
This course consists of a series of field and office problems in surveying. Topics include research, field reconnaissance, data collection, deed interpretation, and mapping. Students are responsible for the execution of a comprehensive surveying project.

CIVL - 4243 Surveying Computer Appli, 3.00 Credits
Prerequisite(s): CIVL 1204 with D or better and CIVL 2204 with D or better and CIVL 3214 with D or better
Level: Lower
This class is an introduction to the concepts of field to office automation, the use of coordinate geometry (COGO) software programs and computer aided drafting (CAD) software programs. Emphasis will be placed on the use of the computer in the solution of problems and projects that stress data management, data adjustment, mapping calculations and the application of computer graphics.

CIVL - 4273 Photogrammetry & Image Interpr, 3.00 Credits
Level: Lower
This course will introduce the advantages of photogrammetry, LIDAR and Remote Sensing as a mapping and planning tool. The types of photography, photo scale, flight planning techniques and specifications, displacement calculations and stereoscopic measurement are covered.

CIVL - 4900 Directed Study, 1.00 TO 6.00 Credits
Level: Lower
A student may contract for one to six credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.

CIVL - 5114 Land Surveying, 4.00 Credits
Prerequisite(s): CIVL 3204 with D or better
Level: Upper
This course is a study of licensure requirements, professional liability and ethics. The legal concepts of the rules of evidence are presented and applied to written and unwritten transfers of land ownership. Riparian rights, reversionary rights, problems of apportionment, and field and office procedures for locating written title boundaries are discussed. The writing of deed descriptions is discussed in both a theoretical and applied sense.

CIVL - 5213 Foundations and Concrete, 3.00 Credits
Prerequisite(s): CIVL 4104 with D or better or CIVL 4103 with D or better
Level: Upper
This course introduces students to basic design principles of reinforced concrete structural members such as beams, slabs, and walls. Topics will include bending of single and doubly reinforced beams, T-beams, and slabs, as well as shear design of these members. The design of development length and splicing of reinforcing bars in the members will be included as well. Methods and materials used in concrete work will be discussed with attention given to the materials and methods of formwork construction and pertinent ACI codes and regulations.

CIVL - 5900 Directed Study, 1.00 TO 6.00 Credits
Level: Upper
A student may contract for one to six credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.

CIVL - 6102 Community-Economic Redevelop, 2.00 Credits
Level: Upper
Applied Learning-Practicum
This course is an introduction to the adjustment of survey data, incorporating the use of the computer and matrix algebra. Error propagation, least-squares adjustment methods and the analysis of survey measurements will be covered.

CIVL - 6113 Environmental Tech Concepts, 3.00 Credits
Prerequisite(s): MATH 1033 with D or better or MATH 2043 with D or better or MATH 1063 with D or better
Level: Upper
This course focuses on environmental technology systems. Topics covered will include: basic environmental concepts, water quality, water pollution, drinking water, storm water management, wastewater treatment, municipal solid waste, hazardous waste, air pollution, noise pollution, erosion control and environmental assessments. During the course, the student will analyze a site plan to determine the "best practice" solutions to storm water management challenges using industry standards. At the end of the course the student will be able to make decisions with regards to various environmental issues that will come both in the workplace and in the student's personal life. Leadership in Energy and Environmental Design, (LEED) criteria and sustainable building issues will also be addressed.

CIVL - 6123 Mechanical Systems, 3.00 Credits
Prerequisite(s): CIVL 3553 with D or better or CIVL 3554 with D or better
Level: Upper
Applied Learning-Creative Work
This course is an introduction to building equipment for single and multi-story projects including domestic water, sewer, heating and ventilating systems, and electrical systems. Students will design these systems for a residence or small office building. Students will review blueprints and analyze systems for a large commercial building.

CIVL - 6154 Supervisory Estimating, 4.00 Credits
Prerequisite(s): CIVL 7503 with D or better
Level: Upper
This course provides in depth study of construction estimating as used in winning bids and the change order process during construction. The course teaches the student to use a database estimating software package to incorporate advanced estimating techniques into a final project cost estimate. During the course the students will complete estimates in several disciplines of construction to include commercial building and heavy civil construction estimates.
CIVL - 6212 Construction Safety, 2.00 Credits
Prerequisite(s): CIVL 3553 with D or better or ARCH 4014 with D or better
Level: Upper
This course is a comprehensive study of the requirements of an effective safety program that focuses on worker safety, improved productivity and accident risk management. The course will also provide students with an understanding of the Occupational Safety and Health Administration (OSHA) standards and their application to the construction industry.

CIVL - 6214 Advanced Estimating, 4.00 Credits
Prerequisite(s): CIVL 4143 with D or better
Level: Upper
Applied Learning-Practicum
This course is an extension of topics learned in the basic estimating course. The course teaches students to use a database estimating software package to incorporate advanced estimating techniques into a final project cost estimate. During the course, the students will create estimates on several types of construction including commercial building and heavy civil projects. The student will also learn the concepts of database estimating including how to create and edit a database.

CIVL - 7001 Sr Seminar & Project Design I, 1.00 Credit
Level: Upper
Applied Learning-Creative Work
This course is the first of a two-semester sequence required for all Geomatics/Land Surveying Engineering Technology Bachelor seniors. Students design and implement a technical project for completion in CIVL 8003. Project proposals and oral reports are presented for initial approval by department faculty. The weekly seminar encompasses professional licensure examination preparation, aspects of post-graduation professional employment, review of initial project proposal and consultation on project progress.

CIVL - 7103 Land Development & Design, 3.00 Credits
Prerequisite(s): CIVL 1204 with D or better and/or MATH 1054 with D or better or MATH 1084 with D or better or MATH 1063 with D or better or MATH 1084 with D or better or MATH 2043 with D or better or MATH 2074 with D or better
Level: Upper
This course is intended to give the Civil Engineering Technology student an understanding of the issues related to site development and drainage issues for land development. Students will study and create land development plans including drainage calculation, street and road design, water distribution, and sewer design. Issues related to sustainable development will be integrated into the topics to provide the student with an appreciation of concerns related to energy, as well as material and land conservation.

CIVL - 7114 Geographic Information Systems, 4.00 Credits
Prerequisite(s): CIVL 3214 with D or better
Level: Upper
Applied Learning-Creative Work
A broad-based introduction to GIS; especially the application of spatial analysis and modeling. Applications will cover hardware and software considerations, map overlays, automation in thematic and topographic mapping, raster/vector devices, data acquisition, and related database storage and algorithms. Advanced topics will include error modeling, data uncertainty, and new directions and impacts of GIS.

CIVL - 7213 Construction Systems, 3.00 Credits
Prerequisite(s): CIVL 4143 with D or better
Level: Upper
Applied Learning-Practicum
This course examines how people and machines interact to build efficient systems that improve productivity in the construction industry. This course will document existing and emerging construction systems and will delve extensively into production capacity and uses of construction equipment. This course culminates with a project to design equipment spreads for an earthwork project.

CIVL - 7223 Construction Project Planning, 3.00 Credits
Prerequisite(s): CIVL 3554 with D or better or CIVL 3553 with D or better
Level: Upper
Applied Learning-Creative Work
Students will develop a construction project management logic diagram for large multi-phased projects. The students will use software for scheduling, monitoring, and “crashing” projects to evaluate alternatives to reduce time to completion and to enhance cost effectiveness and safety considerations.

CIVL - 7503 Construction Business and Law, 3.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Upper
Study of specific contract clauses that are common in construction contracts including change orders, differing site conditions, construction delays, liquidated damages, construction claims and dispute resolutions. Students will read construction contract disputes and determine reasonable outcomes based on the given fact patterns. Additionally, students will be introduced to the business of construction through construction job site cost accounting.

CIVL - 7523 Construction Scheduling, 3.00 Credits
Prerequisite(s): CIVL 7503 with D or better
Level: Upper
Applied Learning-Practicum
This course is the study of job site construction scheduling. Software will be employed to produce Critical Path Method analysis. Topics include crew distribution and leveling as well as construction equipment resource loading.

CIVL - 8003 Sr Seminar & Project Design II, 3.00 Credits
Prerequisite(s): CIVL 7001 with D or better
Level: Upper
Applied Learning-Creative Work
In this course, students implement a capstone technical project proposed and designed in CIVL 7001. Each student must do research, prepare a plat/map, conduct a formal oral presentation and submit a comprehensive written report.

CIVL - 8104 Global Positioning Systems, 4.00 Credits
Prerequisite(s): CIVL 3214 with D or better
Level: Upper
This course is designed to provide an introduction to the following topics: The U.S. Global Positioning System; other satellite-based navigation systems; GPS terminology; sources of error; GPS accuracy in forested conditions; post-process differential correction; WAAS, DGPS; and mission planning.

CIVL - 8123 Construction Project Admin, 3.00 Credits
Prerequisite(s): CIVL 4043 with D or better or CIVL 7553 with D or better
Level: Upper
Applied Learning-Practicum
This course culminates in a simulated construction project where students assume various stakeholder roles.

CIVL - 8512 Construction Mgmt Internship, 12.00 Credits
Prerequisite(s): CIVL 7503 with D or better
Level: Upper
A work experience designed to assist the student in making the transition from classroom to the construction industry. Students will complete an approved supervised work experience under the direct supervision of an owner, manager or supervisor in a construction related industry. Each student will have a planned work program of education objectives approved by the student, site supervisor, and Internship Coordinator. Written and oral reports, along with a journal of work activities and experience, will be required.

CJUS - CRIMINAL JUSTICE

CJUS - 1003 Intro to Criminal Justice, 3.00 Credits
Level: Lower
This course introduces students to civil and criminal law. It examines the historical development of laws in the United States, distinguishing between civil and criminal laws. It also examines the essential elements of substantive law, procedural law and civil processes, and how they interact, as well as the evolution of legal realism and legal interpretation. The roles of those involved with civil and criminal law to include types of courts, plaintiffs, defendants, police, prosecutors, judges and other court-related personnel are discussed. Special emphasis is placed on the basic principles to manage complex situations during the administration of justice.

CJUS - 2003 Introduction to Law, 3.00 Credits
Level: Lower
COURSE DESCRIPTIONS

CJUS - 3003 Cybercrime, 3.00 Credits
Level: Lower
As emerging technologies continue to redefine the very nature of crime, the legal apparatus in the United States and around world must adapt accordingly. This course is designed to provide an overview of topics related to cybercrime. The theories and legal issues, with emphasis on technology will be used to address cybercrime issues and to apply critical thinking skills to modern criminal justice practices, procedures, and policies related to cybercrime. Topics include legalistic, enforcement, behavioral, social, and technological issues that are related to the cybercrime problems.

Prerequisite(s): CJUS 1003 with D or better

CJUS - 4003 Corrections Process in the U.S., 3.00 Credits
Level: Lower
This course provides an introduction to the corrections process and examines state, local and federal correctional programs in the United States. Included is the study of the evolution, philosophy, structure, responsibilities and types of correctional agencies as well as the roles and ethical obligations of those working in the corrections system. The impact of American Correctional Association Standards (ACA) on correctional agencies is examined. Attention also is paid to public policy as it relates to issues affecting the corrections process including incapacitation versus rehabilitation and offender versus victim rights.

Prerequisite(s): CJUS 1003 with D or better

CJUS - 4103 Policing in a Free Society, 3.00 Credits
Level: Lower
Prerequisite(s): CJUS 1003 with C or better
Applied Learning-Creative Work
This course is an introduction to the responsibilities of police and police agencies at the local, state and federal levels. Police operations are examined relative to their effectiveness in crime control, delivery of services and maintenance of order with particular emphasis on patrol operations and preserving the freedom of citizens. Principles of management as they relate to organizational structures and activities of public and private police and corrections agencies in America are introduced. Also examined are the development of policy, personnel administration, inspection procedures, performance evaluations, and planning and research in police agencies. The students will complete a final capstone project synthesizing supervisory and leadership aspects of the course.

Prerequisite(s): CJUS 1003 with D or better

CJUS - 5003 Constitutional Issues in Crim, 3.00 Credits
Level: Upper
Prerequisite(s): CJUS 1003 with D or better
Applied Learning-Internship
A comprehensive examination of the U.S. Constitution and the impacts of resulting case law on public policy relative to criminal and social systems, governmental authority and civil liberties. In this course students will research and analyze social and political policy resulting from these impacts in areas such as pornography, abortion, women's rights, voting rights, sentencing equality, immigration, terrorism, juvenile death penalty, and the Patriot Act to name a few. This is a discussion based course requiring students to participate in in-depth peer discussions. Students are required to analyze the impacts of case law on state and local law enforcement as it pertains to a specific topic culminating in a research project.

Prerequisite(s): CJUS 1003 with D or better

CJUS - 5103 Courts in Contemporary Society, 3.00 Credits
Level: Upper
Prerequisite(s): CJUS 1003 with D or better
Applied Learning-Practicum
The Courts in Contemporary Society is a comprehensive analysis of the courts: structure, process, and issues. This course provides a historical perspective of courts in America from past to present requiring students to critically analyze social policy affecting the courts transformation to contemporary functions including diversion, alternative dispute resolution, redivivism, and specialty courts. This examines the law and its origins, compares the federal and state court systems, and examines juvenile justice process in America.

Prerequisite(s): CJUS 1003 with D or better

CJUS - 5113 Contemp Public Safety Leadersh, 3.00 Credits
Level: Upper
Prerequisite(s): BUAD 3153 with D or better or CJUS 4103 with D or better
Applied Learning-Practicum
This course provides the evolution of leadership theorists and theories including behavioral, situational and contingency schools of thought. Students evaluate the various leadership styles and attributes of effective and ineffective leaders. Students must analyze the relationship between effective leadership and teamwork, organizational culture, diversity, ethics, interpersonal communications, organizational performance, futures planning, technology, conflict resolution, and problem solving. This course culmination requires a synthesizing of leadership models for transformational change in a written practical exercise.

Prerequisite(s): CJUS 1003 with D or better or SOCI 1243 with D or better

CJUS - 6000 Law & Criminal Evidence, 3.00 Credits
Level: Upper
Prerequisite(s): CJUS 1003 with D or better or SOCI 1243 with D or better
Applied Learning-Practicum
The course examines the origin, development, philosophy, and legal bases of evidence, including a brief survey of the system of constitutional and procedural rules and standards affecting evidence collection and admissibility. Specific topics include evidence collection and preservation, the trial process, expert and lay opinion, scientific evidence, and confessions and admissions. The course requires a research paper.

CJUS - 6203 Ethics in Criminal Justice Adm, 3.00 Credits
Level: Upper
Prerequisite(s): SOCI 1183 with C or better
Applied Learning-Practicum
This course examines ethical issues in the criminal justice (CJ) field, including an analysis of diversity and situational events of persons employed in the criminal justice field. Students will evaluate leadership theory and the emerging issues and challenges confronting leaders in public safety/criminal justice. Students will also synthesize ethical philosophies and the responsibilities of CJ practitioners at the local, state, and federal levels. Research will be conducted on contemporary CJ topics such as immigration, terrorism, and police conduct in conjunction with the U.S. Constitution culminating with a written practical framework for successful and ethical leadership in a CJ setting.

Prerequisite(s): CJUS 1003 with D or better

CJUS - 7004 Criminal Investigation & Mgmt, 4.00 Credits
Level: Upper
Prerequisite(s): CJUS 6003 with D or better
Applied Learning-Practicum
The Criminal Investigation Capstone course applies case law, evidence identification, securing and preservation of evidence from initial crime scene to the crime laboratory. This includes the application of identifying, preserving and processing fingerprints; tool impressions; hair, fibers, blood and narcotics; casts and molds; and interview and interrogation techniques. This course utilizes law enforcement and crime lab experience in an applied setting. This capstone project requires student’s crime scene notes, logs, and investigative reports in a completed case file that identifies the crime, suspects, methods used to secure suspects and witnesses, as well as additional evidence from evidence from external resources. A course fee may be required.

Prerequisite(s): CJUS 7004 with D or better or CJUS 4103 with D or better

CJUS - 8003 Criminal Investigation Capston, 3.00 Credits
Level: Upper
Prerequisite(s): CJUS 7004 with D or better
Applied Learning-Practicum
The Criminal Investigation Capstone course applies case law, evidence identification, securing and preservation of evidence from initial crime scene to the crime laboratory. This includes the application of identifying, preserving and processing fingerprints; tool impressions; hair, fibers, blood and narcotics; casts and molds; and interview and interrogation techniques. This course utilizes law enforcement and crime lab experience in an applied setting. This capstone project requires student's crime scene notes, logs, and investigative reports in a completed case file that identifies the crime, suspects, methods used to secure suspects and witnesses, as well as additional evidence from external resources. A course fee may be required.

Prerequisite(s): CJUS 8003 with D or better or CJUS 6203 with D or better

CJUS - 8012 Criminal Justice Internship, 12.00 Credits
Level: Upper
Prerequisite(s): CJUS 1003 with C or better and CJUS 6203 with C or better
Applied Learning-Internship
This course requires a minimum of 480 hours of work experience in an approved public safety agency, commonly defined as police, courts, corrections, or fire service, or in a commercial/industrial security agency. The agency or industry selected must be approved by the Department Chair and Internship Coordinator and be specifically related to the curriculum of the student. This course requires a comprehensive final report contrasting the selected agency with contemporary issues and the maintenance of a daily diary. Students must meet the standards of their cooperating agency in order to participate.

Prerequisite(s): CJUS 8012 with C or better and CJUS 6203 with C or better
Applied Learning-Internship
This course requires a minimum of 120 hours of work experience in an approved public safety agency, commonly defined as police, courts, corrections or fire service, or in a commercial/industrial security agency. The agency or industry selected must be approved by the Internship Coordinator and be specifically related to the curriculum of the student. The course requires a comprehensive final report and daily diary.
COMP - COMPOSITION

COMP - 1403 English Fundamentals*, 3.00 Credits
Level: Upper
Remedial
English Fundamentals is a course designed specifically for the study and for the improvement of basic writing skills and techniques. As such, English Fundamentals allows the student to master a variety of sentence constructions and paragraph techniques, culminating in the ability to create a multi-paragraph essay. The emphasis is on grammar, spelling, punctuation, sentence structure, writing and revising techniques, and proofreading and editing to produce clear, concise, and information-rich sentences and paragraphs. This is a remedial/developmental course; it will not satisfy any graduation requirements. Student performance on the Comprehensive Language Usage Exam and the Writing Competency Exam will affect the final course grade.

COMP - 1503 Freshman Composition, 3.00 Credits
Level: Lower
Freshman Composition is intended to enable students to express themselves in essays. They will generate ideas, develop thesis statements, plan paragraphs, organize compositions, and select rhetorical strategies. Essays and a reference paper are required. Readings stimulate language use, critical thinking, and writing techniques.

COMP - 2900 Directed Study, 1.00 TO 4.00 Credits
Level: Lower
Liberal Arts and Science
The student may contract for one to four credit hours of independent study through an arrangement with the instructor. The student must submit a plan acceptable for the instructor and the department chairperson. To be substituted for the listed humanities requirements, a directed study course must be so designated by the department chair. Writing is continued in assignments related to readings, class discussions, and lectures.

COMP - 3503 Advanced Composition, 3.00 Credits
Prerequisite(s): COMP 1503 with C or better and ( LITR 2603 with C or better or LITR 2033 with C or better or LITR 2343 with C or better or LITR 2503 with C or better or LITR 2603 with C or better or LITR 2703 with C or better or LITR 2813 with C or better or LITR 2900 with C or better or LITR 2903 with C or better or LITR 2913 with C or better or LITR 3233 with C or better or LITR 3433 with C or better or LITR 7003 with C or better )
Level: Lower
This course focuses on the student's ability to write in a conflict-free, realtime-ready shorthand theory and provide instantaneous translation. It includes the use of online computer-aided technology and teacher interaction; live practice dictation for speed and accuracy; read-back and analysis of shorthand notes. NORA requirements include the following: students are required to transcribe steno notes and speed takes under timed institutional supervision or if an internet student, sign a sworn verification form stating that the work was completed without the aid of anyone present and without cheating. Speed takes shall be monitored and timed in the same way. Students are required to transcribe at least once a week. All speed takes and tests shall be deleted immediately. Internet students must sign a sworn statement verifying the material has been deleted from their computers and no backup has been made. Students shall have access to the minimum grading criteria as set forth by the NORA requirements.

COMP - 3703 Technical Writing II, 3.00 Credits
Prerequisite(s): COMP 1503 with D or better * and ( LITR 2603 with D or better or LITR 2033 with D or better or LITR 2343 with D or better or LITR 2503 with D or better or LITR 2603 with D or better or LITR 2703 with D or better or LITR 2813 with D or better or LITR 2900 with D or better or LITR 2903 with D or better or LITR 2913 with D or better or LITR 3233 with D or better or LITR 3433 with D or better or LITR 7003 with D or better )
Level: Upper
Liberal Arts and Science
This course is an introduction to writing for emergent media. Students will be taught basic principles of good writing as they apply to various media forms, practices, and online audiences. An emphasis will be placed on textual and visual development for use in different contexts: digital narrative, Web page content, blogging, screenwriting, online journalism, and hypertext styles. Students will design, edit and publish online content using current methods and tools across different platforms. Ethics in writing for emergent media will be a focus in the course.

COMP - 4274 Realtime Writing Theory II, 4.00 Credits
Prerequisite(s): CTRP 1174 with C or better
Level: Lower
Applied Learning-Practicum
This course is a continuation of basic realtime writing theory. The student will continue to learn to write, read, and transcribe the spoken word by means of a conflict-free, realtime-ready shorthand theory and provide instantaneous translation. It includes the use of online computer-aided technology and teacher interaction; live practice dictation for speed and accuracy; read-back and analysis of shorthand notes. NORA requirements include the following: students are required to transcribe steno notes and speed takes under timed institutional supervision or if an internet student, sign a sworn verification form stating that the work was completed without the aid of anyone present and without cheating. Speed takes shall be monitored and timed in the same way. Students are required to transcribe at least once a week. All speed takes and tests shall be deleted immediately. Internet students must sign a sworn statement verifying the material has been deleted from their computers and no backup has been made. Students shall have access to the minimum grading criteria as set forth by the NORA requirements.

CTRIP - COURTYARD REPORTING

CTRIP - 1174 Realtime Writing Theory I, 4.00 Credits
Level: Lower
Applied Learning-Practicum
Realtime Writing Theory I teaches students how to write the spoken word with punctuation by means of a conflict-free, realtime-ready shorthand theory and provide instantaneous translation. It includes the use of online computer-aided technology and teacher interaction; live practice dictation for speed and accuracy; read-back and analysis of shorthand notes. NORA requirements include the following: students are required to transcribe steno notes and speed takes under timed institutional supervision or if an internet student, sign a sworn verification form stating that the work was completed without the aid of anyone present and without cheating. Speed takes shall be monitored and timed in the same way. Students are required to transcribe at least once a week. All speed takes and tests shall be deleted immediately. Internet students must sign a sworn statement verifying the material has been deleted from their computers and no backup has been made. Students shall have access to the minimum grading criteria as set forth by the NORA requirements.

CTRIP - 2274 Realtime Writing Theory II, 4.00 Credits
Prerequisite(s): CTRP 1174 with C or better
Level: Lower
Applied Learning-Practicum
This course is an extension of the material learned in the Computer Aided Transcription course (CTRIP 3373) and is a direct application of the realtime techniques learned in the Realtime Writing Theory I course (CTRIP 1174). The topics to be covered will include personal dictionaries; upper and lower case; D-Defines, J-Defines, and E-Defines; job dictionaries; power defines; phonetic tables; how to insert, modify, and delete entries; filtering dictionary, printing dictionary, backing up and restoring dictionaries, and dictionary maintenance. Students will build and maintain their personal dictionary by adding new entries throughout the course.

CTRIP - 3111 Transcript Production, 1.00 Credit
Prerequisite(s): CTRP 2274 with D or better
Level: Lower
Students will learn how to properly format and prepare judicial transcripts, including cover page, appearance page, examination and exhibit indexes, question-and-answer, colloquy, parentheticals, jurats, and certification pages, as well as how to prepare ASCII disks and mini-transcripts.
COURSE DESCRIPTIONS

CULN - 3163 Speedsbdg I for Report & Capt, 3.00 Credits
Prerequisite(s): CTRP 2274 with C or better
Level: Lower
Applied Learning-Practicum
This course is an introduction to the basic aspects of culinary arts sanitation with an emphasis on various types of food service operations, correct sanitation procedures, rules and regulations. This course is structured into 45 class periods. The typical structured classroom meets every Monday, Wednesday, and Friday throughout the semester and online in the summer. Each class requires a minimum of three hours of practice time per day. The course is designed for Internet training. The course consists of a survey course to explore the two different modes of reporting: judicial reporting and broadcast reporting. Students must be able to transcribe 3 five-minute dictations of unfamiliar material in the following areas: 80 wpm on literary material, 100 wpm on jury charge material, and 120 wpm on two-voice material. All speed takes must be transcribed with a minimum of 95 percent accuracy or higher. Testing material used for speed takes will be given at incremental speeds on unfamiliar material; the same material will not be used more than once every six months. Internet students must sign a sworn verification form stating that the work was completed without the aid of anyone present and without cheating. Speed tests shall be monitored and timed in the same way. All speed takes and tests shall be deleted immediately. Internet students must sign a sworn statement verifying that the material has been deleted from their computers and no backup has been made. Students shall have access to the minimum grading criteria as set forth by the NCRA. Successful completion of the course requires a grade of C or better. The course includes online computer-aided technology for realtime transcription.

CULN - 3363 Tech for Reporting/Captioning, 3.00 Credits
Prerequisite(s): CTRP 2274 with C or better
Level: Lower
Applied Learning-Practicum
This course is the introduction to the CAT course is to integrate computer concepts and English punctuation rules to produce an accurate and saleable work product. Students will review basic punctuation rules and apply them to transcript production.

CTRP - 4264 Spd Bldg II for Reprtr & Captn, 4.00 Credits
Prerequisite(s): CTRP 3163 with C or better
Level: Lower
Applied Learning-Practicum
This course is a continuation of Speed Building I for Reporters and Captioners. Students will continue to learn to write, read, and transcribe the spoken word by means of a conflict-free, realtime-readable shorthand system. This course includes two-voice and multi-voice testimony (including medical and technical material), literary, jury charge, and current events. Captioning students must be able to write three 5-minute takes of literary material at 180 wpm with 96 percent accuracy or higher. In addition, captioning students must write a 20-minute broadcast news program with an accuracy rate of 96 percent or better. Testing material used for speed takes will be given at incremental speeds on unfamiliar material; the same material will not be used more than once every six months. Students are required to transcribe steno notes and speed takes under institutional supervision or if online students, sign a sworn verification form stating that the work was completed without the aid of anyone present and without cheating. Speed tests shall be monitored and timed in the same way. All speed takes and tests shall be deleted immediately. Online students must sign a sworn statement verifying that the material has been deleted from their computers and no backup has been made. Students shall have access to the minimum grading criteria as set forth by the NCRA. Successful completion of the course requires a grade of "C" or better. This course includes online computer-aided technology for realtime transcription.

CTRP - 4368 Spd Bldg III for Reprtr & Captn, 4.00 Credits
Prerequisite(s): CTRP 4264 with C or better
Level: Lower
Applied Learning-Practicum
This course is a continuation of Speed Building II for Reporters and Captioners. Students will continue to learn to write, read, and transcribe the spoken word by means of a conflict-free, realtime-readable shorthand system. In this course, students will be introduced to a variety of experiences over the internship. NCRA requirements: reporting students are required to pass a pre-internship test at 180 wpm in Q & A material, complete a minimum of 50 hours, 40 hours of which must be in-court; and complete a minimum of 40 pages of computer printed transcript. Captioning students are required to pass a pre-internship test at 160 wpm in literary material; complete a minimum of 40 hours, 25 hours of which must be actual writing time and 15 hours of research and dictionary preparation; and complete an unedited captioned translation of three 15 minute segments on varied topics. Students must submit a written narrative report summarizing the internship experience. Reporting students must produce 40 pages of transcript from various experiences during the internship, and submit a signed internship verification form. Captioning students must produce three 15 minute segments on selected topics of unedited captioned translation and submit a signed internship verification form.

CULN - 4600 Int & Prac for Reporter & Capt, 2.00 Credits
Prerequisite(s): CTRP 4264 with C or better
Level: Lower
Applied Learning-Internship, Pass/Fail
Students will arrange for an off-campus experience with a qualified courtroom, freelance, or realtime reporter, or captioner within a geographical proximity of their hometown. Students should try to arrange for a variety of experiences over the internship. NCRA requirements: reporting students are required to pass a pre-internship test at 180 wpm in Q & A material, complete a minimum of 50 hours, 40 hours of which must be in-court; and complete a minimum of 40 pages of computer printed transcript. Captioning students are required to pass a pre-internship test at 160 wpm in literary material; complete a minimum of 40 hours, 25 hours of which must be actual writing time and 15 hours of research and dictionary preparation; and complete an unedited captioned translation of three 15 minute segments on varied topics. Students must submit a written narrative report summarizing the internship experience. Reporting students must produce 40 pages of transcript varying from various experiences during the internship, and submit a signed internship verification form. Captioning students must produce three 15 minute segments on varied topics of unedited captioned translation and submit a signed internship verification form.

CULN - 4900 Directed Study, 1.00 TO 6.00 Credits
Level: Lower
Students may contract for one to six credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.

CULN - 1083 Food Safety & Service Training, 3.00 Credits
Level: Lower
Applied Learning-Practicum
This course provides an introduction to the basic aspects of culinary arts sanitation with an emphasis on various types of food service operations, correct sanitation procedures, rules and regulations pertaining to the safe and maintenance of small tools and heavy equipment, correct methods of customer service, and personal hygiene as related to foods and food service. The importance of employee training will be stressed. Students will be required to sit for the Education Foundation of the National Restaurant Association exam at the completion of this course.

CULN - 3163 Food Safety & Service Training, 3.00 Credits
Prerequisite(s): CTRP 2274 with C or better
Level: Lower
Applied Learning-Practicum
The prerequisite for this course is the successful completion of the Realtime Writing Theory courses (CTRP 1174 and CTRP 2274) or approval of the instructor. The student will continue to learn to write, read, and transcribe the spoken word by means of a conflict-free, realtime-readable shorthand theory. The course is structured into 45 class periods. The typical structured classroom meets every Monday, Wednesday, and Friday throughout the semester and online in the summer. Each class requires a minimum of three hours of practice time per day. The course is designed for Internet training. The course consists of a survey course to explore the two different modes of reporting: judicial reporting and broadcast reporting. Students must be able to transcribe 3 five-minute dictations of unfamiliar material in the following areas: 80 wpm on literary material, 100 wpm on jury charge material, and 120 wpm on two-voice material. All speed takes must be transcribed with a minimum of 95 percent accuracy or higher. Testing material used for speed takes will be given at incremental speeds on unfamiliar material; the same material will not be used more than once every six months. Internet students must sign a sworn verification form stating that the work was completed without the aid of anyone present and without cheating. Speed tests shall be monitored and timed in the same way. All speed takes and tests shall be deleted immediately. Students must sign a sworn statement verifying that the material has been deleted from their computers and no backup has been made. Students shall have access to the minimum grading criteria as set forth by the NCRA. Successful completion of the course requires a grade of C or better. The course includes online computer-aided technology for realtime transcription.
CULN - 1143 Culinary Foundations, 3.00 Credits
Level: Lower
Applied Learning-Practicum
Through the use of demonstrations and lectures this course will focus on the basic methods and scientific principles of cookery, and will explore the fundamentals of industry specific cooking techniques used in contemporary gastronomy. In addition, students will be introduced to the history of the culinary industry, professional standards, and kitchen organization. The basics of product identification and introductory cooking techniques will also be explored. Palate development and development of flavor profiles accompanies the course.

CULN - 1153 Baking Foundations, 3.00 Credits
Level: Lower
Applied Learning-Practicum
This course incorporates basic math as related to the food service industry. Topics will include principles of food cost controls, daily yields and menu pricing, monthly report forms, food check preparation, recipe conversion and standardization procedures. This course will also cover cashier’s report procedures, the use of balance sheets to determine the state of a food service operation, and costing as related to budgeting, improvements of operation efficiency and comparisons of similar operations. In addition this course will cover the principles of purchasing, receiving and storage. Students will learn the ABC’s of inventory as well as how to utilize sales history and popularity percentages to create forecasting as it pertains to budgeting and production.

CULN - 1479 Kitchen Fundamentals, 9.00 Credits
Level: Lower
Prerequisite(s): CULN 2263 with D or better
Applied Learning-Practicum, Course Fee $60.00
The student will acquire experience in the preparation of and service of quantity foods with an emphasis on school, institutional, and commercial cafeterias; and an a la carte restaurant. The course covers basic equipment usage, knife skills, as well as storage and inventory procedures. Students will acquire experience in salad and stock preparation and will learn about the fabrication of chicken, pork, and beef cuts. Scientific, economic, and artistic aspects of food preparation will also be developed as the student involvement increases in each area of food production.

CULN - 1579 Baking Fundamentals, 9.00 Credits
Level: Lower
Prerequisite(s): CULN 1579 with D or better or FDSR 1578 with D or better
Applied Learning-Practicum, Course Fee $60.00
This lab section introduces students to the fundamental aspects of baking. Students will learn about the preparation, use and safety considerations of baking equipment, and will get hands-on experience preparing fried bakery goods, yeast dough, quick breads, pies, cookies, cakes and icings. Students will rotate bi-weekly through experiences with general baking concepts, preparation, equipment use, safety, mixing, panning and finishing of the products.

CULN - 2043 Fundamentals of Nutrition, 3.00 Credits
Level: Lower
This course will cover the function and importance of nutrients and vitamins in the body, daily nutritional requirements, important food sources and the effects of nutrient deficiencies. Nutritional guidelines and standards will also be reviewed. The importance of producing, storing and using nutritious ingrediants in the daily production of food will be stressed. In addition, students will examine various topics related to the American diet such as fad diets, herbs and supplements, diet and exercise, allergies, special needs diets and food additivies.

CULN - 2133 Menu Planning, 3.00 Credits
Level: Lower
This course will focus on the basic principles of menu planning with an emphasis on classical menu patterns, menu formats, and the relationship of the menu to the complete operation of a food service establishment. The pricing and profitability of menu items, menu design, as well food merchandizing and styling will be covered.

CULN - 2263 Cooking Techniques & Preps, 3.00 Credits
Prerequisite(s): CULN 1143 with D or better or FDSR 1373 with D or better
Level: Lower
Applied Learning-Practicum
This course is a continuation of Culinary Foundations (CULN 1143). This course aims to provide understanding of cooking theory and mastery of a set of manual skills. These are applied to a wide range of cooking styles and products.

CULN - 2273 Baking Techniques & Prep, 3.00 Credits
Prerequisite(s): CULN 1153 with D or better
Level: Lower
Applied Learning-Practicum
This course will cover the proper procedures for mixing methods, and equipment used in intermediate baked goods production. Topics include laminated doughs, frozen desserts, intermediate yeast raised products such as baguettes and brioches, as well as intermediate baked goods, cakes, icings, and specialty desserts. The course will also introduce students to basic chocolate work, including tempering and piping.

CULN - 2479 Culinary Preparations, 9.00 Credits
Prerequisite(s): CULN 1479 with D or better or FDSR 1478 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $60.00
This lab is a study and practice of the principles, standards and procedures involved in quantity and quality food preparation. Students will rotate the duties involved in all areas of preparation, service, and sanitation within the a la carte restaurant and the cafeteria. The course emphasizes improvement of basic knife, fabrication, and bakery skills needed for the preparation of breakfast items, meat, fish and poultry, soups and vegetables.

CULN - 2489 Baking Preparations, 9.00 Credits
Prerequisite(s): CULN 1579 with D or better or FDSR 1578 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $60.00
This lab section develops intermediate level skills in baking and production. Students will build on skills learned in CULN 1579 and will rotate bi-weekly through experiences with yeast dough, pastries, specialty cookies, finishing and decorating.

CULN - 3162 Hospitality Accounting, 2.00 Credits
Prerequisite(s): CULN 1373 with D or better or ( FDSR 2183 with D or better and FDSR 2153 with D or better )
Level: Lower
This course focuses on introductory accounting principles and practices specific to the hospitality industry. Activities in this class are directed toward developing and refining a professional fluency in budget and forecast preparation. This class will also explore operational performance analysis based upon income statements and balance sheets. Students will study basic accounting principles, rules and standards. The course will introduce and raise awareness of the importance of business plans, tax implications, and cash controls.

CULN - 3173 Int'l Cook, Garde Manger & Baki, 3.00 Credits
Prerequisite(s): CULN 2263 with D or better
Level: Lower
Applied Learning-Practicum
This course introduces baking products, techniques, advanced food preparation and regional cuisines. It is broken down into three separate modules; each one dealing with those three areas. The course will establish a strong foundation in basic baking, advance ability in higher level food preparations, and develop an understanding and appreciation for global cuisine.

CULN - 3251 Beverages, 1.00 Credit
Level: Lower
Applied Learning-Practicum
Students will learn about the history, classification, methods of production, and the characteristics of wine, spirits and beers. Mixology, lounge service, systems of beverage controls, laws controlling beverage sales, nonalcoholic beverages, and profitability will also be covered in this course.

CULN - 3253 Beverage & Fermentation, 3.00 Credits
Level: Lower
Students will learn about the history and production of beer, wine and cheese through hands-on experience. They will develop an understanding of styles and characteristics of different types of beer, wine, and cheese. The course covers systems of beverage controls, laws controlling beverage sales, and nonalcoholic beverages.
CULN - 3293 Intl Baking & Cooking Fundamen, 3.00 Credits
Prerequisite(s): CULN 2273 with D or better
Level: Lower
Applied Learning-Practicum
This course will teach students the proper baking procedures and mixing methods used to produce advanced baked goods. The course will cover specialty items such as mousses, puddings, and cream desserts, as well as merengues, advanced gateaux and tortes. Students will learn about advanced bakery techniques using gingerbread, marzipan, and specialty sauces. Ethnic desserts and baked goods will be a focus of the course. Baking students will also become familiar with fundamental culinary skills.

CULN - 3353 Hospitality Supervision, 3.00 Credits
Level: Lower
The emphasis of this course is on kitchen management techniques, cost control, employee hiring and supervision. A major focus will be budgets, including labor and product cost controls and analysis. The importance of internal and external communications, conflict management, and creative problem solving will be stressed. The hiring, training, and rating of employees, as well as the role of unions in the hospitality industry, will be covered. Students will give an oral report on their work experience required by department mandates as it relates to personnel management. Each student will be prepared for job procurement through resume writing, cover letter creation and insights on interviewing.

CULN - 3479 Advanced Culinary Preparation, 9.00 Credits
Prerequisite(s): CULN 2479 with D or better or FDSR 2479 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $60.00
Students will practice menu planning and the preparation of restaurant items in the working labs of the program. This lab provides hands-on experience in order to develop supervisory and management skills in the kitchens and dining room. In addition, the student is expected to develop a mastery of skills for a la carte and volume preparation of basic sauces, appetizers, vegetables, grains and pastas, salads, sandwiches, and a variety of entrees, with an emphasis on accepted culinary techniques and presentation.

CULN - 3489 Advanced Pastry Preparation, 9.00 Credits
Prerequisite(s): CULN 2489 with D or better or FDSR 2489 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $60.00
This lab section will develop advanced techniques and disciplines for fine dining and high volume baking operations. In weekly rotations in the lab, students will gain hands-on experience producing wedding cakes, specialized pastries and cookies, layer and ethnic cakes, tortes, seasonal baked goods, and specialty doughs. Management of a bakery operation will also be addressed.

CULN - 4033 Intro to Food Science & Techno, 3.00 Credits
Level: Lower
Applied Learning-Practicum
This course is an introduction to food science - the biology, chemistry, and physics of food ingredients and food production. The role of formulation, heating, and cooling on foods, as well as the way taste, texture and appearance effect food production will be covered. The chemical interactions of key food ingredients are a major focus of the course. There will be an emphasis on the scientific method as it pertains to food science and technology, ingredient substitution, and the development and testing of food products. Students will gain experience creating new or improved food products using formulation variables.

CULN - 4043 Advanced Pastry, 3.00 Credits
Prerequisite(s): CULN 3293 with D or better
Level: Lower
Applied Learning-Practicum
This course will introduce the student to specialized techniques in baking and pastry. Skill development covering petit fours, candied and decorative sugar, wedding cakes, various ethnic ingredients, desserts, and baked goods will be the focus. Bakery packaging and merchandising will also be covered.

CULN - 4163 Advanced Cuisine, 3.00 Credits
Prerequisite(s): CULN 3173 with D or better
Level: Lower
Applied Learning-Practicum
This course deals with advanced cooking techniques and cuisine issues. Much of the activity is directed toward developing and refining a personal culinary philosophy by the students. Students will study cooking techniques in depth. They will develop a perspective on their use, and will study basic methods of product development in the foodservice industry. The course will introduce topics, begin discussion, and raise awareness of sustainable food production and will establish a firm connection between cooking and culture.

CULN - 4253 Hospitality Management, 3.00 Credits
Prerequisite(s): CULN 3353 with D or better
Level: Lower
Applied Learning-Practicum
This course builds on the supervisory elements covered in Hospitality Supervision. The fundamentals of personnel management relating to motivation, performance, employee rights and labor relations will be covered. In addition, the course will emphasize basic planning, organizing, staff development, and interfacing with government and the public. Students will be exposed to management and motivation theory, allowing them to begin developing personal philosophies in both areas.

CULN - 4479 Culinary Capstone, 9.00 Credits
Prerequisite(s): CULN 3479 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $60.00
Using the knowledge and experience gained through previous lecture and lab experiences, this capstone course provides students with hands-on managerial experience in the planning, organizing and direction of kitchen production. Students will rotate through experiences as chef, station cook and dining room manager. These experiences will help students develop a personal/professional cooking style through creativity, innovation and synthesis based on previous lab exposures. The lab will emphasize refined sauce making, braising, smoking, cooking proteins to order and sophisticated plate presentation.

CULN - 4489 Pastry Capstone, 9.00 Credits
Prerequisite(s): CULN 3489 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $60.00
In this capstone course students will incorporate earlier lab and lecture experiences, and will demonstrate managerial level skills in the planning, organizing, and direction of bake-shop production. Students will be encouraged to develop a personal/professional baking style through creativity, innovation, and synthesis. In weekly rotations in the lab, students will gain hands-on experience with a wide variety of pastry items including but not limited to plated desserts, cakes and tortes, chocolate sculpting, sugar artistry, and candy production. Inventory control, ordering, and pricing, as well as promotion and merchandising of bakery products will also be covered.

DCAD - DRAFTING/CAD

DCAD - 1053 Technical Calculations I, 3.00 Credits
Level: Lower
Mathematics review, basic algebra, industrial applications applying the decimal and metric systems, use of reference books and electronic calculators. Successful completion of this course requires a grade of "C" or better.

DCAD - 1205 Industrial Drafting Intro, 5.00 Credits
Level: Lower
Applied Learning-Creative Work
The use of traditional drafting equipment, lettering, sketching, geometric construction, and orthographic projection, along with similar application on computer programs will also be addressed. In this course, 3 dimensional solid modeling sketching, and software orientation shall occur. Student will be instructed in the creation, use and manipulation of 3 dimensional solids using industrially accepted CAD software.

DCAD - 1305 Industrial Drafting I, 5.00 Credits
Prerequisite(s): DCAD 1205 with D or better
Level: Lower
Preparation of casting and machine detail drawings using proper dimensioning practices and applications of conventional section views. Introduction of various manufacturing processes, shop terminology, machine operations, and materials used in industrial applications.
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<td>DCAD - 4335</td>
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**Course Descriptions**

**DCAD - 1405 Industrial Drafting II, 5.00 Credits**
Prerequisite(s): DCAD 1305 with D or better
Level: Lower
Applied Learning: Practicum
The use and application of auxiliary view drawings. Also the use and application of development drawings. Students will develop, through projection and solid modeling processes, developed sheet metal developments and intersections. This course will address aspects of freeform modeling and HVAC applications.

**DCAD - 2053 Introduction to Unigraphics, 3.00 Credits**
Level: Lower
Applied Learning: Creative Work
In this course the student will model, using a current version of Unigraphics, industrial projects giving careful consideration to their interrelated features. The student will use both sketches and Boolean operations to complete their models. The importance of parametric controls within and between part files will be stressed.

**DCAD - 2063 Technical Calculations II, 3.00 Credits**
Level: Lower
Practical geometry and trigonometry as a continuation of Technical Calculations I. The scope of this course includes solutions of geometric shapes and solids, right and oblique transfers using industrially related situations. Successful completion of this course requires a grade of "C" or better.

**DCAD - 2205 Industrial Drafting III, 5.00 Credits**
Level: Lower
Applied Learning: Practicum
Develop and complete industrial assembly drawings and detail drawings for assemblies, using appropriate dimensioning and ANSI tolerances, complete bill of materials including threads and fastener information and identification. Course will involve, also, aspects of tolerance stack up their calculations. Addresses the family of drawings and assembly.

**DCAD - 2305 Welding Drawings, 5.00 Credits**
Level: Lower
Applied Learning: Practicum
Develop and complete industrial weldment drawings using various welding processes and types of joints used to draw weldment assemblies using related symbols, appropriate materials and dimension practices. This will include raw stock materials, piping and structural members. Converting castings to fabrication parts will also be addressed. Successful completion of this course requires a grade of 70% or better on a comprehensive II exam.

**DCAD - 2805 Drafting for Residential Const, 5.00 Credits**
Level: Lower
The application of basic methods, symbols and conventions to prepare working drawings for the construction of residential buildings. This course is designed to permit the drafting student to develop, design and create drawings typical to the residential industry. These drawings will allow the student to demonstrate their understanding and design capabilities applied to residential structures. Each student will perform appropriate calculations and prepare all drawings applicable to modern residential construction.

**DCAD - 3023 Geometric Dimen & Tolerencing, 3.00 Credits**
Level: Lower
Correctly specify geometric form controls and positional tolerances to engineering drawings with the use of ANSI geometric symbols.

**DCAD - 3024 Layout & Details, 4.00 Credits**
Level: Lower
Applied Learning: Practicum
Preparation of mechanical design layouts, details and assembly drawings, using mechanisms such as linkages, pneumatics, hydraulics, gear trains, belt and chain drives and control systems. Application of geometric dimensioning and tolerances to appropriate detail drawings. This is a five (5) week course.

**DCAD - 3044 Fluid Power, 4.00 Credits**
Level: Lower
Applied Learning: Practicum
In this course students will prepare layouts of single and double line drawings for hydraulic and pneumatic systems, and will also study and apply mathematic calculations as they pertain to their assignments. The use of vendor catalogs and live components are used in the preparation of the above-mentioned drawings. The student will also prepare a sequence of operations explaining how each schematic operates.

**DCAD - 3103 Intro to 3D Parametric Model, 3.00 Credits**
Level: Lower
Applied Learning: Practicum
The student will model, using a current version of 3D parametric software, industrially correct projects giving careful consideration to their interrelated features. The student will use both sketches and Boolean operations to accomplish their models. The importance of parametric controls within and between part files will be stressed.

**DCAD - 3104 Advanced Mechanical Layout, 4.00 Credits**
Level: Lower
Applied Learning: Practicum
This course will address advanced layout techniques and practices that are typical in the design industry. Students will be presented with design concepts and will use problem solving techniques to accomplish tasks. The course includes the study of power transfer systems such as couplings, chain and sprocket drives, and the use of motors and bearings. Instruction in the application of clutches, and their uses in machine design, will also be stressed.

**DCAD - 4003 Senior Project, 3.00 Credits**
Level: Lower
Applied Learning: Creative Work
This course shall be considered a capstone project for the authentic assessment of the curriculum. The student shall select a project that shall challenge the student and demonstrate various abilities and skills acquired in their previous classes. This project shall include an oral presentation along with a written report and a demonstration of their chosen project. This demonstration may include all associated drawings, a finished part of their design, and an electronic "slide show". This course is designed as a research/lab course to design/improve a consumer product. Instructor shall supply minimal guidance in the development of this project.

**DCAD - 4125 Process Piping I, 5.00 Credits**
Level: Lower
Applied Learning: Practicum
This course will facilitate the concepts and principals employed by drafters in the Industrial Process Piping industry. Using practical laboratory application with topics including flow diagrams, orthographic and isometric spool drawings, plan & elevation piping arrangements, selection of valves, pipe racks and supports. Students will generate a variety of accurate CAD piping assignments similar to the ones currently used in industry today.

**DCAD - 4155 Technical Illustration, 5.00 Credits**
Level: Lower
Applied Learning: Practicum
In this course students will master isometric exploded view technical illustration, including such topics as applications, pictorial selections, and illustration techniques. In addition students will learn about basic printing process, scaling artwork for press runs and coordinating with printing firms. The student will also supply complete assembly instructions (sequence of operations) explaining how this job is put together and functions.

**DCAD - 4225 Process Piping II, 5.00 Credits**
Level: Lower
Applied Learning: Practicum
This course will include the necessary theory and laboratory application in the design of chemical processing plant layout. Calling upon skills developed in prerequisite coursework, in addition to Industrial Process Piping Plant Layout standards, students will create an actual CAD model of a plant that they have designed for a comprehensive understanding of piping plant design.

**DCAD - 4335 CNC Machine Programming, 5.00 Credits**
Level: Lower
Applied Learning: Practicum
Through the use of standard industrial codes and formulas to write computer programs that will enable CNC machining centers and CNC turning centers to produce parts, within quality standards. To be able to write these CNC programs both from scratch and with the use of commercially available CNC programming software.
DGMA - DIGITAL MEDIA & ANIMATION

DGMA - 1333 Survey of Animatn & Visual Eff, 3.00 Credits
Level: Lower
This course will take students through a comprehensive history of animated films beginning with their conception in the early 1900’s through the present. Students will learn how the medium reflects social issues, political views as well as human creativity. The various types of animation and how they were created in different countries and cultures will be the major focus. The screenings and discussions will span various genres and styles of animation including anime, experimental, commercial, computer, and independent film as well as gaming.

DGMA - 1401 Freshman Seminar, 1.00 Credit
Level: Lower
By arrangement with advisor. Directed study is to provide an opportunity for the student to continue study in a subject area of special interest or special concern, related directly to an actual job opportunity within the drafting curriculum.

DGMA - 1403 Digital Foundations I, 3.00 Credits
Level: Lower
This introductory course prepares students with basic skills that will help them succeed in the Graphic & Media Design or Digital Media & Animation programs. These skills include but are not limited to: file management, time management, research practices, effective critique strategies, and online portfolio management.

DGMA - 1413 Foundations:Form/Space Rltnshp, 3.00 Credits
Level: Lower
This is an introductory digital media course that focuses on the manipulation of both raster and vector-based imagery. Students will learn the basics of Photoshop as well as digital imaging and use the software to develop their skills in the visualization of motion and time. The course will have a strong emphasis on principles of lighting, layout and composition.

DGMA - 1423 Intro to Visual Communication, 3.00 Credits
Level: Lower
This is a course that focuses on creative, technical, and environmental/collaborative issues involved in visual communication. Building on the elements and principles of design/communication the students work through increasingly difficult projects to their final cumulative piece. An investigation of color theory as it applies to traditional and computer generated images is also pursued.

DGMA - 2403 Introduction to 3D Animation, 3.00 Credits
Prerequisite(s): DGMA 1403 with C or better
Level: Lower
Applied Learning-Practicum
This course provides an introduction to 3D modeling, texturing, lighting, and animating. Students will use a variety of tools and techniques to create various hard and soft surface models that address specific design problems.

DGMA - 2503 Digital Foundations II, 3.00 Credits
Prerequisite(s): DGMA 1403 with C or better
Level: Lower
Applied Learning-Practicum
This course expands upon the fundamental concepts behind visual communications introduced in previous courses. Emphasis will be placed on the creative process and design thinking using multiple models of visual communication. Students will explore technical and conceptual ideas associated with digital media communications through the production of time based and interactive projects.

DGMA - 2503 Digital Foundations II, 3.00 Credits
Prerequisite(s): DGMA 1403 with C or better
Level: Lower
Applied Learning-Practicum
This course provides an introduction to media design studio practice. Students work within design teams on real-world media design problems, with emphasis on video production, motion graphics and project management.

DGMA - 3111 Japanese Media, 1.00 Credit
Level: Lower
This course is an overview of Japanese art, cinema, animation and digital media. Students will explore Japanese media in native and transnational contexts through a series of lectures and research projects. Special emphasis is given on communication strategies for art and digital media collaboration across cultures, with the goal of participation in a short-term study abroad program.

DGMA - 3113 Studio Tokyo, 3.00 Credits
Prerequisite(s): DGMA 3111 with D or better and JAPN 1203 with D or better
Level: Lower
Applied Learning-Int'l Dom Trvl
This course will introduce Japanese art, cinema, animation and digital media through a study-abroad program based in Tokyo. Students will create animation and digital media projects in collaboration with local artists, and expand upon their research from Japanese Media (DGMA 3111) through screenings and site visits.

DGMA - 3203 Interactive Authoring, 3.00 Credits
Prerequisite(s): CIAT 2403 with C or better or DGMA 2403 with C or better
Level: Lower
Applied Learning-Practicum
This is a course that introduces the student to the art of creating cartoon-style animation applicable to industry needs in graphic design, interactive media, the internet, film, and television using Macromedia Flash. The course emphasizes student acquisition production with both cameraless and computer-based techniques.

DGMA - 3303 Digital Photography, 3.00 Credits
Level: Lower
This course will introduce digital photography covering basic to advanced techniques necessary for the production of art work, as well as learning about the visual arts, how to look at and critique photography, photographic vocabulary, and be introduced to works by well known photographers. Students will also gain a better understanding of the use of external hardware such as lenses, flashes, lights, and other equipment and their impact on photography.

DGMA - 3403 Intermediate 3D Animation, 3.00 Credits
Prerequisite(s): DGMA 2403 with C or better
Level: Lower
This course will delve deeper into 3D computer animation while reinforcing the modeling, texturing, and lighting techniques learned in DGMA 2403. Various animation techniques will be explored and applied through object and character animation, as well as rigging that addresses specific animation problems. There will be a strong focus on the study of human and animal anatomy and how they influence motion.

DGMA - 3503 Typography, 3.00 Credits
Level: Lower
This course introduces students to the fundamentals of typography. Students combine research and design principles to move projects from concept to execution. Emphasis is given to new technologies and modes of delivery.

DGMA - 3603 Production I, 3.00 Credits
Level: Lower
Applied Learning-Creative Work
This course will introduce the student to the use of current non-linear editing technology. Class projects will develop an understanding of the methods used for creating, sampling and storing digital video and audio and the constraints placed on these media assets when used for media based products. Emphasis is placed upon the technology of digital video and audio, including: formats, data rates and compression algorithms.

DGMA - DIGITAL MEDIA & ANIMATION

DGMA - 3603 Production I, 3.00 Credits
Level: Lower
Applied Learning-Creative Work
This course will introduce the student to the use of current non-linear editing technology. Class projects will develop an understanding of the methods used for creating, sampling and storing digital video and audio and the constraints placed on these media assets when used for media based products. Emphasis is placed upon the technology of digital video and audio, including: formats, data rates and compression algorithms.
DGMA - 4103 Interactive Design, 3.00 Credits
Prerequisite(s): DGMA 2403 with C or better or DGMA 2503 with C or better
Level: Lower
Applied Learning-Creative Work
This course is an introduction to the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 4203 Color Theory, 3.00 Credits
Level: Lower
Students will explore the history and theories associated with the use of color in graphic design, and develop design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 4443 Advanced 3D Animation, 3.00 Credits
Prerequisite(s): DGMA 3403 with C or better
Level: Lower
Applied Learning-Creative Work
This course is an introduction to the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 5603 Interactive Media, 3.00 Credits
Prerequisite(s): DGMA 4103 with C or better or DGMA 4103 with C or better or DGMA 4103 with C or better
Level: Upper
Applied Learning-Creative Work
This course is an introduction to the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 5403 Adv Modeling, Texturing & Ligh, 3.00 Credits
Prerequisite(s): DGMA 3403 with C or better
Level: Upper
Applied Learning-Creative Work
This course is an introduction to the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 5303 Sound Design, 3.00 Credits
Prerequisite(s): DGMA 2503 with C or better
Level: Upper
Applied Learning-Creative Work
This course is an introduction to the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 5113 Studio Tokyo II, 3.00 Credits
Prerequisite(s): DGMA 3111 with D or better and JAPN 1203 with D or better or ( DGMA 3111 with D or better or DGMA 6203 with D or better )
Level: Upper
Applied Learning-Intl/Dom Trvl
In this course, students will explore the history and theories associated with the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 5103 Production I, 3.00 Credits
Prerequisite(s): ( CIAT 4103 with C or better or DGMA 4103 with C or better ) or ( CIAT 4423 with C or better or DGMA 4423 with C or better )
Level: Upper
Applied Learning-Creative Work
This course is an introduction to the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 4900 Directed Study, 1.00 TO 4.00 Credits
Level: Lower
A student may contract for one to four credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.

DGMA - 5103 Production I, 3.00 Credits
Prerequisite(s): DGMA 3111 with D or better and JAPN 1203 with D or better or ( DGMA 3111 with D or better or DGMA 6203 with D or better )
Level: Upper
Applied Learning-Intl/Dom Trvl
In this course, students will explore the history and theories associated with the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 5303 Sound Design, 3.00 Credits
Prerequisite(s): DGMA 2503 with C or better
Level: Upper
This course explores fundamental concepts of sound as a creative medium. Emphasis will be placed on concurrent development of theory and practice of sound and how it contextualizes visual experience. Students will learn about waveform synthesis, expanded foley techniques, electronics, performance, acoustics and theories of listening. By the end of this course, students will create both stand alone and integrated sonic artworks for use in film, interactive and other digital media applications.

DGMA - 5333 Special Topics in Art & Design, 3.00 Credits
Prerequisite(s): DGMA 1403 with C or better
Level: Lower
This is an upper-level course, which focuses on a topic of special interest to the instructor and relevance to Digital Media & Animation and/or Graphic & Media Design students. Students will utilize the study of a special topic as a catalyst in the generation of aligned project(s). Faculty and topic may vary each time the course is offered.

DGMA - 5403 Adv Modeling, Texturing & Ligh, 3.00 Credits
Prerequisite(s): ( CIAT 4103 with C or better or DGMA 4103 with C or better ) or ( CIAT 4423 with C or better or DGMA 4423 with C or better )
Level: Upper
Applied Learning-Creative Work
This course develops a refinement of skills from the preceding semesters' work with modeling focusing on NURBS based models. The student will build upon their knowledge of modeling and will provide an in-depth study of NURBS modeling coupled with lighting and texturing. The course shows students how to visualize an object and how to effectively build it in the 3D world using various NURBS surface types and simulate realistic scenarios and moods through the use of textures and light to surface interactions.

DGMA - 5603 Interactive Media, 3.00 Credits
Prerequisite(s): DGMA 4103 with C or better
Level: Upper
Applied Learning-Creative Work
This course is an introduction to the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 5403 Adv Modeling, Texturing & Ligh, 3.00 Credits
Prerequisite(s): ( CIAT 4103 with C or better or DGMA 4103 with C or better ) or ( CIAT 4423 with C or better or DGMA 4423 with C or better )
Level: Upper
Applied Learning-Creative Work
This course is an introduction to the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 5900 Directed Study, 1.00 TO 4.00 Credits
Prerequisite(s): DGMA 1403 with D or better
Level: Upper
A student may contract for one to four credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.

DGMA - 6103 Production II, 3.00 Credits
Prerequisite(s): DGMA 3603 with C or better
Level: Upper
Applied Learning-Creative Work
This course is an introduction to the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 6203 Motion Graphics, 3.00 Credits
Prerequisite(s): DGMA 5103 with C or better or DGMA 3603 with C or better
Level: Upper
Applied Learning-Practicum
From experimental video and film title sequences to revolutionary TV commercials, broadcast design and motion graphics are used to inspire and influence. Through a series of exercises and projects, students will develop skills in motion design and composting, utilizing techniques developed in previous courses.

DGMA - 6303 Special Topics Media Design I, 3.00 Credits
Prerequisite(s): DGMA 4103 with C or better
Level: Upper
This course is an introduction to the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 6413 Advanced Animation, 3.00 Credits
Prerequisite(s): DGMA 3403 with C or better
Level: Upper
Applied Learning-Creative Work
This course is an introduction to the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 6443 Advanced 3D Animation, 3.00 Credits
Prerequisite(s): DGMA 3403 with C or better
Level: Lower
Applied Learning-Creative Work
This course is an introduction to the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 6303 Special Topics Media Design I, 3.00 Credits
Prerequisite(s): DGMA 4103 with C or better
Level: Upper
This course is an introduction to the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.

DGMA - 6413 Advanced Animation, 3.00 Credits
Prerequisite(s): DGMA 3403 with C or better
Level: Upper
Applied Learning-Creative Work
This course is an introduction to the use of color in graphic design, and develops design practices that utilize concept-driven color solutions for projects. Students will gain experience in the techniques and color management practices necessary for the production of effective screen-based and print-based designs.
DGMA - 6603 Media Forge II, 3.00 Credits
Prerequisite(s): DGMA 2603 with C or better or DGMA 5103 with C or better
Level: Upper
Applied Learning-Creative Work
This course continues to develop the student's media design studio practice. Students will use research-based practices as a catalyst in the generation of large scale project(s) aligned with a special topic. Topics may vary each time the course is offered.

DGMA - 7703 Adv Topics Interactive Design, 3.00 Credits
Prerequisite(s): DGMA 5603 with C or better
Level: Upper
In this course students will expand on skills developed in Interactive Media, and apply them in interactive design projects that work across platforms. Students will build interactive projects both individually and in groups that visualize complex data sets and respond to active and passive user input. Special emphasis will be given to development of media for emerging technologies.

DGMA - 8203 Media Design Seminar, 3.00 Credits
Prerequisite(s): DGMA 6103 with C or better
Level: Upper
Applied Learning-Creative Work
This seminar will serve two purposes. The first is to enhance students' understanding of opportunities in the field of animation and digital media through presentations, workshops and discussions. The second is to generate new techniques for problem solving in digital media projects. The course will include in-class exercises, discussions and responses to visiting artist presentations.

DGMA - 8013 Portfolio, 3.00 Credits
Prerequisite(s): CIAT 7403 with C or better or DGMA 7403 with C or better
Level: Upper
Applied Learning-Creative Work
This course will prepare students for the task of finding the next opportunity to advance their professional career be it graduate school, employment in industry, exhibition and/or freelance work. The students will develop a strategy to promote skills in an ever-changing field. Instruction will be given to develop a professional identity that is conveyed in the design of their portfolio. Current print and web design software will be utilized to produce an electronic portfolio detailing their work.

DGMA - 8106 Senior Studio Project II, 6.00 Credits
Prerequisite(s): CIAT 7403 with C or better or DGMA 7403 with C or better
Level: Upper
Applied Learning-Creative Work
In this course students will integrate aspects from their studies of the previous three years. Students will use this semester to create one of the following: a 3D animated film; a 2D animated film; and Experimental Animation film (Stop Motion, Mixture of 3D and 3D animation or a fully Interactive/Informative Media project). Students will produce all pre-production work including proposal, storyboards and animatics. Students will also generate all post-production work including editing, sound mixing and final delivery format (using current technology) prior to a film screening.

DGMA - 8403 Sr Studio Proj - Media Design, 3.00 Credits
Prerequisite(s): DGMA 6103 with C or better
Level: Upper
Applied Learning-Creative Work
In this course, students will identify an existing design problem and complete the design process towards a successful solution.

DGMA - 8503 Special Topics Media Design II, 3.00 Credits
Prerequisite(s): DGMA 6103 with C or better
Level: Upper
Applied Learning-Creative Work
This course focuses on current issues in media design and explores the latest techniques and processes. Students will evaluate emerging technologies and the changing role of media design. Students will utilize research-based practices as a catalyst in the generation of large scale project(s) aligned with a special topic. Topics may vary each time the course is offered.

DSGN - 1433 Furniture & Finishes, 3.00 Credits
Prerequisite(s): ARCH 1184 with C or better or CIAT 1184 with C or better
Level: Lower
This survey course examines the selection, specification, composition, manufacture, and application of finishes and materials in interior design and presents an overview of furniture construction, types, planning and selection.

DSGN - 1443 Color, Lighting and Acoustics, 3.00 Credits
Prerequisite(s): ARCH 1433 with C or better or CIAT 1433 with C or better
Level: Lower
This course is a fundamental course that investigates the properties and principles of basic color theory and its interrelationship with lighting. The focus is on the psychological and physiological effects of color and lighting as it applies to the form, texture, and finish of interior spaces. Course content provides a basic understanding of lighting calculations, types of lamps, appropriate use and application. General acoustic principles with an exploration of material application are introduced.

DSGN - 2204 Interior Design I, 4.00 Credits
Prerequisite(s): CIAT 2394 with C or better or ARCH 2394 with C or better
Level: Lower
Course Fee $106.00
This studio course emphasizes the design process and space planning for modest size facilities. The students will apply color rendering techniques to present interior design solutions. Students will select appropriate materials for various spaces in accordance with accepted design standards. Design issues such as furniture planning and layouts, application of color, and building code and ADA (American with Disabilities Act) considerations are included.
### COURSE DESCRIPTIONS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisite(s)</th>
<th>Level</th>
<th>Corequisite(s)</th>
<th>Course Fee</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSGN - 2223</td>
<td>History of Interior Design</td>
<td>3.00</td>
<td></td>
<td>Lower</td>
<td></td>
<td></td>
<td>This survey course offers a critical overview of the history of interior design, its connection to different periods and cultures, and its integral relationship with architecture, stylistic movements and the decorative arts. Course content introduces students to major historical design periods from prehistoric civilizations to contemporary design. Lectures highlight period design, furniture styles, decorative objects, color palettes and their relevance to present-day interior design.</td>
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<tr>
<td>DSGN - 2304</td>
<td>Interior Design II</td>
<td>4.00</td>
<td>DSGN 2204 or CIAT 2204</td>
<td>Lower</td>
<td></td>
<td>$106.00</td>
<td>This advanced studio focuses on creating interior solutions with the tools of programming strategies, the development of conceptual ideas and the generation of design development drawings. Projects emphasize the development of the interior architecture and selection of a representative FF&amp;E (Furniture, Fixtures &amp; Equipment) package. Students will focus on institutional, residential and retail projects that include intensive pre-design research, development of a concept statement, space-planning, assigning interior design elements, color scheme and finishes. Sustainable principles will be introduced with exercises designed to teach the student how to effectively evaluate the &quot;greenness&quot; of manufacturers and their products. Interior Design Studio II students will build upon knowledge and expand skills acquired in previous courses. In particular, improving project book organization and specification writing will be emphasized. The refinement of hand and computer-generated drawings with advanced rendering techniques is expected by the end of the course. Advanced board design and material board techniques will be reinforced and professional presentation practices underscored.</td>
</tr>
<tr>
<td>ECON - 1013</td>
<td>Principles of Macroeconomics</td>
<td>3.00</td>
<td>MATH 1033 or MATH 1034 or MATH 1054 or MATH 1063 or MATH 1084 or MATH 2043</td>
<td>Lower</td>
<td></td>
<td></td>
<td>This course provides an analysis of the basic market forces of supply and demand, and economic outcomes under different market structures such as competitive, imperfectly competitive and monopolistic markets. The labor and capital markets are analyzed. In addition, the economics of the public sector emphasizes tax policy, externalities, monopoly power, and the provision of public goods. The course examines contemporary social issues such as income distribution, poverty, and the welfare system as well as global issues such as international trade and protectionism.</td>
</tr>
<tr>
<td>ECON - 5133</td>
<td>Territorial &amp; Entrepreneurship</td>
<td>3.00</td>
<td>ECON 1013 or ECON 2023</td>
<td>Upper</td>
<td></td>
<td></td>
<td>The course aims to analyze the relationship between sustainability, economy, quality and globalization. It will also focus on the European Union and sustainable development. Other included topics will be: food industry in Italy (especially in the Campania region), organic farming in Italy, &quot;local food, local market, local business&quot; and sustainable tourism in Italy.</td>
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<tr>
<td>EDUC - 2163</td>
<td>Foundations of Education</td>
<td>3.00</td>
<td></td>
<td>Lower</td>
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<td>This is an introductory course, which views the behavior of the economy as a whole and the problems of economic organization. Students will explore the fluctuations of output and prices. Problems and measurement of economic growth, inflation, unemployment, and income will be discussed. Money, credit and financial institutions will be analyzed, as well as their impact on fiscal policies and international trade.</td>
</tr>
<tr>
<td>EDUC - 1001</td>
<td>Seminar</td>
<td>1.00</td>
<td>COMP 1503</td>
<td>Lower</td>
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<td></td>
<td>An examination of strategies for success, including organizational and study skills, and transfer and career opportunities for engineering technology students in industry. There will be at least a dozen textbook and research readings followed by written assignments on topics to include the variety of engineering transfer institutions and engineering majors, diversity in society and the technical workplace, personal assessments of goals, values, strengths and weaknesses as related to student and technical career success, and employment application techniques such as resume writing, letters of application, interviewing and follow-up communications. Research assignments use library and Internet as resources and all written assignments are generated by computer.</td>
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<tr>
<td>ELET - 1111</td>
<td>Digital Logic Laboratory</td>
<td>1.00</td>
<td></td>
<td>Lower</td>
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<td></td>
<td>This laboratory implements the theoretical principles of ELET 1133. Students learn to build working circuits based upon design goals. Applications include examples of combinational and sequential logic such as adders, multiplexers, counters and 7-segment displays. Logic solutions utilize programmable logic devices and external interfaces as well as transistor-transistor logic circuits, and simulation software. Written laboratory reports are required.</td>
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<tr>
<td>ELET - 1133</td>
<td>Digital Logic</td>
<td>3.00</td>
<td></td>
<td>Lower</td>
<td></td>
<td></td>
<td>Digital Logic introduces a student to two-state logic. Logic analysis will use the binary number system and Boolean algebra. Both combinational (AND-OR) logic and sequential (flip-flop) logic are studied. Typical logic designs include 7-segment displays, adders, multiplexers, and counters. Logic designs are implemented using simulation, programmable logic devices and transistor-transistor logic.</td>
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<tr>
<td>ELET - 1142</td>
<td>Electronic Fabrication</td>
<td>2.00</td>
<td></td>
<td>Lower</td>
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<td></td>
<td>This course covers the fundamentals of prototype design, fabrication, and documentation. Major topics include: safety, sheet metal fabrication, printed circuit board design &amp; fabrication, schematic &amp; wiring diagram drafting &amp; analysis, computer applications for schematic drawing &amp; printed circuit board layout, circuit construction, troubleshooting fundamentals, soldering techniques, project parts procurement &amp; cost analysis, and the ability to work in teams. Personal laptop computers are required.</td>
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<tr>
<td>ELET - 1151</td>
<td>Circuit Theory Laboratory</td>
<td>1.00</td>
<td>ELET 1104 or ELET 1103</td>
<td>Lower</td>
<td></td>
<td></td>
<td>Laboratory experiments parallel material presented in Circuit Theory. The theories and laws governing dc circuits are applied and verified. Hands-on building of electrical circuits reinforces the interpretation of schematic diagrams. Verification includes detailed analysis of the circuit under test by calculation, measurement, and simulation. Outside preparation and laboratory report writing are required.</td>
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</tbody>
</table>
ELET - 1202 Intro to Electrical Eng Tech, 2.00 Credits  
Level: Lower  
Applied Learning-Practicum  
This is an introductory course related to the field of electrical engineering technology. Laboratory topics introduce the students to the fundamental electrical principles and practices. The student will be introduced to various electrical components such as resistors, capacitors, inductors, diodes, transistors, and integrated circuits. Analog and digital meters will be used for measuring electrical quantities, such as resistance, voltage, and current, in electrical circuits. Circuit construction and operation, reading schematic diagrams, computer applications for schematic drawing and simulation, familiarization with electrical tools and fabrication, and soldering techniques will also be introduced.

ELET - 2103 Electronics Theory I, 3.00 Credits  
Prerequisite(s): ( ELET 2114 with D or better and ELET 1151 with D or better ) or ( ELET 1103 with D or better and ELET 1152 with D or better ) or ( ELET 1103 with D or better and ELET 1115 with D or better )  
Corequisite(s): ( ELET 2103 with D or better and ELET 1151 with D or better ) or ( ELET 1103 with D or better and ELET 1152 with D or better ) or ( ELET 1103 with D or better and ELET 1151 with D or better )  
Level: Lower  
This course demonstrates a mastery of subject in the area of solid state devices. These subjects on solid state devices include diodes, bipolar transistors, and field effect transistors. The theory of operation, biasing, stabilization, frequency response, and distortion, gain using mathematical analysis, equivalent circuits, and computer models will be discussed.

ELET - 2124 Electrical Power Circuits, 4.00 Credits  
Prerequisite(s): ELET 2104 with D or better and ( MATH 2043 with D or better or MATH 1054 with D or better or MATH 1063 with D or better or MATH 2074 with D or better )  
Level: Lower  
Applied Learning-Practicum  
Students will build upon dc circuit theory concepts as they apply to alternating current using phasor analysis in single and three-phase circuits. Complicated networks are analyzed using mesh and nodal matrix methods. MATLAB is introduced as a computational tool. The course emphasis is upon ac power applications including transformers and three-phase systems. Passive filters are investigated for signal conditioning using frequency domain analysis. Laboratory sessions will back up the analysis with hands on exercises using electronic instrumentation.

ELET - 2143 Embedded Controller Fundmts, 3.00 Credits  
Prerequisite(s): ELET 2111 with D or better and ELET 1153 with D or better and ( ELET 1142 with D or better or ELET 1143 with D or better )  
Level: Lower  
Applied Learning-Practicum  
Fundamentals of both the hardware and software aspects of the microcontroller. A RISC (reduced instruction set computer) microcontroller is used with an in-system programmer to create an engineering development system. Structured programming code is written in assembly language, assembled and downloaded to the controller. Switches, light emitting diodes, seven segment displays, pneumatic solenoids and motors are among the devices that will be connected to the controller.

ELET - 3103 Electronics Theory II, 3.00 Credits  
Prerequisite(s): ELET 2103 with D or better  
Corequisite(s): ELET 2103 with D or better  
Level: Lower  
This course involves the study and application of operational amplifiers. Inverting, non-inverting and follower amplifiers are presented in detail with consideration of gain, bandwidth, and impedance. Different feedback circuits are studied to realize basic mathematical operations. Op-amps topologies are then used to make filters, oscillators, and regulated power supplies.

ELET - 3151 Electronics Laboratory I, 1.00 Credit  
Prerequisite(s): ELET 2103 with D or better  
Corequisite(s): ELET 2103 with D or better  
Level: Lower  
Applied Learning-Other  
The material in this course parallels and supplements the subject matter in ELET 2103. The use of appropriate electronic test equipment is emphasized, along with computer simulation, and computer aided test equipment.

ELET - 3103 Electronics Theory III, 3.00 Credits  
Prerequisite(s): ELET 2103 with D or better  
Corequisite(s): ELET 2103 with D or better  
Level: Lower  
Applied Learning-Other  
The purpose of this course is to provide students with a realistic look at the potential and the limitations of electrical generation through energy conversion. The energy sources include solar, wind, and water. The course will include semiconductor properties of photovoltaic cells and the electronic circuits necessary for energy conversion. Using trigonometry, students will be able to calculate the position of the sun at any time or place and calculate the energy available at different panel orientations. Students will have the beginning tools to design off-grid and on-grid photovoltaic energy systems. MATLAB and LabVIEW software will be used to analyze and measure the solar resource.

ELET - 4154 Microelectronics, 4.00 Credits  
Prerequisite(s): ELET 1143 with D or better and ELET 1103 with D or better  
Level: Lower  
This course provides the student with a realistic experience in semiconductor manufacturing processes. Oxidation/diffusion, photolithography (spin/bake/expose/develop), etch, and vapor deposition equipment allow students the opportunity to design, build, and test simple solid-state devices.

ELET - 4224 Alternative Energy Generation, 4.00 Credits  
Level: Lower  
Applied Learning-Practicum  
The purpose of this course is to provide students with a realistic look at the potential and the limitations of electrical generation through energy conversion. The energy sources include solar, wind, and water. The course will include semiconductor properties of photovoltaic cells and the electronic circuits necessary for energy conversion. Using trigonometry, students will be able to calculate the position of the sun at any time or place and calculate the energy available at different panel orientations. Students will have the beginning tools to design off-grid and on-grid photovoltaic energy systems. MATLAB and LabVIEW software will be used to analyze and measure the solar resource.

ELET - 4800 Directed Study, 1.00 TO 6.00 Credits  
Level: Lower  
A student may contract for one to six credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the progress of the study.

ELET - 5113 Electronic Communications, 3.00 Credits  
Prerequisite(s): ELET 2103 with D or better  
Level: Upper  
Applied Learning-Other  
This course is the study of electrical power transmission and conversion. A project involves the design of a dc-dc converter from theory through a completed printed circuit board. Circuit topologies studied include linear, buck, boost and buck-boost converters. On the utility scale, ac circuit theory is applied to grid power flow and transmission line models. Synchronous generators and transmission lines are modeled in theory and examined in the laboratory. Power electronics are analyzed for their role in conversion and transmission.

ELET - 6004 Advanced Power Systems, 4.00 Credits  
Prerequisite(s): ( ELET 2124 with D or better or ELET 2123 with D or better ) and ELET 2103 with D or better  
Level: Upper  
Applied Learning-Practicum  
This course is the study of electrical power transmission and conversion. A project involves the design of a dc-dc converter from theory through a completed printed circuit board. Circuit topologies studied include linear, buck, boost and buck-boost converters. On the utility scale, ac circuit theory is applied to grid power flow and transmission line models. Synchronous generators and transmission lines are modeled in theory and examined in the laboratory. Power electronics are analyzed for their role in conversion and transmission.
ELTR - 3306 Alarms and Special Systems, 6.00 Credits
Prerequisite(s): ELET 1156 with D or better and ELET 1166 with D or better
Level: Upper
Applied Learning-Practicum
This course prepares the students for design and installation of alarm systems. The course will introduce the students to the principles of alarm systems, including the selection of components, design, and installation methods. Students will gain hands-on experience with various alarm systems and will learn how to troubleshoot and maintain these systems. Completion of the course project requires the design and installation of a complete alarm system.

ELTR - 7104 Integrated Circuit Technology, 4.00 Credits
Prerequisite(s): ELET 1156 with D or better and ELET 1166 with D or better
Level: Upper
Applied Learning-Practicum
This course provides a comprehensive introduction to the design and implementation of integrated circuits. Students will learn about the design process, including the selection of components, layout, and verification. The course will also cover the use of simulation software and the development of test plans.

ELET - 7404 Embedded & Real Time Systems, 4.00 Credits
Prerequisite(s): ELET 1156 with D or better and ELET 1166 with D or better
Level: Upper
Applied Learning-Practicum
This course introduces students to the concepts and principles of embedded systems and real-time computing. Students will learn about the design and implementation of real-time systems, including the selection of hardware and software components, and the development of test plans.

ELTR - 1166 Residential Wiring Lab IA, 6.00 Credits
Corequisite(s):
Level: Lower
Applied Learning-Practicum, Course Fee $26.00
This course provides hands-on training in the fundamentals of residential electrical wiring. Students will learn how to properly terminate and connect electrical components and circuits. The course will also cover the use of electrical schematics and wiring diagrams.

ELTR - 1176 Residential Wiring Lab IB, 6.00 Credits
Corequisite(s):
Level: Lower
Applied Learning-Practicum, Course Fee $26.00
This course continues the hands-on training in the fundamentals of residential electrical wiring. Students will learn how to properly terminate and connect electrical components and circuits. The course will also cover the use of electrical schematics and wiring diagrams.

ELTR - 2156 Residential Wiring II, 6.00 Credits
Prerequisite(s): ELTR 1156 with D or better and ELTR 1166 with D or better and ELTR 1176 with D or better
Corequisite(s): ELTR 1156 with D or better and ELTR 1166 with D or better and ELTR 1176 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $27.00
This course provides hands-on training in the fundamentals of residential electrical wiring. Students will learn how to properly terminate and connect electrical components and circuits. The course will also cover the use of electrical schematics and wiring diagrams.

ELTR - 2166 Residential Wiring Lab II, 6.00 Credits
Prerequisite(s): ELTR 1156 with D or better and ELTR 1166 with D or better and ELTR 1176 with D or better
Corequisite(s): ELTR 1156 with D or better and ELTR 1166 with D or better and ELTR 1176 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $27.00
This course provides hands-on training in the fundamentals of residential electrical wiring. Students will learn how to properly terminate and connect electrical components and circuits. The course will also cover the use of electrical schematics and wiring diagrams.

ELTR - 2176 Residential Wiring Lab II B, 6.00 Credits
Prerequisite(s): ELTR 1156 with D or better and ELTR 1166 with D or better and ELTR 1176 with D or better
Corequisite(s): ELTR 1156 with D or better and ELTR 1166 with D or better and ELTR 1176 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $27.00
This course provides hands-on training in the fundamentals of residential electrical wiring. Students will learn how to properly terminate and connect electrical components and circuits. The course will also cover the use of electrical schematics and wiring diagrams.

ELTR - 3156 Electrical Power Systems, 6.00 Credits
Prerequisite(s): ELET 1156 with D or better and ELTR 1166 with D or better and ELTR 1176 with D or better and ELTR 2156 with D or better and ELTR 2166 with D or better and ELTR 2176 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $17.00
This course will provide instruction in the electrical power systems, including the selection of components, design, installation, and troubleshooting. Students will learn about the principles of electrical power systems and how to design and implement these systems.

ELTR - 3306 Alarms and Special Systems, 6.00 Credits
Prerequisite(s): ELET 1156 with D or better and ELTR 1166 with D or better and ELTR 1176 with D or better and ELTR 2156 with D or better and ELTR 2166 with D or better and ELTR 2176 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $17.00
This course will provide instruction in the field of electrical power systems, including the selection of components, design, installation, and troubleshooting. Students will learn about the principles of electrical power systems and how to design and implement these systems.
ELTR - 3326 Magnetic Motor Controls, 6.00 Credits
Prerequisite(s): ELTR 1166 with D or better and ELTR 1176 with D or better and ELTR 2156 with D or better and ELTR 2166 with D or better and ELTR 2176 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $17.00
This course covers the design and operation of magnetic motor controls. Students will learn about the components used in their control and the types of systems they are used in. The course will cover the fundamentals of electromechanical devices and their components used in their control. Throughout all projects, the student will be taught troubleshooting techniques of industrial motor controls.

ELTR - 3336 Photovoltaic & Wind Tribum System In, 6.00 Credits
Prerequisite(s): ELTR 1166 with D or better and ELTR 1176 with D or better and ELTR 2156 with D or better and ELTR 2166 with D or better and ELTR 2176 with D or better and ELTR 2176 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $17.00
The course will cover the fundamentals of solar photovoltaic power and wind power generation, installation and maintenance practices. The course content will include the components used in stand-alone systems, grid interconnect systems, and grid connected systems with battery back-up. Areas of focus will be: safe work practices and PPE, site evaluation, system sizing, zoning restrictions, funding resources, and installation practices in accordance with National Electrical Code, Building Code and NABCEP training objectives and requirements.

EMET - 5004 Feedback Control Systems, 4.00 Credits
Prerequisite(s): MATH 6114 with D or better and PHYS 1064 with D or better
Level: Upper
Applied Learning-Practicum, Course Fee $17.00
This course presents the fundamentals of feedback control systems. The course will cover the philosophy and analysis of control systems in both time and frequency domains. Systems will be analyzed in the context of various applications of Programmable Logic Controllers (PLC's) used in modern industrial applications. Students will receive the necessary hands-on experience in lab to be able to design, construct, troubleshoot, and perform preventive maintenance of all components of a PLC-controlled process. Students will be evaluated on troubleshooting techniques, terminations of input and output devices, and the proper maintenance of at least two different types of PLC Manufactures.

ELTR - 3366 Ind Automtn & Process Controls, 6.00 Credits
Prerequisite(s): ELTR 1166 with D or better and ELTR 1176 with D or better and ELTR 2156 with D or better and ELTR 2166 with D or better and ELTR 2176 with D or better and ELTR 2176 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $17.00
This course involves the study of effective process control theory. A systems approach is used in an effort to understand each instrument's function within the system. The course will also examine the analysis of circuit operations as well as various applications of Programmable Logic Controllers (PLC's) used in modern industrial applications. Students will receive the necessary hands-on experience in lab to be able to design, construct, troubleshoot, and perform preventive maintenance of all components of a PLC-controlled process. Students will be evaluated on troubleshooting techniques, terminations of input and output devices, and the proper maintenance of at least two different types of PLC Manufactures.

EMET - ELECTROMECH ENG TECH

EMET - 5004 Instrumentation, 4.00 Credits
Prerequisite(s): MATH 2023 with D or better or PHYS 2044 with D or better
Level: Upper
Applied Learning-Practicum, Course Fee $17.00
This course introduces the student to general characteristics of electromechanical sensors and transducers, electrical measurement systems, electronic signal conditioning, data acquisition systems, and response characteristics of instruments. The lectures focus on the selection, calibration techniques and applications of electromechanical transducers. The laboratory has industrial equipment, such as a punch press, drill press, and metal lathe, which are equipped with sensors that are configured to measure physical quantities such as force, strain, displacement, velocity, and acceleration. Data acquisition and real-time software applications are applied in a laboratory environment.

EMET - 6004 Feedback Control Systems, 4.00 Credits
Prerequisite(s): MATH 6114 with D or better
Level: Upper
Applied Learning-Practicum, Course Fee $17.00
This course involves the study of effective process control theory. A systems approach is used in an effort to understand each instrument's function within the system. The course will also examine the analysis of circuit operations as well as various applications of Programmable Logic Controllers (PLC's) used in modern industrial applications. Students will receive the necessary hands-on experience in lab to be able to design, construct, troubleshoot, and perform preventive maintenance of all components of a PLC-controlled process. Students will be evaluated on troubleshooting techniques, terminations of input and output devices, and the proper maintenance of at least two different types of PLC Manufactures.

ENGR - ENGINEERING SCIENCE

ENGR - 1201 Engineering Sci Orientation, 1.00 Credit
Level: Lower
Applied Learning-Practicum, Course Fee $17.00
This course involves the study of effective process control theory. A systems approach is used in an effort to understand each instrument's function within the system. The course will also examine the analysis of circuit operations as well as various applications of Programmable Logic Controllers (PLC's) used in modern industrial applications. Students will receive the necessary hands-on experience in lab to be able to design, construct, troubleshoot, and perform preventive maintenance of all components of a PLC-controlled process. Students will be evaluated on troubleshooting techniques, terminations of input and output devices, and the proper maintenance of at least two different types of PLC Manufactures.

ENGR - 2001 Engineering Computing Applics, 1.00 Credit
Prerequisite(s): MATH 1084 with D or better
Level: Lower
This is an introductory, software-oriented, engineering computing course using an interactive, high-performance, scientific and engineering software package which integrates computation and visualization in a programming environment to solve engineering application problems. Topics include embedded mathematical functions, complex numbers, matrix manipulation, plotting, user defined script and function files, matrix algebra, numerical techniques and graphical user interfaces.

ENGR - 2201 Engineering Science Seminar, 1.00 Credit
Prerequisite(s): ENGR 1201 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $17.00
This course involves the study of effective process control theory. A systems approach is used in an effort to understand each instrument's function within the system. The course will also examine the analysis of circuit operations as well as various applications of Programmable Logic Controllers (PLC's) used in modern industrial applications. Students will receive the necessary hands-on experience in lab to be able to design, construct, troubleshoot, and perform preventive maintenance of all components of a PLC-controlled process. Students will be evaluated on troubleshooting techniques, terminations of input and output devices, and the proper maintenance of at least two different types of PLC Manufactures.

ENGR - 3004 Circuit Analysis I, 4.00 Credits
Prerequisite(s): MATH 2094 with D or better
Corequisite(s): ENGR 1201 with D or better
Level: Lower
This Calculus-based course covers dc circuit analysis including voltage, current, resistance, power and energy. Circuit analysis techniques and Kirchhoff's laws are applied to series and parallel circuits. Thevenin's, Norton's and Superposition theorems are applied to dc circuits. Operational amplifiers are introduced. Inductance and capacitance are introduced and the transient response of RL, RC and RLC circuits to step inputs is studied using differential equations. The laboratory incorporates use of manual and computer-controlled equipment and simulation software to reinforce lecture concepts. Computational software is required for circuit calculations.

ENGR - 3213 Analytical Mechanics I, 3.00 Credits
Prerequisite(s): MATH 2094 with D or better and PHYS 1064 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $17.00
This course covers statics at the intermediate level. Equilibrium of particles and rigid bodies in two and three dimensions, centroids, centers of gravity, analysis of structures, friction, area and mass moments of inertia. Calculus and vector mathematics are employed throughout.

ENGR - 3254 Systems Dynamics I, 4.00 Credits
Prerequisite(s): MATH 6114 with D or better and PHYS 1064 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $17.00
This course covers analysis, modeling and design of dynamic and feedback control systems using a common methodology regardless of physical discipline. Mathematical modeling, block diagrams, transfer functions, system excitation, response and stability of linear mechanical and electrical systems in both time and frequency domains will be studied using classical techniques, state space representation, matrix notation and Laplace transforms. The laboratory will include programming and simulation of independent and coupled, first and second order electrical and mechanical systems using appropriate software such as MATLAB and SIMULINK. An experiential project or simulation will be required.
ENGR - 4004 Circuit Analysis II, 4.00 Credits
Prerequisite(s): ENGR 3004 with D or better and MATH 6114 with D or better
Level: Lower
This course covers AC circuit analysis beginning with the study of sinusoidal steady-state solutions for circuits in the time domain. Nodal, loop and mesh methods of AC circuit analyses and the Thevenin/Norton formulations and Superposition theorems are applied to the complex plane. AC power, transformers, mutual induction, three-phase circuits and two-port networks are introduced and used for analysis. Laplace and Fourier Transforms and the Fourier Series are applied to circuit analyses. Complex frequency analysis is introduced to enable discussion of transfer functions, frequency dependent behavior, resonance phenomenon and simple filter circuits. The laboratory incorporates use of manual and computer-controlled equipment and simulation software to reinforce lecture concepts. Computational software use is required for circuit calculations.

ENGR - 4213 Analytical Mechanics II, 3.00 Credits
Prerequisite(s): ENGR 3213 with D or better
Level: Lower
This course covers dynamics at the intermediate level. Topics in kinematics and kinetics include particles, systems of particles and rigid bodies, mechanical vibrations, force, mass, acceleration, work and energy, impulse and momentum. Calculus and vector mathematics are employed throughout.

ENGR - 4264 Engr Mechanics of Materials, 4.00 Credits
Prerequisite(s): ENGR 3213 with D or better and ( MATH 2074 with D or better or MATH 2094 with D or better )
Level: Lower
Course Fee $46.00
This course is a calculus-based study of advanced concepts in Mechanics of Materials. It addresses the behavior of deformable mechanical components when subjected to tension, compression, torsion, flexure/bending or a combination of these loads. Extensive use is made of free body diagrams as well as Mohr’s Circle for stress and strain. Experience is gained in the analysis of beam deflection, shafts in torsion, power, column buckling and thin walled pressure vessels. Analysis includes examination of stress concentrations, elastic and inelastic response, residual stresses, indeterminate structures and thermal effects. Superposition, singularity functions and theories of failure are studied. Laboratory experiences include traditional mechanical material testing and computer software applications.

ENGR - 4900 Directed Study, 1.00 TO 6.00 Credits
Level: Lower
A student may contract for one to six credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.

ENV R - ENVIRONMENTAL TECHNOLOGY

ENV R - 4411 Environmental Capstone Seminar, 1.00 Credit
Prerequisite(s): ENVR 4424 with D or better *
Level: Lower
This course is intended for students in the last semester of the Environmental Technology program. Current environmental issues are considered by utilizing guest speakers, an alumni panel, and audiovisual resources. Field trips are made to regional sites of environmental interest. A job search is organized and resumes are prepared with cover letters.

ENV R - 4413 Environmental Law, 3.00 Credits
Prerequisite(s): BIOL 2801 with D or better and BIOL 2803 with D or better
Level: Lower
This course is a non-technical overview of environmental law and public policy. Included in the course are laws, regulations and policies governing water pollution, air pollution, solid waste, hazardous waste, global commons, land use, pesticides, energy, and public lands. The social concerns of environmental regulation such as environmental economics, risk assessment and environmental impact statements are also explored. The conflict/perceived conflict of economic development with environmental protection is particularly stressed. In addition, environmental problems, public policy, administration, politics and philosophy are studied.

ENV R - 4424 Env Envviromanimental Ennvironmentntl Chem & Microbiology, 4.00 Credits
Prerequisite(s): BIOL 2801 with D or better and BIOL 2803 with D or better and ( CHEM 2964 with D or better or CHEM 2124 with D or better )
Level: Lower
Applied Learning-Field Study, Course Fee $118.00
This is the "capstone" course for students in the Environmental Technology curriculum. The course includes a survey of the techniques used for sampling and laboratory analysis of soil, water, and microbiological samples. Chemistry topics include a review of inorganic and organic chemicals of environmental concern. Microbiology topics include the biology of microorganisms in soil, water, and waste treatment.

ENV R - 4900 Directed Study, 1.00 TO 4.00 Credits
Level: Lower
A student may contract for an independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.

ENV R - 6102 Community-Economic Redevelopment, 2.00 Credits
Level: Upper
Liberal Arts and Science
This course is a multidisciplinary overview of redevelopment process. This course will be run as a seminar that will meet in a seminar and discussion format. Understanding of the course topics will equip students with the knowledge of community economic development and regeneration project development. It will impart valuable skills for staff and leadership in consulting firms, municipalities, agencies and non-profits that do community development and community regeneration.

EPLP - EMERGING PIONEERSH PGM

EPLP - 1031 Social Change & Leadership, 1.00 Credit
Level: Lower
This first leadership development class and mentor-guided experience is designed to assist the student in learning about social change theory and their role in leading productive change. This initial stage of leadership development focuses on the development of leadership skills and the ability to lead oneself and others. The mentoring relationship will provide the resources necessary to aid students in their individual, group, and community development.

EPLP - 2032 Servant Leadership, 2.00 Credits
Prerequisite(s): EPLP 1031 with D or better
Level: Lower
This second of three Emerging Pioneers Leadership Program development classes is designed to expose students to the next three C’s of the Social Change Model of Leadership Development: Consciousness of Self, Congruence, and Commitment. Students will explore consciousness of self, congruence in how to become an ethical leader, and commitment to their passions as a leader.

EPLP - 5033 Personal Leadership & Citizens, 3.00 Credits
Prerequisite(s): EPLP 1031 with D or better and EPLP 2032 with D or better
Level: Upper
Applied Learning-Creative Work
The third of three Emerging Pioneers Leadership development classes seeks to address the last C of the Social Change Theory - Citizen and Personal Leadership within the Society/Community. This capstone level experience creates the opportunity for students to engage in the concepts of active citizenship and leading positive change within their own community. Students learn about and apply these concepts by experiencing local government in action and by engaging in a local community challenge within the context of a small group.

FDSR - FOOD SERVICE

FDSR - 1143 Menu Planning, 3.00 Credits
Level: Lower
This is an introductory course that will teach proper service protocol, dining room etiquette, ordering and use of point of sales systems. As the semester progresses, other topics will include: basic principles of menu planning with emphasis on classical menu patterns; menu formats and relationship of the menu to the complete operation of a food service establishment, and pricing of basic menu items.
COURSE DESCRIPTIONS

FNAT - 2900 Directed Study, 3.00 TO 9.00 Credits
Level: Lower
A student who has successfully completed three semesters of Food Service courses may arrange for three, five, or nine credit hours of directed study to provide an opportunity to continue study in a subject area of special interest. Directed study may be conducted by a student only through an arrangement with the Food Service Instructional Staff who are to direct such a study. The student will submit a plan acceptable to the instructional staff and will confer regularly regarding his or her progress.

FILM - FILM STUDIES

FILM - 3113 History of Italian Cinema, 3.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Lower
Gen Ed - The Arts, Liberal Arts and Science
This course provides an in-depth study of the history of Italian Cinema from its beginnings in the first decade of the 20th Century until the present. Students will study the various social, political, technological, and artistic influences on Italian Cinema throughout its history.

FNAT - FINE ARTS

FNAT - 1013 Art Appreciation, 3.00 Credits
Level: Lower
Gen Ed - The Arts, Liberal Arts and Science
Art Appreciation will introduce the student to the meaning of what Art is and is about. Special emphasis is placed on open discussion to create an awareness of why men and women have valued the arts which have become a driving force as they developed and became civilized. Students will see how the arts are really part of their daily lives by reading, viewing slides and works of art, and by creating. Writing is continued in assignments related to readings, class discussions, and lectures.

FNAT - 1023 Introduction to Theatre, 3.00 Credits
Level: Lower
Gen Ed - The Arts, Liberal Arts and Science
The primary objective of this course is to develop knowledge and appreciation of theatre arts. This will be done through a study of theatrical traditions and dramatic literature from classical theatre to the contemporary. Writing is continued in assignments related to readings, class discussions, and lectures.

FNAT - 1133 Surv of Art Hist:Antc Grk Art, 3.00 Credits
Level: Lower
Gen Ed - The Arts, Liberal Arts and Science
Art is the highest expression of a culture. Political, historical and social changes are the "heart of art". Works of art are a reflection of the ages in which they are produced and are often used as a "tool" to carry messages. This course will consider the development of art through the centuries and how it affected today's arts, with a focus on the main artistic movements starting with Ancient Greece through the Baroque period in Italy. Guided tours will help students to experience first-hand the main artistic expressions in Campania and Rome.

FNAT - 1303 Architectural History I, 3.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Lower
Gen Ed - The Arts, Liberal Arts and Science
This is a survey course of the origin and development of historically notable architecture throughout the world from the 10th century BCE to 1900. From the settlement of Catal Huyuk in ancient Anatolia (now Turkey) in the Neolithic Era through Eclecticism, the era of stylistic revivals in the late 19th century, the students will be exposed to a wide variety of buildings, as well as introduced to the corresponding cultures and religions.

FNAT - 1313 Art History, 3.00 Credits
Level: Lower
Gen Ed - The Arts, Liberal Arts and Science
Art History is a comprehensive survey course which views the visual arts as a humanistic discipline. Students will see the condition of our western tradition as encountered from the magic of caveman to the complexities of the twentieth century. Emphasis will be placed on the variety of purposes for which art has been produced. Writing is continued in assignments related to readings, class discussions, and lectures.

FNAT - 2333 Survey of Design, 3.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Lower
Gen Ed - The Arts, Liberal Arts and Science
Students will be introduced to basic design principles, theories, historical periods, disciplines, practices, and technologies. The areas of conceptual development, styles, materials, patterns, structures, and relationships in design will be examined. Major disciplines and fields in design will be considered, compared, and evaluated. The course will focus on how design influences architecture, industry, graphic and visual communication, digital media, print media, and culture. Students will evaluate design by reading, writing, researching, speaking about, and analyzing concepts related to the discipline.

FNAT - 2423 3D Design/Color, 3.00 Credits
Level: Lower
Gen Ed - The Arts, Liberal Arts and Science
In this course, the student examines relationships between form, structure (response to gravity), process, skill, and intention in regard to three-dimensional visual art making. This inter-relationship dictates that every project incorporate some element of each of these concerns. Emphasis is placed on providing a wide range of experiences through projects which gradually increase in complexity as the student gains skills and awareness.

FNAT - 2423 Figure and Motion, 3.00 Credits
Level: Lower
Gen Ed - The Arts, Liberal Arts and Science
This course builds upon the fundamental skills learned in the Foundations: Form/Space Relationship (DGMA 1413) course through the use of the human model. Proportion, perspectives, plus structural and locomotion dynamics will be studied. Students will focus on the mechanics of motion.

FNAT - 2443 Intro to Digital Photography, 3.00 Credits
Level: Lower
Gen Ed - The Arts, Liberal Arts and Science
Introduction to Digital Photography gives students fundamental skills for effectively recording travel, home, and work experiences. Using digital photography as a tool, students are encouraged to become more careful observers of the people, the landscape, the art, the architecture, and the culture that they encounter in their daily lives. The course concentrates on technical lectures and lab/studio time regarding the basic operation of a digital camera and the processing of images. Students develop an understanding of the elements that combine to create powerful visual images: subject matter, composition, color, and light. Through selected readings, assignments, lab/studio time, and critiques, students produce a written and visual final project for the course. Students are responsible for providing their own cameras, supplies, and image editing software.

FNAT - 2453 Drawing on Location: Art of Tr, 3.00 Credits
Level: Lower
Applied Learning Int/Dom Trvl, Liberal Arts and Science
This course is offered to students enrolled at Sant' Anna Institute as part of the study abroad program in Sorrento, Italy. Lectures and field sketching sessions are centered on drawing on location as the best way that a student can have to increase his or her capacity to observe and record reality. Whether it is an object, a tree, a person, or cities and landscapes, sketching from real life is a profound and lasting experience. This form of artistic expression can happen during everyday life while traveling or writing in journals. While drawing, students will learn to select information and highlight details better than they could with a camera. Students will discover Sorrento, Italy, and its region of Campania, visit Naples and surrounding archaeological sites, and record their observations through images and words in a travel sketchbook. Freehand drawing and location drawing as basic and complementary skills are recommended not only among architects, visual artists, animators, and graphic designers, but they are also recommended for disciplines such as architecture, history, zoology, botany, and geology. Classic drawing exercises, as suggested by authors such as Kimon Nicolaides or Betty Edwards, will help beginners to break the ice with drawing from real life and on location.

FNAT - 2900 Directed Study, 1.00 TO 4.00 Credits
Level: Lower
Gen Ed - The Arts, Liberal Arts and Science
The student may contract for one to four hours of independent study through an arrangement with the instructor. The student must submit a plan acceptable to the instructor, and the department chairperson. To be substituted for the listed humanities requirements, a directed study course must be so designated by the department chair. Writing is continued in assignments related to readings, class discussions, and lectures.
COURSE DESCRIPTIONS

FNAT - 3413 Music of Western Cultures I, 3.00 Credits
Level: Lower
Gen Ed - The Arts, Liberal Arts and Science
This course is designed to introduce and familiarize the student with the ethnic musical traditions and diversity in western cultures. The course will emphasize the Latin American, Caribbean, and Polynesian styles of root (hybrid), folk, and traditional forms and will include fundamental concepts of musical theory and form.

FNAT - 3513 Art History II, 3.00 Credits
Level: Lower
Gen Ed - The Arts, Liberal Arts and Science
This course is an introduction to understanding art. You will become aware of the relationship of media, artistic expression and the context of the cultural period which formed the art object. For most students the art of our own times is difficult to understand; for this reason, the main emphasis of the course will be contemporary culture and its interpretation of traditional imagery. Through written critical analysis of visual art issues students will gain experience discussing how art is created and what it means.

FNAT - 4413 Music of Western Cultures II NA, 3.00 Credits
Level: Lower
Gen Ed - The Arts, Liberal Arts and Science
This course is designed to introduce and familiarize the student with the ethnic diversity within North American music. The course will explore the folk, traditional, jazz, and popular idioms that are found in the United States and Canada. Students will become aware of the intercultural effects within North American music and the influence of music from other global cultures. Students will also be introduced to the modern twentieth century forms, new age (alternative), and global fusion.

FNAT - 5303 Architectural History II, 3.00 Credits
Prerequisite(s): FNAT 1303 with D or better
Level: Upper
Liberal Arts and Science
This course addresses the study of the origin and development of modern architecture from the mid-nineteenth century to the present. Lecture topics will proceed chronologically from the early roots of Modernism to the Global Dissemination of Styles in recent times, ending with an examination of current trends in urbanism and sustainable design.

FRSC - FORENSIC SCIENCE

FRSC - 1001 Intro to Forensic Science Tech I, 1.00 Credit
Level: Lower
Forensic Science 1001 is an introductory expository course designed for forensic science technology majors to complete during their first semester of enrollment in the program. It is the first in a two-semester required sequence (along with FRSC 2001) for forensic science technology majors. Students are introduced to technical disciplines and skills commonly brought to bear during a criminal investigation. Students are required to demonstrate written and oral communication skills by completing a project in a topic relevant to the class material.

FRSC - 1103 Forensic Science Concepts, 3.00 Credits
Level: Lower
This course provides an overview of forensic science concepts and techniques as they relate to a criminal investigation. Topics covered range from a historical perspective of forensic science within the criminal justice system to specific methodologies often performed by a first responder or crime scene investigator. The proper identification, collection, and preservation of various types of physical evidence is presented. In addition, an introduction to the field and laboratory tests that may be performed on physical evidence is discussed. This course is intended for non-forensic science technology majors. Students cannot receive credit for FRSC 1103 if they are in the Forensic Science or Biological Sciences curricula.

FRSC - 2001 Intro to Frnsc Science Tech II, 1.00 Credit
Prerequisite(s): FRSC 1001 with C or better
Level: Lower
Forensic Science 2001 is the continuation of a required two-semester sequence for forensic science technology majors to complete during their second semester of enrollment in the program. Students are introduced to further technical disciplines and skills commonly brought to bear during a criminal investigation as well as current topics relevant to the field of forensic science. Students are required to demonstrate written and oral communication skills by completing a project in a topic relevant to the class material.

FRSC - 3001 Topics in Forensic Science I, 1.00 Credit
Prerequisite(s): FRSC 2001 with C or better
Level: Lower
The focus of this course is to explore various topics of concern in the field of forensic science and hold in-class debate style presentations to discuss these topics. Each student participates in one debate style presentation during the semester. Each student is responsible for the introduction of the topic, selecting a point of view to debate regarding the topic, and encouraging the class to offer comments and ask questions. Topics for discussion may be directly related to material discussed during other curriculum coursework or may originate from current media sources, as long as the students have established familiarity with the topics.

FRSC - 3113 Forensic Pathology, 3.00 Credits
Prerequisite(s): BIOL 1104 with C or better or BIOL 2303 with C or better or BIOL 1404 with C or better
Level: Lower
This course provides an overview of forensic pathology and the medicolegal death investigation system in the United States. Students will be introduced to the role and jurisdiction of the Medical Examiner as they relate to the determinations of cause, manner, and mechanism of death. Specific patterns of injury, types of deaths referred to the Medical Examiner, postmortem decompositional changes, and special topics of interest in death investigation are discussed.

FRSC - 4001 Topics in Forensic Science II, 1.00 Credit
Prerequisite(s): FRSC 3001 with C or better
Level: Lower
The focus of this course is to expose students to peer-reviewed reference journal articles relevant to the field of forensic science and to expand on topics discussed during other curriculum coursework. The format of the course is reading and discussion, with each student accepting responsibility for serving as a discussion leader on a chosen journal article once during the semester. The discussion leaders’ roles are to introduce the article topic, provide background information about the topic, and to encourage the class to offer comments and ask questions.

FRSC - 6214 Microscopy and Criminalistics, 4.00 Credits
Prerequisite(s): CHEM 4524 with C or better
Level: Upper
Applied Learning-Practicum, Course Fee $53.00
This course is an exploration of the basic theory and practice of traditional criminalistics and microscopic techniques commonly performed in forensic science. Topics covered include: crime scene investigation; evidence collection and handling; microscopic theory and techniques; analysis of trace evidence to include hair, fiber, paint, soil, and glass evidence; analysis of fingerprint evidence; analysis of firearms and ammunition; analysis of gunshot residue evidence; and analysis of impression and toolmark evidence.

FRSC - 7214 Forensic Chemistry, 4.00 Credits
Prerequisite(s): FRSC 6214 with C or better and CHEM 6614 with C or better
Level: Upper
Applied Learning-Practicum, Course Fee $100.00
This course is an exploration of the basic theory and practice of commonly performed examinations on chemical evidence in forensic science. Topics covered include: principles of various chemical and instrumental separation techniques; sampling plans and uncertainty in measurements; an introduction to quality control and quality assurance concepts; principles and techniques of controlled substance examinations; principles and techniques of forensic toxicology; principles and techniques of fire debris and explosive evidence examinations; and principles and techniques of material analysis; methods include inks, dyes, colors, solvents, and polymers.

FRSC - 8113 Forensic Science Tech Capstone, 1.00 Credit
Prerequisite(s): FRSC 7214 with C or better
Corequisite(s): FRSC 7214 with C or better
Level: Upper
Applied Learning-Creative Work
This course is intended for students to complete during the eighth and final semester of their enrollment in the forensic science technology program. It is to be taken concurrently with FRSC 8113. The course is designed to prepare the student to enter the workforce and/or continue their education at the graduate level. Students complete a capstone project requiring the analysis of physical evidence in a simulated casework setting. Students also apply the fundamentals of proper forensic laboratory report writing by producing a professional quality laboratory report suitable for admission into a court of law that communicates their findings. In addition, students are required to prepare and deliver expert witness testimony in a simulated mock courtroom setting.
FRSC - 8111 Forensic Sci Tech Prof Prep, 3.00 Credits  
Prerequisite(s): FRSC 7214 with C or better  
Level: Upper  
This course is intended for students to complete during the eighth and final semester of their enrollment in the forensic science technology program. It is to be taken concurrently with FRSC 8111. The course is designed to prepare the student to enter the workforce and/or continue their education at the graduate level. Students learn the details of topics such as resume and cover letter preparation as well as job interview success. The importance of ethical behavior in the field of forensic science is discussed through both theoretical and applicative presentations. Quality control, quality assurance, and standard operating procedures are presented as well as a debate on current issues and legal decisions challenging the validity of scientific testing procedures commonly performed in forensic laboratories. The course culminates with a curriculum cumulative final examination.

FRSC - 8213 Forensic Biology, 3.00 Credits  
Prerequisite(s): FRSC 7214 with C or better  
Level: Upper  
Applied Learning-Internship  
This course is an exploration of the basic theory and practice of commonly performed examinations on biological evidence in forensic science. Topics covered include: principles and techniques of serological examinations to include identification of blood and other body fluids, species determinations, and enzymatic analysis; blood spatter evidence interpretation and crime scene reconstruction; principles and techniques of forensic DNA examinations to include polymerase chain reaction; short tandem repeat profiling, and an introduction to Y-STR and mitochondrial DNA; and introductory principles and techniques of forensic pathology, anthropology, and entomology.

FRSC - 8803 Forensic Sci Tech Sr Resch Pjt, 3.00 Credits  
Prerequisite(s): BIOL 8823 with C or better  
Level: Upper  
Applied Learning-Creative Work, Course Fee $47.00  
This course is intended for students to complete during the eighth and final semester of their enrollment in the forensic science technology program. Students are required to complete an approved laboratory-based research project in an area of special interest in forensic science technology or a related physical science. The student will submit a plan for research acceptable to the course instructor and the director of the forensic science technology program. The student and course instructor will confer on a regular basis regarding the progress of study and research. The student is required to prepare a final research manuscript and present a formal oral presentation in an appropriate setting upon completion of the research project.

FSMA - 8112 Financial Planning Internship, 12.00 Credits  
Prerequisite(s): FRSC 7214 with C or better  
Level: Upper  
This course is intended for students to complete during the eighth and final semester of their enrollment in the forensic science technology program. It is to be taken concurrently with FSMA 8111. The course is designed to prepare the student to enter the workforce and/or continue their education at the graduate level. Students learn the details of topics such as resume and cover letter preparation as well as job interview success. The importance of ethical behavior in the field of forensic science is discussed through both theoretical and applicative presentations. Quality control, quality assurance, and standard operating procedures are presented as well as a debate on current issues and legal decisions challenging the validity of scientific testing procedures commonly performed in forensic laboratories. The course culminates with a curriculum cumulative final examination.

FRSC - 8803 Forensic Sci Tech Internship, 3.00 Credits  
Prerequisite(s): FSMA 6614 with C or better and FRSC 6214 with C or better  
Level: Upper  
Applied Learning-Internship  
This course is intended for students in their final year of the four-year Forensic Science Technology curriculum. Students are required to complete a supervised internship at an approved off-campus site. Students will work under the supervision of a qualified Forensic Science Administrator, Forensic Scientist, or other qualified personnel to whom they are assigned. Students will also receive college faculty consultation. The internship is designed to enable students to obtain actual work experience in theoretical and application-based procedures previously studied. This internship consists of 120 hours, which can be completed on a full-time basis (40 hours/week for three weeks) or on a part-time basis over an extended period of time (e.g. 8 hours/week for 15 weeks). All students will be required to give a formal presentation to the campus community following completion of the internship.

FRSC - 8900 Directed Study, 1.00 TO 6.00 Credits  
Prerequisite(s): CHEM 6614 with C or better  
Level: Upper  
This course is designed to allow students to pursue advanced work in an area of special interest or obtain extended internship opportunities in Forensic Science Technology. A student may contract for one to six credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor, to the Forensic Science Technology Program director, and to the department chair. The instructor and student will confer regularly regarding the progress of the study.

FSMA - FINANCIAL SERVICES MANAG  

FSMA - 5003 Investment Planning, 3.00 Credits  
Prerequisite(s): BUAD 4133 with D or better and BUAD 4003 with D or better  
Level: Upper  
This course teaches the student how to prudently plan investments to take maximum advantage of opportunities as they arise. Prudent planning includes the ability to relate the present changing economic environment to investment prices and determining if those prices are related to traditional fundamentals of value. The student will also be able to construct portfolios and analyze the social impact of investment choices. Tax implications of various choices will also be discussed.

FSMA - 5103 Tax Planning, 3.00 Credits  
Prerequisite(s): ACCT 3453 with D or better  
Level: Upper  
This course covers tax-planning considerations for both individuals and businesses. The students will analyze current tax laws and the steps involved in managing one's tax liability by using IRS regulations as part of an overall investment strategy. A final project will be required. The students will be given a set of facts and an overall objective. They must then research the applicable tax laws, recommend a course of action, and defend that course of action with the supporting IRS regulations. An oral and written presentation of the student's project will be required.

FSMA - 6003 Employee Benefit Planning, 3.00 Credits  
Prerequisite(s): BUAD 4003 with D or better  
Level: Upper  
This course will enable the student to evaluate employee benefits from the employer's and employee's perspective and articulate the regulations and compliance necessary to maintain employee benefit plans. The course will focus on group benefits, fringe benefits and retirement plans and will require case studies and team projects to synthesize the knowledge acquired in the course.

FSMA - 7023 Estate Planning, 3.00 Credits  
Prerequisite(s): BUAD 3043 with D or better or BUAD 7023 with D or better  
Level: Upper  
This course is designed to expose students to the estate planning process. It explores the many issues to consider when assisting people to enhance and maintain their financial welfare. Emphasis is not only on the arrangements for the disposition of property at death, but also on steps that can be taken to increase overall family wealth and security while still alive. Topics include, but are not limited to wills, trusts, property ownership, future interests, long term care planning, fraudulent conveyances, as well as gift and estate taxation.

FSMA - 7103 Money & Banking, 3.00 Credits  
Prerequisite(s): ECON 1013 with D or better and ECON 2023 with D or better  
Level: Upper  
This course is an exploration of the role and importance of money in effective monetary policy as a solution for inflation and unemployment. The operation, function, and structure of the banking system and the functions of the central banking system will be the focus. The role of monetary theories, money management, and monetary policy will also be studied. The theoretical foundations of commercial and central banking will be discussed within the context of general economic activity.

FSMA - 7213 Persnl Finan Planning Capstone, 3.00 Credits  
Prerequisite(s): BUAD 4003 with D or better and BUAD 4193 with D or better and BUAD 5033 with D or better * and FSMA 7023 with D or better * and FSMA 5003 with D or better and FSMA 5103 with D or better *  
Level: Upper  
Applied Learning-Other  
This course focuses on the application of the knowledge base acquired in the prerequisite courses as part of the financial planning process. Emphasis will be on the analysis of data, critical thinking with regard to the client's circumstances, the presentation of information and the subsequent recommendations to a client. The interrelationship of all planning areas in the construction of a comprehensive plan will be highlighted. Assignments, presentations, quizzes, and other evaluations will be used to hone the student's analytical, presentation, and financial planning skills.

FSMA - 8112 Financial Planning Internship, 12.00 Credits  
Level: Upper  
Applied Learning-Internship, Pass/Fail  
Students complete 15 weeks of supervised field work in a selected financial service provider setting. The student must be engaged in bona fide financial planning work in at least one of the six core areas of investment planning, tax planning, estate planning, retirement planning, employee benefit planning, or insurance/risk management. Students carry out a planned program of educational experiences under direct supervision of an owner, manager or supervisor of financial services and/or financial planning in an organization.
COURSE DESCRIPTIONS

GEOL - GEOLOGY

GEOL - 1133 Introduction to Geology, 3.00 Credits
Level: Lower
Applied Learning/Int'l Dom Trvl, Liberal Arts and Science
The course is an introduction to the science of geology. In particular, the main types of rocks are analyzed with an emphasis on genetic processes and in relationship to plate tectonics theory. This basic knowledge will provide a background to understand and study the main geological risks, such as volcanoes, earthquakes, floods and landslides. Specific examples from the Apennines mountain chain and Campanian plan will be examined to contextualize these topics in the Italian environment. In addition, a significant aim of this course is for students to gain a conscious relationship with the environment. The Campania region is an ideal place for experiential learning via site visits, with the opportunity for students to witness a wide range of geological features. The evaluation for the course will include midterm and final written exams, a presentation and graphical exercises.

GEOL - 1233 Volcanology, 3.00 Credits
Level: Lower
Applied Learning/Int'l Dom Trvl, Liberal Arts and Science
The course is an introduction to the main elements of geological sciences including stratigraphy laws, the main types of rocks, and an understanding of faults and folds. These elements will be used to understand Plate Tectonics theory. Using this theory, different kinds of volcanoes will be analyzed, examining different magmatic compositions, igneous and pyroclastic rocks and their geodynamic environment. The role of geologic and geomorphologic processes will be analyzed in reference to volcanic risk. This course will also study landslides in volcanic soils (the case of Sarno mountains) and groundwater flow in volcanic aquifers and exploitation of thermal waters (the case of Ischia).

GLST - GLOBAL STUDIES

GLST - 2113 Global Perspectives/Spl Topic, 3.00 Credits
Level: Lower
This course will introduce the students to the important role of general education and the intersection with their lives. Students will investigate their own values and ethical decision making. Students will consider the extent to which values shape behavior and ethical decisions. The student will recognize potentially different perspectives on a variety of topics as they evaluate other non-Western cultures. Through the exploration of various non-Western cultures, the course will assist students in developing a greater awareness of, and sensitivity about, social and cultural issues on both a local and global level. Through a collection of readings, discussion, personal reflection, writing, and research, students will learn skills to think critically about their social world and broaden their awareness and understanding of cultural and social diversity.

HIST - HISTORY

HIST - 1113 Hist of West Civil Since 1648, 3.00 Credits
Level: Lower
Gen Ed - Western Civilization, Liberal Arts and Science
This course provides an introduction to the political, military, intellectual, cultural, technological, religious, and economic features of Western Civilization from the early modern period to the twenty-first century. It also considers the relationship between Europe and the United States, and between Europe and the wider world. Finally, the course discusses contemporary Europe.

HIST - 1123 History of the Mafia, 3.00 Credits
Level: Lower
Liberal Arts and Science
The course examines the history of the Mafia from its origins to the present day. How the Mafia works and has succeeded as well as approaches, including those by civil society organizations, to combat the Mafia. Attention is paid to examples of Mafia enterprises, its past and present role in politics, and its evolution from a regional organization to one with an international reach. A research project, with both a paper and an oral presentation, is required.

HIST - 1143 Surv of American History I, 3.00 Credits
Level: Lower
Gen Ed - American History, Liberal Arts and Science
This course is designed to give the student a broad outline of world history. The students will study civilizations from the earliest humans through the classical world and beyond to the age of cross-cultural interaction and trade in the early 1500 CE. The student will be exposed to the traditions and cultures of the world to aid in weaving the story of human civilization. Early civilizations covered in the course include Mesopotamia, Indus, Chinese, Persian, Greek, Roman, Mesoamerican, European, as well as Islamic. Artistic and intellectual achievements and technological breakthroughs will be discussed throughout the course.

HIST - 1153 Africa and the West, 3.00 Credits
Prerequisite(s): HIST 1113 with D or better
Level: Upper
Gen Ed - Other World Civ, Liberal Arts and Science
This course is designed to give the student a broad outline of world history. The students will study civilizations from the earliest humans through the classical world and beyond to the age of cross-cultural interaction and trade in the early 1500 CE. The student will be exposed to the traditions and cultures of the world to aid in weaving the story of human civilization. Early civilizations covered in the course include Mesopotamia, Indus, Chinese, Persian, Greek, Roman, Mesoamerican, European, as well as Islamic. Artistic and intellectual achievements and technological breakthroughs will be discussed throughout the course.

HIST - 2003 World History I, 3.00 Credits
Level: Lower
Gen Ed - Other World Civ, Liberal Arts and Science
This course is designed to give the student a broad outline of world history. The students will study civilizations from the earliest humans through the classical world and beyond to the age of cross-cultural interaction and trade in the early 1500 CE. The student will be exposed to the traditions and cultures of the world to aid in weaving the story of human civilization. Early civilizations covered in the course include Mesopotamia, Indus, Chinese, Persian, Greek, Roman, Mesoamerican, European, as well as Islamic. Artistic and intellectual achievements and technological breakthroughs will be discussed throughout the course.

HISLTH - HEALTH TECHNOLOGY

HLTH - 1013 Essentials of Exercise Physiol, 3.00 Credits
Level: Lower
Gen Ed - Natural Sciences, Liberal Arts and Science
This is an internet-based course intended for both science and non-science majors covering the basic study of exercise physiology. Topics include the role of nutrition in energy-producing pathways and human growth and development; nutritional and common pharmacological aids used to support and enhance exercise and athletic performance; study of metabolic production of energy and its application in the human capacity for work; and study of select body systems and the principles of exercise training with resultant physiological adaptations that could be expected from such training. The course concludes with a study of the role of exercise in the maintenance of health and the prevention of disease.

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 COURSE DESCRIPTIONS

HLTH - 1101 Intro to Health Sciences, 1.00 Credit
Level: Lower
This course introduces the student to a broad array of health professions and allied health careers related to the field of study of health sciences. In addition to creating awareness of the career possibilities for the health science major, the course will focus on the typical education requirements, career paths and credentialing requirements of various health professionals. Licensure and scope-of-practice laws will be considered for select professions, along with the regulatory bodies and health service agencies that govern them and establish standards of practice. Contemporary topics in health science will be explored including healthcare systems, economics, insurance, research, ethical considerations and other current issues in healthcare. The course will conclude with the student conducting personal career exploration and related educational planning.

HLTH - 1113 Nutrition, 3.00 Credits
Level: Lower
Gen Ed - Natural Sciences, Liberal Arts and Science
This course studies human sexuality as the subject from the perspective of health and the discipline of biology, with attention given to the historical and contemporary perspectives concerning the topic. Reproductive anatomy is examined, along with the physiological response of sexual arousal. The events of fertilization, pregnancy and childbirth are studied along with examples of the contraceptives used to prevent it. Puberty and sexual development is considered and the role of biology is examined in the areas of gender, sexuality, attraction and love. The course concludes with an overview of common sexual difficulties, a study of sexually transmitted diseases and defines the act of rape and sexual assault.

HLTH - 1113 Complementary & Altv Medicine, 3.00 Credits
Prerequisite(s): BIOL 2504 with D or better or BIOL 2214 with D or better
Level: Upper
Liberal Arts and Science
This internet based course involves the study of complementary and alternative medicine most frequently encountered in contemporary western healthcare. The course will investigate specific disciplines and alternative medicine, their origins, histories, principles, current scientific evidence for or against them, indications and contraindications for their use, and typical clinical outcomes; along with an understanding of how they are integrated in a modern healthcare system.

HLTH - 5203 End of Life Dilemmas, 3.00 Credits
Level: Upper
Liberal Arts and Science
This course is designed to provide the student with thought provoking, informed decision making for end of life care. All people have choices and options about how they will spend their time on earth. It is imperative that these options are thoroughly considered so that individual wishes and desires are planned for and carried out. Complex medical, ethical and legal matters at end of life will be explored. Interventions and therapies such as artificial hydration and nutrition, acute treatment modalities, cardiopulmonary resuscitation, and life support will be examined. Healthcare programs providing end of life care will be investigated, judging cost and quantity of life versus quality of life. Assisted suicide and euthanasia will also be scrutinized and debated.

HLTH - 5223 Info Systems in Healthcare, 3.00 Credits
Level: Upper
An internet based course that examines how health information technology impacts healthcare delivery in all settings. This course explores a historical perspective of information technology through current day and beyond. What are the advantages, challenges, laws and regulations related to information systems? How do information systems impact healthcare? Emerging technologies such as electronic health record (EHR), telehealth and mobile applications are explored. The current healthcare landscape will be investigated to determine how healthcare informatics impacts quality outcome measures and public and governmental reimbursement methodology.

HLTH - 5233 Healthcare Law and Ethics, 3.00 Credits
Prerequisite(s): BUAD 3153 with D or better or TMGT 7153 with D or better
Level: Upper
This course is an introduction to the laws and ethics that affect healthcare decisions, relationships among professionals and patients, and the management aspects of healthcare delivery. It provides students with the knowledge and skills necessary to recognize legal and ethical issues that arise in healthcare practice, to be prepared to evaluate situations that may have legal or ethical implications, to know when to seek legal or ethics committee counsel, and to have an understanding of the implications of healthcare law on their own decision making. By the end of the course, students will have been exposed to many management ideas, theories and applications of healthcare law and ethics. Students will have a working knowledge of pertinent law and ethical procedures and how to apply them in healthcare arena.

HLTH - 5433 Healthcare Marketing, 3.00 Credits
Level: Upper
Applied Learning-Other
This course is designed to provide a fundamental knowledge of the principles of marketing and their particular application in healthcare. The healthcare system poses a variety of marketing challenges due to new laws and policies, fresh innovations, and an increasingly educated health consumer. This course covers the fundamentals of marketing as they are applied across a broad spectrum of healthcare organizations to address these challenges. This course is divided into three key concepts: marketing strategy, marketing operations, and sales and marketing. The goal of this course is to provide students with a strong foundation of marketing principals and tools and techniques to develop a marketing plan for any healthcare organization.

HLTH - 5900 Directed Study, 1.00 TO 6.00 Credits
Level: Upper
A student may contract for one to six credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.

HLTH - 6113 Diet and Disease, 3.00 Credits
Prerequisite(s): HLTH 1313 with D or better and ( BIOL 2504 with D or better or BIOL 2214 with D or better )
Level: Upper
Liberal Arts and Science
This internet based course offers an in depth exploration of the cause and effect relationship between diet and common disease processes. This course will examine nutritional epidemiology, nutrition related to cation and the research that substantiates both. The relationship of nutrition to chronic, degenerative diseases such as: obesity, diabetes mellitus and cancer, will be compared. Additionally, specific disease processes will be evaluated from a nutritional perspective, including: neurodegenerative, cardiovascular, gastrointestinal, and bone disease. The course will conclude by determining the nutritional and dietary factors necessary for proper healing and recovery.

HLTH - 8713 Prof Internship Hlth Sciences, 3.00 Credits
Prerequisite(s): BIOL 8623 with C or better
Level: Upper
Applied Learning-Internship
This course is intended for a student in the final year of the Bachelor of Science in Health Science. A student completes a 3-credit hour (120 hour total) internship at an approved off-campus site. The student works under the guidance of a qualified professional, the onsite Internship Site Supervisor, while receiving college consultation from a Faculty Internship Coordinator. The internship is designed for a student to obtain health science-related research or work experience in theoretical and application-based procedures previously studied. The student submits required reports and evaluations. In addition, the student presents oral and written explanations and defense of the information acquired and applied during the internship.

HPED - HEALTH & PHYSICAL EDUC

HPED - 1031 Volleyball, 1.00 Credit
Level: Lower
To develop the skills of passing, serving, spiking, and blocking.

HPED - 1111 Health and Wellness, 1.00 Credit
Level: Lower
To provide students with a better understanding of the human body and concepts, attitudes and practices concerning Health and Wellness. This course focuses on all the dimensions of Wellness.
COURSE DESCRIPTIONS

HPED - 1121 Basketball, 1.00 Credit
Level: Lower
This course is designed to expose the student to the many basketball skills and types of playing.

HPED - 1131 Indoor Soccer, 1.00 Credit
Level: Lower
To develop skills, knowledge, and proper fitness levels pertaining to soccer.

HPED - 1171 Aerobics, 1.00 Credit
Level: Lower
Aerobics to music where the student will learn sound lifetime habits of fitness.

HPED - 1603 Prin of Org PE & Athletics, 3.00 Credits
Level: Lower
A course to provide each student with a workable frame of reference concerning the principles, organization, and philosophical aspects of physical education and athletics.

HPED - 3003 Coaching Sports, 3.00 Credits
Level: Lower
This course is a lecture course designed to serve as a foundation for future coaching experiences. This course will enhance students' knowledge and understanding of concepts and techniques of coaching and their application to achieving important objectives in working with athletes. The class will help students develop an understanding of coaching philosophy and essential techniques including practice planning, program organization, coaching roles and instruction. This course will combine sport science theory and research with the practical knowledge and methods of expert coaches.

HPED - 5003 Physical Fitness, 1.00 Credit
Level: Lower
Pass/Fail
To learn the basic principles of conditioning. The student will be provided an individualized fitness program designed to improve muscular strength and endurance, cardio-vascular wellness, flexibility, and body composition.

HPED - 4103 Personal Health, 3.00 Credits
Level: Lower
This course provides the opportunity to develop sound concepts in health and health-related areas in order to better understand the environment in which they live. Strong emphasis will be placed on current health issues in the area of human sexuality, mental and emotional health, drug and substance abuse, and the development of sound health practices for the individual in today's society.

HUMN - HUMANITIES

HUMN - 2114 Culture of Italy in Context, 4.00 Credits
Prerequisite(s): COMP 1503 with C or better and ( LITR 2033 with D or better or LITR 2343 with D or better or LITR 2503 with D or better or LITR 2603 with D or better or LITR 2703 with D or better or LITR 2813 with D or better or LITR 2900 with D or better or LITR 2903 with D or better or LITR 2913 with D or better or LITR 3233 with D or better or LITR 4333 with D or better or LITR 7003 with D or better )
Level: Lower
Gen Ed - Humanities, Liberal Arts and Science
While there are many definitions of "culture", most have in common the characteristic behaviors, values, and beliefs of a group and those items of excellence influenced by those values, beliefs, and behaviors. This course will examine the culture of Italy from the point of view of Americans who are alert to their own country's culture. Through academic and first-hand field experiences, students will search out the values and characteristics perhaps unique to the Italians, make comparisons and contrasts with their own culture, and thereby increase their own intercultural competency.

Learning will involve class discussions, lectures, introspective and public writing, workshops, oral presentations, and field trips.

HUSR - HUMAN SERVICES

HUSR - 1074 Practicum in Human Services, 4.00 Credits
Prerequisite(s): PSYC 1063 with C or better and ( HUSR 2083 with C or better or HUSR 4033 with C or better )
Level: Lower
Applied Learning-Practicum
This senior project course is designed to provide students with supervised work experience in human services agencies. In addition, students participate in a weekly class that combines the principle of small group dynamics with the acquired skills, knowledge and experience that students have obtained from their field experience. Students produce a final project and a portfolio to document learning. Students should consult the Practicum Pre-requisites listed in the Human Services program description section in the college catalog. Civic Engagement Intensive (CEI) sections exist.

HUSR - 1303 Intro Alcohol & Substnc Abuse, 3.00 Credits
Level: Lower
This course is intended to provide students with a basic yet comprehensive understanding of substance abuse and dependence. Attention will be given to understanding the effects of alcohol and other drugs on the mind and body, the components of addiction, the concept of alcoholism as a progressive disease, the recovery process, and the effects on society.

HUSR - 2083 Introduction to Human Services, 3.00 Credits
Level: Lower
This course is designed to give students an understanding and working knowledge of the human services profession: its goals and objectives, structure and organization, legal and ethical standards and client populations. An emphasis will be placed on the generalist approach to human services.

HUSR - 4033 Issues in Human Services, 3.00 Credits
Level: Lower
Major issues related to the field of human services are discussed in this course. Emphasis is placed on the ethical standards within the field of Human Services. Students are expected to develop the necessary skills, values and knowledge to enhance their ability to gain employment and advance within the human services profession.

HUSR - 5003 Community Organizations, 3.00 Credits
Prerequisite(s): HUSR 1074 with B or better
Level: Upper
This course is an upper level human services methods course focusing on major theories and methods of community organizing with applications in urban, suburban, transitional and rural communities. It provides a framework for assessment, and intervention with regard to the structures and processes of neighborhoods, communities, and organizations as they influence and are influenced by the many stakeholders in the human services arena. It explores the potential for the use of technology in organizing communities.

HUSR - 5103 Social Policy & Human Services, 3.00 Credits
Prerequisite(s): HUSR 1074 with B or better
Level: Upper
This course examines the evolution of American social problems and the response of the social welfare policy systems and programs at the national, state, regional and local levels. A basic framework for comparison with international social welfare systems will also be provided. The course will focus on the following aspects of the social welfare system: the impact of social policy on the delivery of human services, social welfare policy, and the systematic analysis of social welfare policy: understanding of social welfare policy analysis from both historical and current standpoints, and the organization, community and policy practice settings requiring advocacy and policy formulation; comprehension of social welfare policy analysis in the areas of welfare reform, homelessness/housing, poverty, mental health, substance abuse and health care; and individual communication skills in describing, analyzing, synthesizing and presenting a letter to the editor, a letter to a legislator, and a social welfare policy analysis response to a current societal problem. Applications in social welfare advocacy at all levels will be explored.

HUSR - 5203 Grants Contracts Organ Adv HS, 3.00 Credits
Level: Upper
Applied Learning-Practicum
This course will provide students with the tools needed to be successful with proposal writing, program and strategic planning, fund raising and institutional advancement. Specific areas to be addressed will include how to identify appropriate funding sources, how to market and organize charitable fundraising events and campaigns, how to complete applications for funding assistance, and how to respond to requests for proposals from public and private resources.
HUSR - 5213 Case Management Systems, 3.00 Credits
Prerequisite(s): HUSR 1074 with B or better
Level: Upper
This course in case management will familiarize students with various approaches used by human services professionals to meet the service needs of the client. The use of case management with children and families, elderly, chronically mentally ill, developmental and physically disabled, and those in health care settings will be investigated. Approaches used in crisis management will be compared with those used in chronic conditions. Skills in case management will be demonstrated including networking, goal setting, recording, case monitoring, advocacy, and outcome evaluation. Use of automated data systems and electronic records in case management will be explored.

HUSR - 5314 Human Serv Field Practic & Sem, 14.00 Credits
Prerequisite(s): ( HUSR 5003 with C or better and HUSR 5103 with C or better and HUSR 5203 with C or better ) or ( HUSR 5003 with C or better and HUSR 5103 with C or better and HUSR 5213 with C or better ) or ( HUSR 5003 with C or better and HUSR 5203 with C or better and HUSR 5213 with C or better ) or ( HUSR 5103 with C or better and HUSR 5203 with C or better and HUSR 5213 with C or better ) and HUSR 1074 with B or better
Level: Upper
A capstone seminar in which students design an individual project demonstrating their plan for integrating their individual lower level core coursework with their upper level area(s) of concentration. The design phase will include a projection of the concentration(s) of interest along with a 4-semester registration plan, justification, and collection of supporting documentation. Plans must be approved by the student's project supervisor/advisor.

HUSR - 5002 Interdisc Studies Capstone Des, 2.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Lower
This seminar course is taken concurrently with a structured, supervised work experience in a human service agency. Students must successfully complete a minimum of 400 clock hours of work in human services management at an approved human service agency. In addition, students participate in this weekly seminar that synthesizes theoretical knowledge and didactic learning with the acquired skills, knowledge, and experience that the students have obtained through their field experience. The internship may be at distant locations. Faculty supervision and communication may be through various technologies that students must utilize. A complete list of practicum requirements is in Human Services Management program description in the college catalog.

IDST - INTERDISCIPLINARY STUDIES

IDST - 5001 Interdisc Studies Capstone Des, 1.00 Credit
Prerequisite(s): COMP 1503 with D or better
Level: Upper
A capstone seminar in which students design an individual project demonstrating their plan for integrating their individual lower level core coursework with their upper level area(s) of concentration. The design phase will include a projection of the concentration(s) of interest along with a 4-semester registration plan, justification, and collection of supporting documentation. Plans must be approved by the student's project supervisor/advisor.

IDST - 5002 Interdisc Studies Capstone Des, 2.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Upper
In this semester students investigate the nature of interdisciplinary studies, complete personal assessments and reflect on their strengths and goals. A course-taking plan, based on extensive research and written justification, will be created. A portfolio will be designed to include a projection of their chosen concentration(s) along with a 4-semester registration plan, with justification and a collection of supporting documentation. Students will design an individual project demonstrating a plan for integrating their individual lower level core coursework with their upper level area(s) of concentration choices for completion in IDST 7001. Students will present these designs to the student's project supervisor/advisor.

IDST - 5900 Directed Study, 1.00 TO 4.00 Credits
Level: Upper
A student may contract for one to four credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study. A capstone such as an interdisciplinary research project will be required.

IDST - 7001 Interdisc Studies Capstone Prj, 1.00 Credit
Prerequisite(s): COMP 5703 with D or better and IDST 5002 with D or better
Level: Upper
This capstone course includes both proof of purpose and goals of a student's chosen coursework and an individual project demonstrating the integration of their core area with their areas of concentration. Projects may take a range of forms appropriate to the student's concentration and future goals, e.g. a research essay, demonstration, marketing study, computer program or curriculum design. Projects must be approved by the student's advisor and project supervisors. Students will present their projects to their faculty supervisors and peers at the end of the course.

IDST - 7002 Interdisc. Studies Capstone Prj 2.00 Credits
Prerequisite(s): COMP 5703 with D or better and IDST 5001 with D or better
Level: Upper
A capstone course that includes both proof of purpose and goals of their chosen course-work and an individual project demonstrating their integration of their core area with their areas of concentration. Projects may take a range of forms appropriate to the student's concentration and future goals, e.g. a research essay, demonstration, marketing study, computer program or curriculum design. Projects must be approved by the student's advisor and project supervisors. Students will present their projects to their faculty supervisors and students at the end of the course.

ITAL - ITALIAN

ITAL - 1303 Italian I, 3.00 Credits
Level: Lower
Gen Ed - Foreign Languages, Liberal Arts and Science
This course focuses on developing the student's ability to speak, to write, and to read Italian. Additional emphasis is given to learning about Italian culture. Instruction centers on oral communication, written communication, reading for comprehension, and cultural awareness. Writing and speaking are emphasized in assignments related to readings, class discussions, and lectures.

ITAL - 2003 Italian II, 3.00 Credits
Prerequisite(s): ITAL 1303 with D or better
Level: Lower
Gen Ed - Foreign Languages, Liberal Arts and Science
This course focuses on developing the student's ability to understand Italian sentences and frequently used expressions that relate to personal and family information, shopping, local geography, and employment. Oral communication is emphasized in simple tasks that require a direct exchange of information on familiar and routine matters. Writing is emphasized in assignments related to readings, class discussions, and lectures. The course focuses on an intermediate level of reading, speaking, and writing in Italian.

ITAL - 3003 Italian III, 3.00 Credits
Prerequisite(s): ITAL 2003 with D or better
Level: Lower
Gen Ed - Foreign Languages, Liberal Arts and Science
This course will focus on developing the student's ability to understand Italian sentences and frequently used expressions that relate to personal and family information, shopping, local geography, and employment. Oral communication will be emphasized in simple tasks that require a direct exchange of information on familiar and routine matters or conversation about personal interests or employment. Written communication will be emphasized in assignments related to readings, class discussions, and lectures. The course will focus on an intermediate level of reading, speaking, and writing in Italian.

ITAL - 4003 Italian IV, 3.00 Credits
Prerequisite(s): ITAL 3003 with D or better
Level: Lower
Gen Ed - Foreign Languages, Liberal Arts and Science
This intermediate course will focus on developing the student's ability to understand the main ideas found in complex texts in Italian on both concrete and abstract topics; this course will include technical discussions in the student's field of specialization. The course will also focus on the student's ability to speak with fluency and spontaneity. The students will be able to engage in regular interaction with native speakers and produce clear, detailed text on a wide range of subjects.

ITAL - 5113 Contemporary Italian Literatur, 3.00 Credits
Prerequisite(s): ITAL 4003 with D or better
Level: Upper
Liberal Arts and Science
Students will study Italian literature of the 20th century. Students will critically analyze internationally renowned literary texts in the Italian language. Authors include Luigi Pirandello, Filippo Tommaso Marinetti, Gabriele D'Annunzio, Primo Levi, Salvatore Quasimodo, Giuseppe Ungaretti, Eugenio Montale, Pier Paolo Pasolini, Umberto Eco, and others. Students will read from these author's works and engage in a historical, literary, and rhetorical analysis of them while determining techniques of composition. Students will be expected to actively participate and contribute to class discussion. The course will be conducted in Italian; participants will do all written and oral work in Italian. A research paper will be required.
COURSE DESCRIPTIONS

ITAL - 5223 Modern Italian Literature, 3.00 Credits
Prerequisite(s): ITAL 4303 with D or better
Level: Upper
Liberal Arts and Science

This course will focus on developing the student's ability to understand a wide range of demanding, longer texts and recognize implicit meaning; the students will be able to express themselves fluently and spontaneously and use language flexibly and effectively for social, academic, and professional purposes. The students will be expected to produce clear and detailed text on complex subjects, and they will be expected to show controlled use of organizational patterns, connectors, and cohesive devices.

ITAL - 5303 Italian V, 3.00 Credits
Prerequisite(s): ITAL 4303 with D or better
Level: Upper
Liberal Arts and Science

This advanced course will enable students to read and write Italian fluently. Students will work with a wide range of spoken and written sources. Students will concentrate on the analysis of texts for argument structure, and they will be expected to summarize and coherently present arguments in oral presentations. Student work will require an advanced level of spontaneity when writing and speaking; students will be expected to precisely differentiate nuances of meaning in complex situations.

JAPN - JAPANESE

JAPN - 1203 Japanese I, 3.00 Credits
Level: Lower
Gen Ed - Foreign Languages, Liberal Arts and Science

This course is designed as a continuation of JAPN 1203; this course further develops the student's ability to speak, to write, and to read Japanese. Additional emphasis is given to learning about Japanese culture. Instruction centers on oral communication, written communication, reading for comprehension, and cultural awareness. Writing and speaking are emphasized in assignments related to readings, class discussions, and lectures. This course also provides students with the ability to communicate in Japanese in their pursuit of travel, business, academic endeavors, and personal pleasure.

JAPN - 2203 Japanese II, 3.00 Credits
Prerequisite(s): JAPN 1203 with C or better
Level: Lower
Gen Ed - Foreign Languages, Liberal Arts and Science

This course is designed as a continuation of JAPN 1203; this course further develops the student's ability to speak, to write, and to read Japanese. Additional emphasis is given to learning about Japanese culture. Instruction centers on oral communication, written communication, reading for comprehension, and cultural awareness. Writing and speaking are emphasized in assignments related to readings, class discussions, and lectures. This course also provides students with the ability to communicate in Japanese in their pursuit of travel, business, academic endeavors, and personal pleasure.

LITR - LITERATURE

LITR - 2033 The Short Story, 3.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Lower
Gen Ed - Humanities, Liberal Arts and Science

The Short Story introduces the student to the study and appreciation of the short story as an art form. Reading selections will include stories by such masters as Joyce, Lawrence, Faulkner, Hemingway, and O'Connor, as well as recent works by Olson, Paley, and Barthelme. Writing is continued in assignments related to readings, class discussions, and lectures.

LITR - 2343 Children's Literature, 3.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Lower
Gen Ed - Humanities, Liberal Arts and Science

Children's Literature covers a broad range of literature for children from preschool to age twelve, as they encounter it through the home, the library, and the school. Picture books, the classics, folk and fairy tales, novels, and plays for children are presented in a critical context. Writing is continued in assignments related to readings, class discussions, and lectures.

LITR - 2603 Introduction to Literature, 3.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Lower
Gen Ed - Humanities, Liberal Arts and Science

This course focuses on literature, thought, and language. Writing is continued in assignments related to readings, class discussions, and lectures. Selections include novels, short stories, poems, and plays.

LITR - 2703 Sci Fi in the 20th Century, 3.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Lower
Gen Ed - Humanities, Liberal Arts and Science

Major representative works of science fiction are read and discussed. Works selected contain the major themes present in science fiction in the 20th century. Readings, class discussion, and lectures are the basis for oral reports and written assignments which continue training in composition and encourage a broadening of interest in science and technology. Writing is continued in assignments related to readings, class discussions, and lectures.
LITR - 2813 Introduction to Poetry, 3.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Lower
Gen Ed - Humanities, Liberal Arts and Science
This course focuses on a survey of the principles of poetry, the literary traditions of poetry, and the critical terminology to understand, to define, and to analyze poetry. Special attention is given to poetry written during the twentieth century. Classroom exercises and discussions emphasize the importance of close literary analysis; writing skills introduced in freshman composition and improved through class discussions, and lectures.

LITR - 5133 Special Topics in Literature, 3.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Lower
Gen Ed - Humanities, Liberal Arts and Science
This will have students write creative non-fiction, focusing on the experience of travel. Student will read and be exposed to different works of non-fiction (travel writing and instructional, how-to writing), and published fiction (poetry, stories, and novels) revolving around travel. Class readings will also expose students to various writing styles and provide examples of the successes and strategies of other writers. Class time will be spent discussing the writer's craft and the assigned readings, and critiquing student writing in a workshop setting.

LITR - 3333 Survey of American Lit I, 3.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Lower
Gen Ed - Humanities, Liberal Arts and Science
This is the first of two courses surveying American literature from the time of the Puritans to the present; it stresses the development of the American voice in literature through the critical study of such authors as Edwards, Franklin, Poe, Whitman, Emerson, Thoreau, Hawthorne, and Melville.

LITR - 3333 Survey of British Literature I, 3.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Lower
Gen Ed - Humanities, Liberal Arts and Science
Survey of British Literature I is the first of two courses surveying British literature from the Middle Ages to the present; this course examines literature in the Middle Ages, the Early Modern Period, and the Restoration and eighteenth century. Emphasis is placed on the critical study of works such as Beowulf and authors such as Malory, Chaucer, Julian of Norwich, Spenser, Marlowe, Shakespeare, Milton, Dryden, Defoe, Swift, Pope, Johnson, and Boswell. Writing is emphasized in assignments related to readings, class discussions, and lectures.

LITR - 4900 Directed Study, 1.00 TO 4.00 Credits
Level: Lower
A student may contract for an independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.

LITR - 5133 Special Topics in Literature, 3.00 Credits
Prerequisite(s): COMP 1503 with C or better and ( LITR 2603 with C or better or LITR 2033 with C or better or LITR 2343 with C or better or LITR 2503 with C or better or LITR 2603 with C or better or LITR 2703 with C or better or LITR 2813 with C or better or LITR 2900 with C or better or LITR 2903 with C or better or LITR 2913 with C or better or LITR 3233 with C or better or LITR 4333 with C or better or LITR 7003 with C or better )
Level: Upper
Liberal Arts and Science
Students will study selected literature of the past five centuries through the lens of a particular special topic, such as the African-American experience, or Life During Wartime, or Global Colonization, or the Women's Rights Movement, or Political Movements Left and Right, or any topic of special interest to the instructor and relevance to students. Reading from selected literary works, students will apply historical, literary, and rhetorical analyses to determine key elements of composition, argument, historical setting, sociological context, and cultural interpretation. Students will be expected to actively participate and contribute to class discussion. Typical critical approaches to literature include these: the formalist approach or "new criticism", the biographical approach, the psychoanalytical approach including the theories of Freud and Jung, the economic and social class approach, gender-focused criticism, the mythological perspective, the structuralism approach, the deconstructive approach, and the cultural studies perspective. A research paper will be required.

LITR - 5900 Directed Study, 1.00 TO 4.00 Credits
Prerequisite(s): COMP 1503 with D or better and ( LITR 2603 with D or better or LITR 2033 with D or better or LITR 2343 with D or better or LITR 2503 with D or better or LITR 2603 with D or better or LITR 2703 with D or better or LITR 2813 with D or better or LITR 2900 with D or better or LITR 2903 with D or better or LITR 2913 with D or better or LITR 3233 with D or better or LITR 4333 with D or better or LITR 7003 with D or better )
Level: Upper
Liberal Arts and Science
The student may contract for one to four credit hours of independent study through an agreement with the instructor. The student must submit a plan acceptable for the instructor and the department chairperson. To be substituted for the listed humanities requirements, a directed study course must be so designated by the department chair. Writing is continued in assignments related to readings, class discussions, and lectures.

LITR - 7003 Literature and Nature, 3.00 Credits
Prerequisite(s): COMP 1503 with D or better
Level: Upper
Gen Ed - Humanities, Liberal Arts and Science
This course will trace the evolution of Native American literature from oral tradition to written narrative. Students will analyze Native American texts for their narrative techniques, historical and cultural significance, themes, symbols, as well as their place in the American literary tradition. Course texts will include clips of oral storytelling, a selection of Native American myths, documentaries, nonfiction, fiction, and feature films produced by Native Americans. In addition, the course will investigate the myths and realities of reservation education, alcoholism, suicide, the workforce, healthcare, Hollywood portrayals, family structures, and intercultural relations. Students will be required to write a personal reflection paper, research papers on the readings/films, and a revision of one of the essays. Students must demonstrate the ability to write analytically and coherently, in ways appropriate to the discipline, and they must display the ability to revise and improve their writing in both form and content.
### COURSE DESCRIPTIONS

**MATH - MATHEMATICS**

**MATH - 1004 Mathematical Concepts*, 4.00 Credits**

- **Level:** Upper
- **Quantway 1, Remedial**

This course will introduce the students to the following topics: order of operations, operations on real numbers, simplifying algebraic expressions, integer exponents, solving linear equations in one variable, graphing linear equations in two variables, and applications such as geometry and modeling. Emphasis is placed on reviewing basic arithmetic skills and elementary algebra topics. Development of arithmetic skills throughout the semester is essential, therefore students will not be allowed to use calculators. Students will work on the development of thinking skills through creative problem solving, writing to explain methods and solutions to problems, and collaborative learning. This is a remedial/developmental course; it will not satisfy any graduation requirements. A grade of C or better is required to register for any subsequent math course.

**MATH - 1014 Algebra Concepts, 4.00 Credits**

- **Prerequisite(s):** MATH 1004 with C* or better
- **Level:** Lower
- **Liberal Arts and Science**

This course is intended for students who need more preparation to be successful in College Algebra or other courses of that level. Topics covered include: review of first degree equations, systems of equations and inequalities, graphing, polynomials, factoring, radicals and rational exponents, quadratic equations, rational expressions, relations and functions and an introduction to triangle trigonometry. This course prepares students to enter Math 1033 - College Algebra, Math 2124 - Statistical Methods and Analysis, Math 1423 - Explorations in Geometry, Math 1323 - Quantitative Reasoning and Math 2163 - Discrete Mathematics. A grade of C or better is required in Math 1014 to register for these courses. THIS COURSE DOES NOT FULFILL THE GEN-ED MATH REQUIREMENT.

**MATH - 1033 College Algebra, 3.00 Credits**

- **Prerequisite(s):** MATH 1014 with C or better
- **Level:** Lower
- **Gen Ed - Math, Liberal Arts and Science**

This course includes topics such as polynomials, radicals, exponents, coordinate geometry, rational expressions and equations, and solutions to linear and quadratic equations. Students are introduced to the concept of functions and their graphs. Additional topics may include conic sections, matrices, variation, and nonlinear inequalities. Emphasis will be placed on problem solving. A graphing calculator is required. The course is designed to give students additional time above that allotted in MATH 1033 working on mastery of concepts and skills in the student learning outcomes. Students cannot receive credit for MATH 1034 if they have credit for MATH 1054. Students cannot receive credit for MATH 1033 if they have credit for MATH 1063. Students cannot receive credit for MATH 1064, or any course for which MATH 1063 or MATH 1084 are prerequisites. A grade of C or better is required to take Math 2043, College Trigonometry.

**MATH - 1034 College Algebra of Functions, 4.00 Credits**

- **Prerequisite(s):** MATH 1014 with C or better
- **Level:** Lower
- **Gen Ed - Math, Liberal Arts and Science**

This course is designed primarily for the student who needs a foundation in algebra and trigonometry for the study of calculus. The concept of function and graphical representation of functions is stressed. Topics covered include: real numbers; algebra of real numbers including equations and inequalities; functions and their graphs including polynomial, rational expressions, logarithmic and exponential, trigonometric, algebra of the trigonometric functions including identities, equations, polar coordinates, complex numbers, systems of equations. Prerequisites: NYS 80 HS Average Math A and B (or Course 1.3), plus a 4th year Math, or equivalent.

**MATH - 1054 Precalculus, 4.00 Credits**

- **Level:** Lower
- **Gen Ed - Math, Liberal Arts and Science**

This course includes a review of functions, an introduction to the concept of limits, and a study of the techniques of differentiation and integration of algebraic functions with applications to the various technologies. A graphing calculator is required. Credit for MATH 1054, Technical Calculus I will not be allowed if student receives credit for MATH 1084, Calculus I.

**MATH - 1063 Technical Calculus I, 3.00 Credits**

- **Prerequisite(s):** ( MATH 1033 with C or better and MATH 2043 with D or better ) or ( MATH 1034 with C or better and MATH 2043 with D or better ) or MATH 1054 with D or better
- **Level:** Lower
- **Gen Ed - Math, Liberal Arts and Science**

This course includes a review of functions, an introduction to the concept of limits, and a study of the techniques of differentiation and integration of algebraic functions with applications to the various technologies. A graphing calculator is required. Credit for MATH 1063, Technical Calculus I will not be allowed if student receives credit for MATH 1084, Calculus I.

**MATH - 1084 Calculus I, 4.00 Credits**

- **Prerequisite(s):** MATH 2043 with D or better or MATH 1054 with D or better
- **Level:** Lower
- **Gen Ed - Math, Liberal Arts and Science**

This course is designed for the student intending to continue his/her education in mathematics, science or engineering. The course includes a thorough treatment of limits leading to the Limit definition of the derivative and definite integral. Properties and rules to differentiate and integrate algebraic and transcendental functions and numerous applications of the derivative and integral will be studied. A graphing calculator is required. Students cannot receive credit for both MATH 1063 and MATH 1084.

**MATH - 1104 Quantway I*, 4.00 Credits**

- **Level:** Lower
- **Quantway 1, Remedial**

Quantway I focuses on math for everyday life. It integrates fluency with numbers, proportional reasoning, data interpretation, algebraic reasoning, models, and communicating quantitative information. Mathematical concepts are investigated through group problems and class discussions based on real-life contexts of citizenship, personal finance, and model literacy. This is a remedial/developmental course; it will not satisfy any graduation requirements. A grade of C or better is required to register for any subsequent math course. The course prepares students to take college level non-STEM courses in mathematics, such as MATH 1014, MATH 1113, or MATH 1123.

**MATH - 1113 Statistical Concepts, 3.00 Credits**

- **Prerequisite(s):** MATH 1004 with C* or better
- **Level:** Lower
- **Gen Ed - Math, Liberal Arts and Science**

This is a 3 credit, one-semester course which provides an introduction to and understanding of the basic concepts of statistics. Actual computation will be minimal; computers will be used whenever calculation are necessary. Students will be placed on the meaning of statistical results. Content will include sampling, experiments, measurement, organizing data, and statistical indices. Optional topics include probability, time trends, survey design and basic inference concepts.

**MATH - 1114 Quantway II*, 4.00 Credits**

- **Prerequisite(s):** MATH 1104 with C* or better or MATH 1143 with C or better or MATH 1014 with C or better
- **Level:** Lower
- **Gen Ed - Math, Liberal Arts and Science, Quantway 2**

This course uses mathematical and statistical reasoning in everyday life decision-making. The course integrates percentages, probability, mathematical modeling, and statistical thinking within quantitative literacy. This is achieved through hands-on, collaborative learning with a focus on medical, financial and citizenship real-world examples. A student may not receive credit for MATH 1114 if they have already received credit for MATH 1323.

**MATH - 1123 Statistics I, 3.00 Credits**

- **Prerequisite(s):** MATH 1003 with C* or better or MATH 1004 with C* or better or MATH 1104 with C* or better
- **Level:** Lower
- **Gen Ed - Math, Liberal Arts and Science**

This course is the first of a two semester sequence in statistics. It covers mainly descriptive techniques such as data collection, organization techniques, measures of center, spread, and position. Other topics covered include: probability, probability distributions (such as normal and binomial distributions), correlation and regression. Students cannot earn credit for MATH 1123 if they have credit for MATH 2124. A grade of C or better is required to take MATH 2133, Statistics II.
MATH - 1143 Liberal Arts Math I, 3.00 Credits
Prerequisite(s): MATH 1004 with C or better
Level: Lower
Gen Ed - Math, Liberal Arts and Science
This course is designed for the college student who has demonstrated mastery of algebra skills and techniques. Topics include trigonometric functions and their properties with the study of identities, formulas, equations, and graphs. Also included are the solution of right and oblique triangles using the law of sines and cosines. In addition, time is spent exploring logarithmic and exponential functions. Emphasis is placed on contextual applications and problem solving. A graphing calculator is required. This course is designed for the student in a geometric forum to discover or verify properties of 2- and 3-dimensional objects and patterns. The software AutoCAD or a similar program for drawing on a computer as well as 2- and 3-dimensional modeling tools will be used extensively to enhance spatial intelligence skills and awareness of properties. Students will learn to analyze designs by identifying their geometric component parts and create designs by combining geometric shapes. They will identify the rules used in creating the design and will create new designs by varying some of those rules.

MATH - 2043 College Trigonometry, 3.00 Credits
Prerequisite(s): MATH 1033 with C or better or MATH 1034 with C or better
Level: Lower
Gen Ed - Math, Liberal Arts and Science
This course is designed for the student who has demonstrated mastery of algebra skills and techniques. Topics include trigonometric functions and their properties with the study of identities, formulas, equations, and graphs. Also included are the solution of right and oblique triangles using the law of sines and cosines. In addition, time is spent exploring logarithmic and exponential functions. Emphasis is placed on contextual applications and problem solving. A graphing calculator is required. Credit cannot be received for both MATH 2043 and MATH 1054. Students cannot receive credit for MATH 2043 if they have credit for MATH 1063, MATH 1084, or any course for which MATH 1063 or MATH 1084 are prerequisites.

MATH - 2074 Technical Calculus II, 4.00 Credits
Prerequisite(s): MATH 1063 with D or better or MATH 1084 with D or better
Level: Lower
Gen Ed - Math, Liberal Arts and Science
A continuation of MATH 1063 with further study in differentiation and integration of both the algebraic and transcendental functions. Applications will be included in each topic. An introduction to Matrix Algebra may be included. Graphing Calculator required. Student cannot receive credit for MATH 2074 if they have received credit for MATH 1084.

MATH - 2094 Calculus II, 4.00 Credits
Prerequisite(s): MATH 1084 with D or better
Level: Lower
Gen Ed - Math, Liberal Arts and Science
This course is designed for the student who has demonstrated mastery of algebra skills and techniques. Topics include trigonometric functions and their properties with the study of identities, formulas, equations, and graphs. Also included are the solution of right and oblique triangles using the law of sines and cosines. In addition, time is spent exploring logarithmic and exponential functions. Emphasis is placed on contextual applications and problem solving. A graphing calculator is required. This course will apply geometrical truths in a variety of contexts, including knots, tessellations and graphical symmetry. In addition, it will cover some principles of Gestalt perceptual properties, the exploration and creation of models of geometric art from other cultures, and any additional material deemed suitable by the instructor. The material will involve experimentation by the students and the geometric forum to discover or verify properties of 2- and 3-dimensional objects and patterns. The software AutoCAD or a similar program for drawing on a computer as well as 2- and 3-dimensional modeling tools will be used extensively to enhance spatial intelligence skills and awareness of properties. Students will learn to analyze designs by identifying their geometric component parts and create designs by combining geometric shapes. They will identify the rules used in creating the design and will create new designs by varying some of those rules.
MATH - 5023 Math Foundations Cryptography, 3.00 Credits
Prerequisite(s): MATH 1084 with D or better
Level: Upper
Liberal Arts and Science
This course is designed to develop the mathematical skills that a student would need in order to analyze and implement historical and modern day cryptography. Historical cryptography will include discussion of the following ciphers: shift, affine, block, substitution, Vigenere, Playfair, ADFGX, binary and ASCII. Modern day cryptography will include discussion of: DES, AES, RSA and ElGamal public key encryption. Applications of modern day cryptography will include digital signatures and e-commerce. Maple software will be used to perform encryption and decryption. Prerequisite: MATH 1084 or permission from instructor.

MATH - 6104 Multivariate & Vector Calculus, 4.00 Credits
Prerequisite(s): MATH 2094 with D or better or MATH 2074 with D or better
Level: Upper
Gen Ed - Math, Liberal Arts and Science
This course is designed as a continuation of Integral Calculus. Topics will include: parametric equations, polar, cylindrical and spherical coordinate systems, vectors and vector valued functions, functions of several variables, partial derivatives and applications, multiple integrals, and vector analysis, including Green's theorem, Stokes' theorem, and Gaus's theorem. The course will include several major projects outside of class.

MATH - 6114 Differential Equations, 4.00 Credits
Prerequisite(s): MATH 2094 with D or better or MATH 2074 with D or better or MATH 6104 with D or better
Level: Upper
Gen Ed - Math, Liberal Arts and Science
This is the beginning study of the solution of differential equations with emphasis on both analytic and numerical solutions. Topics include first and second order differential equations and their solutions, series solutions, Laplace transforms, linear equations of higher order, numerical solutions or ordinary differential equations using Euler and Runge-Kutta methods, and the use of Eigenvalue methods to solve linear systems. In addition, this course emphasizes the development of differential equations as mathematical models for a variety of practical applications. The course will include several major projects outside of class.

MATH - 7113 Economic Analysy for Engr Tech, 3.00 Credits
Prerequisite(s): MATH 1063 with D or better or MATH 1084 with D or better
Level: Upper
Gen Ed - Math, Liberal Arts and Science
This course covers basic pricing formulas, cost estimation techniques, present economic studies, time-value of money, evaluating a single alternative, comparison and selection among multiple alternatives, and depreciation.

MATH - 7123 Statistics for Engr Tech & Sci, 3.00 Credits
Prerequisite(s): MATH 2074 with D or better or MATH 2094 with D or better
Level: Upper
Gen Ed - Math, Liberal Arts and Science
This course offers the theoretical basis for probability and statistics related to engineering applications. Topics include data analysis techniques, correlation and regression, probability, probability distributions, confidence intervals, and hypothesis tests concerning means and standard deviations. Graphing calculators are required. Computer applications may be included.

MATT - MACHINE TOOL TECHNOLOGY

MATT - 1004 Basic Industrial Machining, 4.00 Credits
Level: Lower
Course Fee $106.00
This introductory course is designed to instill safe shop methods and procedures along with the proper and safe use of all equipment associated with Machine Tool Technology. Also incorporated in this introductory course is the proper use of basic measuring tools and hand tools. Students will be instructed in the proper operation of the power saw, drill press and pedestal grinder.

MATT - 1014 Industrial Machining I, 4.00 Credits
Level: Lower
Applied Learning-Practicum
Students will be instructed in the proper operation of power Basic lathe operations will be presented. The student will demonstrate their proficiencies on this equipment by producing specifically assigned projects.

MATT - 1024 Industrial Machining II, 4.00 Credits
Level: Lower
Applied Learning-Practicum
This course is designed to develop basic skills on the vertical milling machine. Projects will be assigned to allow the student to demonstrate the various skill levels required.

MATT - 1234 Industrial Machining III, 4.00 Credits
Level: Lower
Applied Learning-Practicum, Course Fee $106.00
The student will be instructed in advanced lathe operations and procedures. These will include precision turning, maintaining closer tolerances, and gage threading with the use of carbide tool cutters. The student will demonstrate the various skills required by producing assigned advanced level projects.

MATT - 1244 Industrial Machining IV, 4.00 Credits
Level: Lower
Applied Learning-Practicum
The student will be instructed in advanced vertical milling operations and procedures. These will include advanced vertical milling machine set-up (i.e. sine plates and indexing heads) and operations (i.e. dove tail and t-slot cutting). The student will demonstrate the various skills required by producing assigned advanced level projects.

MATT - 1254 Industrial Machining V, 4.00 Credits
Level: Lower
Applied Learning-Practicum
The student will be instructed in the safe operation of the horizontal milling machine and the surface grinder. The student will demonstrate the various skills required by producing assigned projects.

MATT - 1713 Reading Engineering Drawings, 3.00 Credits
Level: Lower
The transfer of ideas from the Engineering Department to the manufacturing area is accomplished through the use of Engineering drawings. This course will explain how information is conveyed through the use of ANSI standard drafting procedures and the correct interpretation of that information by the machinist.

MATT - 1723 Reading Engineering Drawings II, 3.00 Credits
Level: Lower
The transfer of ideas from the Engineering Department to the manufacturing area is accomplished through the use of engineering drawings. This course will be a continuation of MATT 1713 and will explain how advanced information is conveyed through the use of ANSI standard drafting procedures. The correct interpretation of this advanced information will be used by the machinist to produce mechanical parts on the various machine tools in the shop. These major topics will be included: auxiliary views, assembly drawings, weldment drawings, and threads and fasteners.

MATT - 1913 Machinist Calculations I, 3.00 Credits
Level: Lower
Basic mathematical functions used by the machinist in the performance of their duties will be the subject of this course. Mathematical operations such as manipulation of fractions, decimals and unilaterally converting between the two and into the metric measurement system along with calculating speeds and feeds, tapers and depths of cut will be taught in this course. Successful completion of this course requires a grade of "C" or better.

MATT - 1923 Machinist Calculations II, 3.00 Credits
Level: Lower
This course is a combination of both basic geometry (both plane and solid) and trigonometry. Both of these branches of mathematics will be trade related and will focus on the math needed by the machinist, CAD drafter, and welder to perform their required tasks. Successful completion of this course requires a grade of "C" or better.

MATT - 3003 Geometric Dimensioning & Toler, 3.00 Credits
Level: Lower
Geometric Dimensioning and Tolerancing is dimensioning associated with the tolerancing of individual characteristics of a part where permissible variations relate to form, profile, radial relationship to an axis, orientation of one feature to another, and location of features. Applications of all symbols and proper interpretation will be stressed. Application of various principles referenced in the current specification will be presented.
COURSE DESCRIPTIONS

MATT - 3005 Intro to CNC Machine Program, 5.00 Credits
Level: Lower
Applied Learning-Practicum
Course Fee $37.00
This course is a first semester, freshman level course. It is a broad introductory study of the basic characteristics of engineering materials. The course will emphasize the selection of metals, plastics, ceramics, and composites for mechanical design purposes. The students will study mechanical testing equipment as well as chemical, mechanical and heat treatment effects on important material properties. The course will include the study of the effects of various factors on strength, rigidity, wear resistance, thermal expansion, plasticity and reliability of the common engineering materials. The course also includes the use of equipment such as mechanical testing, light microscopes, electron microscopes, metallograph, furnaces and controllers. Data interpretation is also an important emphasis. The students also have substantial preparation work for the weekly labs.

MECH - 1203 Materials Science, 3.00 Credits
Level: Lower
Applied Learning-Practicum
Course Fee $37.00
This course is an introduction to the subject of materials science and engineering. The course will cover the fundamental concepts of materials science, including the properties of materials, the design of materials, and the relationship between the structure and properties of materials. The course will also cover the selection of materials for specific applications, and the effects of processing on the properties of materials. The course will include lectures, laboratory experiments, and problem-solving exercises. The students will be expected to develop the ability to perform independently. Upon completion, the student will demonstrate the functionality of their project in the form of a formal presentation.

MECH - 3203 Computer Aided Manufacturing, 3.00 Credits
Prerequisite(s): MECH 1603 with D or better
Level: Lower
Applied Learning-Practicum
This course is a study of Computer Aided Manufacturing (CAM) using software, programming languages and methods to produce Computer Numerical Control (CNC) machining programs. CAD software is used to develop detailed drawings of student projects. Laboratory exercises include programming, machine tool setup and machine operation. Communication between the student laptops and the machine tools using current communication protocol is also studied.
MECH - 3223 Mechanical Design Principles, 3.00 Credits  
Prerequisite(s): MECH 1603 with D or better or (MECH 1012 with D or better and MECH 1022 with D or better)  
Level: Lower  
Applied Learning-Other  
This course will emphasize the application of mechanical design for industrial machinery. The lecture material for this course will be enhanced through a laboratory experience using design techniques that include the creation of working industrial drawings, parametrically driven spreadsheet solutions of design problems, and component sizing and dimension determinations. The course will include the study of mechanical power systems such as gear trains, belt and chain drives, linkages, clutch-coupling brake components, torque transmission devices, shaft and component design calculations. The techniques of component design will also include the extensive use of online database information, standards and manufacturers specifications. At all times in this class, the design and development for manufacturability will be paramount.

MECH - 3334 Statics, 4.00 Credits  
Prerequisite(s): (MATH 1054 with D or better or MATH 2043 with D or better or MATH 1063 with D or better or MATH 1084 with D or better) and (PHYS 1024 with D or better or PHYS 1044 with D or better or PHYS 1064 with D or better)  
Level: Lower  
Applied Learning-Other  
This course is a study of introductory mechanics through the application of the principles of statics. Students will focus on the equilibrium of particles and rigid bodies in two and three dimensions. Additional topics will include centroids, centers of gravity, and analysis of structures, friction, area and mass moments of inertia. The course will also emphasize the importance of problem-solving in statics by using algebraic and trigonometric computations.

MECH - 3643 Manufacturing Management, 3.00 Credits  
Level: Lower  
This course supplements the study of manufacturing processes with emphasis on techniques, processes and factors that contribute to manufacturing decision making. Previous manufacturing process exposure is desirable but not essential. Selected topics to be discussed include: motion and time study, engineering economics, project planning and scheduling, Computer Integrated Manufacturing/Management (CIM), Just in Time manufacturing strategy, design for manufacturability, Statistical Process Control (SPC), Statistical Quality Control (SQC), and other management policies and strategies.

MECH - 4003 Solid Modeling, 3.00 Credits  
Prerequisite(s): MECH 1603 with D or better or (MECH 1012 with D or better and MECH 1022 with D or better)  
Level: Lower  
Applied Learning-Practicum  
This course is an introduction to 3D solid modeling techniques utilizing feature-based, constraint-based parametric design. This course encourages the student to visualize parts in the 3D world and have a "design intent" plan for each part in which they will design. This will help in the arrangement of assemblies, parts, features, and dimensions to meet design requirements.

MECH - 4024 Dynamics, 4.00 Credits  
Prerequisite(s): (MATH 1063 with D or better or MATH 1084 with D or better) and (MECH 2603 with D or better or MECH 3113 with D or better or MECH 3334 with D or better or ENGR 3213 with D or better)  
Level: Lower  
The course will emphasize applications of material involving the two basic concepts of dynamics, i.e., kinematics and kinetics and will introduce the students to vibrations. The course will include the study of levers, links, slide mechanisms, scotch yoke and the principles of force, torque, velocity, acceleration, inertia and friction. The course will use the principals of Equilibrium, Work-Energy and Impulse-Momentum along with Newton’s Second Law to examine a variety of problems.

MECH - 4224 Mechanical Systems Design, 4.00 Credits  
Prerequisite(s): MECH 3224 with D or better or MECH 3223 with D or better  
Level: Lower  
Applied Learning-Other  
The course will emphasize the application of mechanical design for industrial machinery. The lecture material for this course will be enhanced through a laboratory experience using design techniques that include the creation of working industrial drawings, parametrically driven spreadsheet solutions of design problems, and component sizing and dimension determinations. This course will include the study of rigid coupling design and flywheels. Also covered in this class are spring design and selection, bolted and welded joint design, column support and lifting lug design. The techniques of component design will also include extensive use of online database information, standards and manufacturers specifications, and manufacturing for assembly. At all times in this class, the design and development for manufacturability will be paramount. This class includes several applied laboratory experiences.

MECH - 4333 CAM II, 3.00 Credits  
Prerequisite(s): MECH 3203 with D or better  
Advanced CAM is a follow-up course to MECH 3204 and MECH 3203 CAM (Computer Aided Manufacturing) and MECH 4003 (Solid Modeling). The course will introduce advanced Computer Aided Manufacturing topics such as APT (Automatically Programmed Tools) programming, additional CNC machine programming, solid modeling and Reverse Engineering Projects using a Coordinate Measurement Machine/System (CMM).

MECH - 4523 Control System Fundamentals, 3.00 Credits  
Prerequisite(s): MATH 1033 with D or better or MATH 1034 with D or better or MATH 1054 with D or better or MATH 1063 with D or better or MATH 1084 with D or better or MATH 2003 with D or better or MATH 2074 with D or better or MATH 2094 with D or better or MATH 6114 with D or better  
Level: Lower  
Applied Learning-Practicum  
This course introduces students to the electronic components commonly used to monitor and control mechanical systems. Topics include principles of measurement, instrumentation, data acquisition, and control systems with an emphasis on mechanical engineering technology applications. Students build simulated control systems using switches and both traditional and solid state relays common on modern industrial machines. Safety interlock systems, delay circuits, and motor circuits are designed and wired. Lab projects allow students to experience a variety of design solutions and trouble-shoot electronic control systems.

MECH - 4554 Computer Aided Mfg Fundamentals, 4.00 Credits  
Level: Lower  
This course applies the skills from manufacturing processes and solid modeling to a modern production manufacturing environment. It introduces basic skills in word address programming as well as advanced computer aided manufacturing topics such as automatically programmed tool (APT) programming, computer numeric control machine programming, solid modeling and the use of computer aided design and manufacturing software. Reverse engineering projects using a coordinate measurement machine will also be performed. The course includes a final project where students design and produce a component using modern manufacturing techniques.

MECH - 4900 Directed Study, 1.00 TO 6.00 Credits  
Level: Lower  
A student may contract for one to six credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the progress of the study.

MECH - 5334 Mechanics of Materials, 4.00 Credits  
Prerequisite(s): MATH 2074 with D or better and MECH 3334 with D or better  
Level: Upper  
Applied Learning-Practicum, Course Fee $15.00  
This course is a calculus-based study of advanced concepts in Mechanics of Materials. It addresses the behavior of deformable mechanical components when subjected to tension, compression, torsion, flexure/bending or a combination of these loads. Extensive use is made of free body diagrams as well as Mohr’s Circle for stress and strain. Experience is gained in the analysis of beam deflection, shafts in torsion, power, column buckling and thin walled pressure vessels. Analysis includes examination of stress concentrations, elastic and inelastic response, residual stresses, indeterminate structures and thermal effects. Superposition, singularly functions and theories of failure are studied. Laboratory experiences include traditional mechanical material testing and computer software applications.

MECH - 5900 Directed Study, 1.00 TO 6.00 Credits  
Level: Upper  
A student may contract for one to six credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the progress of the study.
COURSE DESCRIPTIONS

MECH - 6334 Fluid Mechanics, 4.00 Credits
Prerequisite(s): MATH 2074 with D or better
Level: Upper
Applied Learning Practicum
This course is an introduction to the theory and application of continuum fluid mechanics. Fluid properties and state relations are studied. Incompressible laminar and turbulent flows are investigated using control volume and momentum and energy equations. Navier-Stokes Equations are developed. Flow rate, pipe sizing and minor losses in pipe systems are addressed. Compressible flow and gas dynamics are introduced and include topics in boundary layer theory. Mach number, stagnation properties and shock waves. Turbomachinery, pumps and turbines are included. Weekly laboratory exercises address most of the above topics with applied projects and organized experiments.

MECH - 6643 Process Engineering & Manufact, 3.00 Credits
Prerequisite(s): MECH 1663 with D or better and MATH 7123 with D or better *
Level: Upper
Applied Learning Practicum
This course emphasizes techniques, processes, and factors that contribute to manufacturing processes and operations decision making. Selected topics to be discussed included: 6 sigma DMAIC, KAIZEN, SS, work flow and project planning and scheduling. Computer Integrated Manufacturing/Management (CIM), Design for Manufacturing (DFM), Just In Time (JIT) manufacturing strategies, Statistical Process Control (SPC), Statistical Quality Control (SQC), and other potential management policies and strategies. Students will complete a department designated professional project.

MECH - 7114 Applied Thermodynamics, 4.00 Credits
Prerequisite(s): MATH 2074 with D or better or MATH 2094 with D or better
Level: Upper
This course covers the basic concepts of thermodynamics including property evaluation of ideal gases and compressible substances. Theory and application of the first and second laws of thermodynamics relating to pumps, compressors, turbines, heat exchangers; power cycles-Carnot. Rankine; refrigeration cycles-vapor compression, heat pump are covered. Problem-solving skills are applied to ideal as well as actual cycles. Basic principles of energy conversion, energy conservation, efficiencies and environmental impacts are explored.

MECH - 7153 Fluid Power Systems Design, 3.00 Credits
Prerequisite(s): ( MECH 4523 with D or better or ELET 4143 with D or better or ELET 6143 with D or better ) and ( MECH 2603 with D or better or MECH 3113 with D or better or MECH 3334 with D or better )
Level: Upper
Applied Learning Practicum
This is an upper level design course for all aspects of fluid power systems. Both hydraulic and pneumatic systems are covered. Topics covered in this class include pneumatic circuits, hydraulic power systems, hydrostatic transmissions, and electro-hydraulic control systems. Emphasis will be placed on system design and hydraulic and pneumatic component specification. The course prepares students to sit for the Hydraulic Specialist industry certification exam hosted by the National Fluid Power Society.

MECH - 7403 Microfabrication Technology, 3.00 Credits
Prerequisite(s): ( PHYS 1024 with D or better or PHYS 1044 with D or better ) and ( CHEM 5013 with D or better or ELET 1202 with D or better )
Level: Upper
Applied Learning Practicum
This is an upper level design course for all aspects of microfabrication and MEMS (microelectromechanical systems) technology and respond to calls from industry to provide undergraduate students with more multidisciplinary experiences. The course provides a comprehensive introduction to technology of miniaturization and its application. Methods and tools to create miniature electromechanical architectures are discussed. Students will gain hands-on experience required in small microfabrication industry and learn basics of design, fabrication, and characterization of MEMS devices. The course is ideal for junior and senior undergraduate students who are looking to perform senior projects in this field, find a career in the microfabrication industry, or pursue graduate studies in MEMS.

MECH - 7603 Heat Transfer, 3.00 Credits
Prerequisite(s): MECH 7114 with D or better and MATH 6114 with D or better and MECH 6334 with D or better
Level: Upper
This course is a study of the physical effects of heat transfer phenomena including conduction, convection, and radiation. This course will include the concepts of control volume analysis, conversion laws of mass, momentum and energy, steady state and transient conduction, laminar and turbulent convection, and phase change. A wide range of engineering problems will be presented to the students for solution using algebraic, differential and/or finite-difference methods. The heat transfer process will be directly applied in the design and analysis of thermal energy systems.

MEDR - HEALTH INFO TECH

MEDR - 1114 Intro to Health Info Management, 4.00 Credits
Prerequisite(s): COMP 1503 with C or better *
Level: Lower
This is a lecture- and lab-based online course that covers the study of health record content, documentation, compliance with regulations and standards; the role of HIM professionals; data retention, storage and retrieval, and destruction; release of information, privacy, confidentiality, and HIPAA; legal and ethical issues related to healthcare documentation; the principles to the practice of HIM; primary and secondary use of data; and healthcare organizations and delivery systems.

MEDR - 1132 Essentials of Pharmacology, 2.00 Credits
Prerequisite(s): MEDR 1113 with C or better *
Level: Lower
This is a lecture-based online course that includes the study of body systems and functions, including the structure, meaning, and use of medical terms related to diseases and operations of the human body. Body systems studied include integumentary, musculoskeletal, nervous, sensory organs, endocrine, cardiovascular, respiratory, reproductive, genitourinary, and digestive. Units on psychiatry, psychology and pharmacology (drugs) are also covered. Students also learn how to use research medical information (e.g., such as reputable electronic medical resources).

MEDR - 1223 Hlth Data Mgmt & Hilcare Stat, 3.00 Credits
Prerequisite(s): MEDR 1114 with C or better
Level: Lower
This is a lecture-based course offered in both traditional on-campus and on-line formats that includes the study of body systems and functions, including the structure, meaning, and use of medical terms related to diseases and operations of the human body. Body systems studied include integumentary, musculoskeletal, nervous, sensory organs, endocrine, cardiovascular, respiratory, reproductive, genitourinary, and digestive. Units on psychiatry, psychology and pharmacology (drugs) are also covered. Students also learn how to use research medical information (e.g., such as reputable electronic medical resources).

MEDR - 1234 CPT & HCPCS Level II Coding, 4.00 Credits
Prerequisite(s): ( MEDR 1114 with C or better and MEDR 1132 with C or better ) and ( BIOL 2214 with C or better or BIOL 2504 with C or better ) and ( BIOL 4403 with C or better )
Level: Lower
This is a lecture- and lab-based online course that includes a study of the CPT and HCPCS level II classification systems and outpatient and physician office reimbursement methodologies. Topics of study include the use and maintenance of electronic applications and work processes that support clinical classification and coding; assignment of diagnosis and procedure codes using current nomenclature; ensuring the accuracy of procedural groupings (e.g., ambulatory payment classifications, Medicare physician fee schedule); interpretation of regulations and coding guidelines; validation of coding accuracy by using clinical information located in the health record; and use of clinical data for reimbursement and prospective payment systems.
MKTG - 1063 Principles of Sales, 3.00 Credits
Prerequisite(s): MKTG 1234 with C or better and MKTG 1244 with C or better
Level: Lower
A lecture- and lab-based online course that includes intermediate and advanced study of the ICD-10-CM and ICD-10-PCS (abbreviated as ICD-10-CM/PCS), CPT, and HCPCs level II classification systems. Application-based assignments allow students to demonstrate their mastery of coding conventions, coding principles, and official inpatient and outpatient coding guidelines. Students use inpatient and outpatient e.g., ambulatory surgery, emergency department, physician office) case studies and patent records to assign codes to diagnosis/procedure statements and generate physician queries. ICD-10-CM, ICD-10-PCS, CPT, and HCPCs level II coding manuals and encoders (e.g., CodeFinder, CodeCorrect.com, Encoder Pro, Quantum) are required. Students generate diagnosis-related groups (DRGs) and ambulatory patient classifications (APCs) for inpatient and outpatient cases, respectively, and complete assignments to master other prospective payment systems (e.g., ambulatory surgical center payments, resource utilization groups, home health resource groups).

MKTG - 3114 Electronic Health Record Mgmt, 4.00 Credits
Prerequisite(s): MKTG 1114 with C or better
Level: Lower
This is a lecture- and lab-based online course that includes the completeness, reliability, accuracy, and validity of electronic health records and electronic secondary data sources according to organizational policies, external regulations and health information management standards. Legal, regulatory, departmental, and organizational policies and procedures for data/information standards for internal and external use, exchange, confidentiality, privacy and security measures, access and disclosure, retention and destruction of patient protect electronic health information. The use of software in the completion of HIM processes. A review of the processes used in the selection and implementation of electronic health information management systems including project management methodologies and vendor/contract management. Health information analytics and report generation technologies to facilitate decision-making and support enterprise-wide decision support for strategic planning, and the current trends and future challenges in health information technology.

MEDR - 3414 Quality & Legal Aspects of HIM, 4.00 Credits
Prerequisite(s): MEDR 1114 with C or better * and MEDR 1223 with C or better * and ( MEDR 5114 with C or better * or MEDR 3114 with C or better *)
Level: Lower
This is a lecture- and lab-based online course that includes a study of healthcare information requirements and standards, healthcare statistics and research with an emphasis on data quality and integrity; quality management and performance improvement; healthcare delivery systems with an emphasis on external standards, regulations, and initiatives; and healthcare privacy, confidentiality, and legal, and ethical issues.

MEDR - 4111 Health Informatn Tech Seminar, 1.00 Credit
Prerequisite(s): MEDR 1114 with C or better and MEDR 1223 with C or better and ( MEDR 5114 with C or better or MEDR 3114 with C or better ) and MEDR 1244 with C or better and MEDR 1234 with C or better and MEDR 3414 with C or better and MEDR 4214 with C or better * and MEDR 4514 with C or better * and MEDR 4312 with C or better * and MEDR 4322 with C or better *
Level: Lower
A lecture-based online course that includes content new to the health information management (HIM) profession and to which students did not receive instruction in previous course(s). Examples of such content includes, but is not limited to, new and revised coding classification systems, federal and state statutes (laws) and regulations, information technology initiatives, and so on. Appropriate preparation for taking the Registered Health Information Technology (RHIT) exam is integrated throughout the course, during which students will complete practice exams in HIM content areas and interact with the instructor(s) in discussion board forums to receive clarification about concepts and study techniques. This course should be taken in the student’s last semester of study.

MEDR - 4213 Leadership in Health Info Tech, 3.00 Credits
Prerequisite(s): MEDR 3414 with C or better and MEDR 4514 with C or better *
Level: Lower
This is a lecture-based online health information technology course covering the study of leadership topics specific to health information technology including team leadership; change management; work processes and goals; utilization of data in management roles; labor regulations; resource requirements; training and development methodology; cultural issues affecting health, healthcare quality, cost, and programs; and policies that support a culture of diversity.

MEDR - 4214 InsuranceReimbursement, 4.00 Credits
Prerequisite(s): MEDR 1114 with C or better and MEDR 1244 with C or better and MEDR 1234 with C or better
Level: Lower
This is a lecture- and lab-based online course that includes a study of clinical classification systems, reimbursement methodologies, and financial management. The course includes completion of CMS-1500 (UB-04) and CMS-1500 claims for inpatient, outpatient, emergency department, and physician office encounters as well as a review of inpatient and outpatient cases to identify issues of fraud and abuse.

MEDR - 4312 HIM Operations PPE, 2.00 Credits
Prerequisite(s): MEDR 1114 with C or better and MEDR 1223 with C or better and ( MEDR 5114 with C or better or MEDR 3114 with C or better ) and MEDR 1244 with C or better and MEDR 1234 with C or better and MEDR 4214 with D or better * and MEDR 4514 with D or better * and BIOL 1114 with C or better and BIOL 2214 with C or better and BIOL 4403 with C or better and MEDR 3414 with C or better
Level: Lower
Applied Learning-Practicum, Clinical Liability Insurance
This course is designed to provide students with a professional practice experience (PPE) that includes supervised practical application at a healthcare facility health information management department. On site at the healthcare facility students will be under the supervision of a qualified Registered Health Information Administrator (RHIA), Registered Health Information Technician (RHIT), or other qualified personnel to whom they are assigned. The PPE is designed to enable students to obtain actual practical experience in theoretical and application-based procedures previously studied. Students will complete a maximum of 80 unpaid hours on site. Students will be required to complete weekly logs, discussion board postings of their experience, and submit a completed student handbook along with a final project at the end of their PPE. If a student is not able to be placed at a healthcare facility, internet-based laboratory projects/assignments, which are evaluated by college faculty, will be required by the student, to simulate a virtual PPE.

MEDR - 4322 Coding PPE, 2.00 Credits
Prerequisite(s): MEDR 1114 with C or better and ( MEDR 3114 with C or better or MEDR 5114 with C or better ) and MEDR 1244 with C or better and MEDR 1234 with C or better and MEDR 4214 with C or better * and BIOL 1114 with C or better and BIOL 2214 with C or better and BIOL 4403 with C or better
Level: Lower
Applied Learning-Practicum, Clinical Liability Insurance
This course is designed to provide students with a professional practice experience (PPE) that includes supervised practical application at a healthcare facility health information management department to provide coding opportunities utilizing ICD-10-CM/PCS, CPT and HCPCs level II codes. On site at the healthcare facility students will be under the supervision of a qualified Registered Health Information Administrator (RHIA), Registered Health Information Technician (RHIT), or other qualified personnel to whom they are assigned. The PPE is designed to enable students to obtain actual practical experience in theoretical and application-based procedures previously studied. Students will complete a maximum of 80 unpaid hours on site. Students will be required to complete weekly logs, discussion board postings of their experience, and submit a completed student handbook along with a final project at the end of their PPE. If a student is not able to be placed at a healthcare facility, internet-based laboratory projects/assignments, which are evaluated by college faculty, will be required by the student, to simulate a virtual PPE.

MEDR - 4514 Alternate Care Hlth Info Mgmt, 4.00 Credits
Prerequisite(s): MEDR 1114 with C or better * and MEDR 1223 with C or better * and ( MEDR 5114 with C or better * or MEDR 3114 with C or better *)
Level: Lower
This is a lecture- and lab-based online course that includes a study of health information management (HIM) consulting, cancer registry management, healthcare information requirements and standards in alternative healthcare settings (e.g., behavioral healthcare facilities, correctional facilities, long-term healthcare facilities, etc.), clinical classification systems for alternate health care (e.g., DSM-5, ICD-0-3, SNOMED-CT), alternate healthcare delivery systems, HIM human resources, and HIM financial and resource management.

MEDR - 4900 Directed Study, 1.00 TO 6.00 Credits
Level: Lower
An internet-based elective course for students interested in advanced work in health information management in an area of special interest. Enrollment is limited in order to allow each student the opportunity to pursue his/her area of special interest.

MKTG - MARKETING

MKTG - 1033 Advertising Principles, 3.00 Credits
Prerequisite(s): MKTG 2073 with D or better
Level: Lower
Students will learn the uses and power of advertising and how to apply these concepts to daily business. Students will get a basic understanding of advertising concepts and how to apply them to various media. Utilizing good design and marketing techniques, students will analyze and create advertisements for business use.

MKTG - 1063 Principles of Sales, 3.00 Credits
Prerequisite(s): MKTG 2073 with D or better
Level: Lower
This course examines the principles and methods of sales with respect to the salesperson, their company, products, and customers. Emphasis is placed on the selling process: prospecting, pre-approach, approach, presentation, trial close, meeting objections, and closing. Students will design and implement an industrial sales presentation.
MKTG - 2073 Principles of Marketing, 3.00 Credits
Level: Lower
Applied Learning-Practicum
Principles of Marketing introduces students to the field of marketing. The course emphasizes marketing functions and institutions as they pertain to the product, price, place, and promotion aspects of bringing goods and services to the consumer. Students learn how to evaluate marketplace potential and risk of delivering marketing offerings with meaningful customer value. Students will participate in classroom presentations, discussions, team problem solving and analysis of real-life marketing situations. The creation of a comprehensive marketing plan will be required.

MKTG - 3153 Web Design & Marketing, 3.00 Credits
Prerequisite(s): MKTG 2073 with D or better
Level: Lower
This course will introduce the student to web design and marketing concepts and tools of contemporary marketing management, from market segmentation and product positioning to the design of distribution channels and communications strategy, in order to maximize the value delivered to customers. A Strategic Marketing Plan will be required.

MOTO - MOTORCYCLE/POWER SPORTS

MOTO - 1003 Intro to Shop Service Basics, 3.00 Credits
Level: Lower
Applied Learning-Practicum
This course will familiarize the student with the general operation of a motorcycle and power sports repair facility. Topics will include: typical business operating procedures, safety, tools, equipment, and hazardous materials.

MOTO - 1005 Basic Electrical Systems, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course will introduce the student to basic electrical systems used on modern motorcycles and power sports vehicles. Instruction will focus on the use of basic test equipment to diagnose and repair electrical concerns in all electrical systems used on modern motorcycles and power sports vehicles.

MOTO - 1015 Welding & Fabrication, 5.00 Credits
Level: Lower
Applied Learning-Practicum, Course Fee $129.00
This course will familiarize the student with all common welding and fabrication techniques using a variety of equipment including: oxy-acetylene torches, Arc welders, M.I.G. welders, T.I.G. welders, plasma cutters, metal breaks, and metal sheers.

MOTO - 1025 Brake Systems, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course will cover brake systems used on all types of motorcycles and power sports vehicles. Topics covered include: Component identification, hydraulic principals and component operation including anti-lock brakes; diagnosis and service of brake systems.

MOTO - 2005 Starting & Charging Systems, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course will cover starting and charging systems used on all types of motorcycles and power sports vehicles. Topics covered include: Starter types, Alternator/Generator types, system wiring, testing and diagnosis.

MOTO - 2013 Inspection & Preventative Mntn, 3.00 Credits
Level: Lower
Applied Learning-Practicum
This course focuses on NYS vehicle inspection, vehicle maintenance, heating and air conditioning systems.

MOTO - 2015 Suspension & Steering Systems, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course will cover suspension and steering systems used on all types of motorcycles and power sports vehicles. Topics covered include: Component identification, operation of suspension and steering systems; wheel alignment principals, measurement, and adjustments; diagnosis of steering and suspension concerns; steering and suspension component removal and replacement.

MOTO - 2035 Fuel & Ignition Systems, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course will cover ignition and fuel systems used on all types of motorcycles and power sports vehicles. Topics covered include: Carburation, fuel injection, magneto, point ignition, and electronic ignition.

MOTO - 3003 Diesel Engines, 3.00 Credits
Level: Lower
Applied Learning-Practicum
This course will cover diesel engines used on all types of power sports vehicles. Topics covered included: engine operation, fuel systems, diagnosis, and service procedures.

MOTO - 3005 Two & Four Stroke Engines, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course will cover the air and water cooled two and four stroke engine used on all types of motorcycles and power sports vehicles. Topics covered include: engine operation, diagnosis, and service procedures.

MOTO - 3015 Transmissions, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course will cover all types of motorcycles and power sport vehicle transmissions. Topics covered include: Transmission types operation, diagnosis, and service procedures.

MOTO - 3035 Drive Systems, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course will cover all types of motorcycles, power sport, and marine vehicle drive systems. Topics covered include: Drive system types operation, diagnosis, and service procedures.

MOTO - 4005 Advanced Drivability, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course will cover all types of motorcycles and power sport vehicles. Topics covered include: The use of advanced technologies and procedures to diagnose and repair drivability concerns. Instruction will focus on the use of advanced test equipment to diagnosis concerns in computer controlled systems used on modern motorcycles and power sports vehicles.

MOTO - 4015 Advanced Electrical, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course will cover all types of motorcycles and power sports vehicles. Topics covered include: The use of advanced technologies and procedures to diagnose and repair electrical concerns. Instruction will focus on the use of advanced test equipment to diagnosis concerns in all electrical systems used on modern motorcycles and power sports vehicles.
MOTO - 4023 Exhaust & Induction Systems, 3.00 Credits  
Level: Lower  
Applied Learning-Practicum  
This course will cover exhaust and induction systems used on all types of motorcycles and power sports vehicles. Topics covered include: exhaust, intake, and forced induction; diagnosis and service.

MOTO - 4025 Advanced Applications, 5.00 Credits  
Level: Lower  
Applied Learning-Practicum  
This course focuses on repair facility management practices. Paperwork processing, employee and customer relations are included.

NASC - NATURAL SCIENCE

NASC - 1001 Astronomy Laboratory, 1.00 Credit  
Level: Lower  
Liberal Arts and Science  
This laboratory course is designed to accompany NASC 1003 for the student who wishes a laboratory component to astronomy. It will cover many of the same topics as the astronomy course but using a laboratory setting including the use of a telescope, computers, graphing, and various measuring instruments, and astronomical charts.

NASC - 1003 Astronomy I, 3.00 Credits  
Level: Lower  
Gen Ed - Natural Sciences, Liberal Arts and Science  
This course is an introduction to planetary science and positional astronomy. Topics covered are positional astronomy; synodic and sidereal periods; phases; planetary motion; the nature of science and its application to astronomy; gravity and Kepler's Laws of Planetary Motion; light and telescopes, the physical properties of the planets and other Solar System bodies; the evolution of planets; the evolution of the Solar System; extra-solar planets and life elsewhere in the Universe.

NASC - 1043 Physical Science Survey, 3.00 Credits  
Level: Lower  
Gen Ed - Natural Sciences, Liberal Arts and Science  
This course is a survey of the principles and applications of the physical and earth science. The course covers basic topics in physics, astronomy, geology, meteorology, environmental science and earth science. The nature and practice of science will also be discussed.

NASC - 2003 Astronomy II, 3.00 Credits  
Level: Lower  
Gen Ed - Natural Sciences, Liberal Arts and Science  
This course is designed as a continuation of NASC 1003, Astronomy, or as a separate introduction to stellar evolution and cosmology. It will introduce advanced topics from the fields of astronomy and cosmology. Emphasis will be placed on scientific process and critical thinking. This course is suitable for science majors or as a science elective. Topics to be covered are: star cycles, galactic evolution and cosmology. An optional laboratory course will be offered.

NURS - NURSING

NURS - 1011 NURS Living Learning Comm I, 1.00 Credit  
Level: Lower  
Pass/Fail  
Nursing Seminar - Conceptual Skill Building is the beginning foundation of concept based learning in nursing. The course content includes the concepts of critical thinking, observational skills, caring, and recognizing self-development. Emphasis is placed on individual skill building and enhancing self-confidence. The student is also introduced to the development of an individual portfolio to assist in meeting personal goals and to reflect on accomplishments. Engagement in the college culture will be explored through a designated living area in a residence hall, planned tours of college resources, and increased faculty contact during engaging concept-based learning activities. Conceptual skill building and self-development skills will facilitate student transition into a healthy lifestyle and reduce stress while participating in the Associate Degree Nursing program.

NURS - 1108 Nursing I, 8.00 Credits  
Level: Lower  
Applied Learning-Clinical Plcm, Clinical Liability Insurance, Course Fee $17.00  
Nursing I is the foundation course in the nursing curriculum. Its content represents commonalities of knowledge and skills considered fundamental to subsequent nursing courses. Emphasis is placed on basic needs of an individual and how these vary, depending on their physical and emotional state and level of development. The student is introduced to the nursing process with an emphasis on assessment and planning. The student develops beginning skills in assisting patients with major health concerns to meet their basic needs. Areas of concentration include but are not limited to: legal/ethical responsibilities of the nurse, concepts of mental health, therapeutic communication and asepsis principles are incorporated throughout the course. The development of basic nursing skills begins in a structured campus lab setting and continues in the clinical lab.

NURS - 2001 Seminar in Nursing II, 1.00 Credit  
Level: Lower  
Clinical Liability Insurance  
This course is designed to familiarize students with the expectations of the nursing program. It is an elective course to be taken by interested students the semester before their first nursing course. The objectives focus on an overview of the philosophy of nursing, theoretical and practical applications of nursing process concepts, and roles of the nurse. Classroom discussions, observations of actual nursing classes and field trips are planned to enhance the student's awareness of the expectations of the nursing program.

NURS - 2011 NURS Living Learning Com II, 1.00 Credit  
Level: Lower  
Pass/Fail  
This course is the expansion of Nursing Seminar - Conceptual Skill Building I, which enhances concept based learning in nursing. Its content represents concepts of critical thinking, observational, listening, and psychomotor skills. Emphasis is placed on individual self-development, caring and team skill building. The students will develop an individual portfolio to assist in meeting personal goals and reflection of accomplishments. Engagement in the college culture will be explored through participation in campus events, presentations, and through off site cultural engagement. The students will implement stress reduction exercises. Conceptual skill building, self-development skills, and team building will promote student transition into a healthy lifestyle and reduce stress while participating in the Nursing Program.

NURS - 2201 Trans to Assoc Degree Nursing, 1.00 Credit  
Level: Lower  
Clinical Liability Insurance, Applied Learning-Clinical Plcm  
This course orients the student to the philosophy, objectives and curriculum design of the Nursing Program and focuses on the nursing process, therapeutic communication, nursing skills and computation competency. This course is required for the transfer student who successfully challenges or receives transfer credit for Nursing 1109 or Nursing 2209 and seeks advanced placement in the Nursing Program.

NURS - 2208 Nursing II, 8.00 Credits  
Prerequisite(s): NURS 1108 with C or better or NURS 1109 with C or better  
Level: Lower  
Applied Learning-Clinical Plcm, Clinical Liability Insurance, Course Fee $14.00  
In Nursing II, the student uses the nursing process to assess, plan, implement, and evaluate nursing care to meet basic needs of clients with major health concerns. Health problems are studied in depth with emphasis on client education, and disease prevention. Areas of concentration include: crisis, maternal-child health, the surgical experience, diabetes, and caring for individuals with respiratory, cardiovascular and gastrointestinal problems. The campus lab continues to be used for the acquisition, practice, and evaluation of technical skills. In the clinical area, the student cares for clients whose conditions are relatively stable and predictable. Observational experiences include rotations to obstetrics, operating and recovery rooms. The student uses a variety of methods to acquire competence in learning objectives and demonstrates increased responsibility for learning.

NURS - 3310 Nursing III, 10.00 Credits  
Prerequisite(s): ( NURS 2208 with C or better or NURS 2209 with C or better ) and ( BIOL 4254 with C+ or better or BIOL 5254 with C+ or better )  
Level: Lower  
Applied Learning-Clinical Plcm, Clinical Liability Insurance, Course Fee $23.00  
In Nursing III, the student applies the nursing process to assess, analyze, plan, implement, and evaluate nursing care for two or more clients with chronic and/or critical health concerns. The student further develops their role as a teacher by formulating and implementing teaching based upon a client's individual needs. Major health concerns include but are not limited to: psychiatric, blood disorders, hepatic problems, immunological, musculoskeletal disorders, cancer, genitourinary, gynecological problems, neurological disorders, and acute cardiac problems. The student considers some of the major health problems of children. The student begins to care for clients in more complex situations in the clinical setting incorporating therapeutic verbal and nonverbal communication skills.
COURSE DESCRIPTIONS

NURS - 4001 Decision-Making in Nursing, 1.00 Credit
Prerequisite(s): NURS 3311 with C+ or better
Corequisite(s): NURS 3311 with C+ or better
Level: Lower
This one credit elective course focuses on decision making in nursing using evidence based practice as guidelines to assist the graduate in nursing practice. The primary focus of the course will be prioritization, evaluation of care relative to quality improvement, delegation, and performance based evaluation. National Council Licensure Examination for Registered Nurses (NCLEX-RN) test plan and administrative processes are emphasized throughout the course. Stress reduction techniques are integrated throughout the course to enhance coping mechanisms. Employment seeking strategies are also incorporated into the course to augment professional transition into the professional workforce of nursing.

NURS - 4410 Nursing IV, 1.00 Credits
Prerequisite(s): NURS 3311 with C+ or better or NURS 3310 with C+ or better and ( NURS 4254 with C+ or better or NURS 4257 with C+ or better )
Level: Lower
Applied Learning-Clinical Plcm, Clinical Liability Insurance. Course Fee $12.00
In Nursing IV, the student increases skills in applying the nursing process to a group of clients with chronic and/or critical health problems. The student develops his/her professional role as a leader and manager and is prepared for the transition from student to graduate. Nursing IV involves the student in specialty areas such as the Emergency Department, Intensive Care Unit and Community Agencies. Major health areas which are investigated include, but are not limited to: Endocrine, Neurology, Cardiac, Respiratory, Obstetrical and Trauma Emergencies. To develop the role as a professional, the student participates in a group leader rotation. Clinical experiences include a variety of settings and a two day preceptorship are included. Students continue to focus on prevention and health education in the clinical and community setting. In the clinical lab, the student cares for a group of clients with more critical and complex situations.

NURS - 5003 Ethical Issues in Health Care, 3.00 Credits
Prerequisite(s): NURS 2209 with C or better or NURS 2208 with C or better
Level: Upper
This course examines ethical positions arising from the advancement of modern medicine. Emphasis is placed on ethical theories and principles that guide decision-making in healthcare. Critical reasoning skills are used to analyze ethical issues and to help students understand how to make action oriented decisions for controversial healthcare questions. Aspects of inquiry and ways of knowing are explored, relative to selected ethical dilemmas or issues.

NURS - 5023 Contemporary Nursing, 3.00 Credits
Prerequisite(s): NURS 2209 with C or better or NURS 2208 with C or better
Level: Upper
This course focuses on the healthcare of elders including the unique aspects of aging across the adult lifespan. The course builds on previously acquired knowledge and skills to allow a student to complete a comprehensive health assessment. Technological aspects for health assessment and promotion are addressed with the use of simulation where appropriate. Socio-cultural influences, growth and development, and gender are concepts integrated in the course. Students will be required to produce and present a health promotion plan.

NURS - 5023 Nursing Leadership/Management, 3.00 Credits
Prerequisite(s): NURS 5003 with C or better and NURS 8003 with C or better
Level: Upper
Applied Learning-Clinical Plcm, Clinical Liability Insurance
This nursing course focuses on the development of decision-making knowledge and skills for the nurse leader. The principles of management and leadership are addressed in the course. Course content includes role concepts, change theory, fiscal management, organizational structure, conflict resolution, impact of unionization, quality control, and performance appraisal. In addition, evidence-based leadership and decision-making for public policy are explored in the course. Lastly, applied learning will be implemented with an in-person immersion with a nursing leader to explore the nurse leadership role.

NURS - 6413 Health Asmt & Promotion Acros, 3.00 Credits
Prerequisite(s): NURS 2209 with C or better or NURS 2208 with C or better
Level: Upper
This course focuses on a wholistic approach to health assessment and promotion across the life span. The course builds on previously acquired knowledge and skills to allow a student to complete a comprehensive health assessment. Technological aspects for health assessment and promotion are addressed with the use of simulation where appropriate. Socio-cultural influences, growth and development, and gender are concepts integrated in the course. Students will be required to produce and present a health promotion plan.

NURS - 7003 Nursing Research, 3.00 Credits
Prerequisite(s): ( MATH 1123 with C or better and MATH 2124 with C or better ) and ( NURS 2209 with C or better or NURS 2208 with C or better ) and NURS 5003 with C or better
Level: Upper
This course provides the student with the opportunity to examine the role of the nurse in the generation and application of research in the healthcare domain. The course focuses on the study and analysis of research in nursing practice to optimize client outcomes. Course content includes discussion of problem formulation; identification of variables; research design and methodology; data collection and analysis; and interpretation of findings. In addition, the course will focus on how theory and research relate to evidence-based practice. The steps of the research process will have sufficient depth covered to allow for a beginning appreciation of scholarly inquiry and evaluation of selected nursing research studies. Student groups will present a topical research literature review.

NURS - 7004 Population Focused Care in Com, 4.00 Credits
Level: Upper
Applied Learning-Field Study, Clinical Liability Insurance
Current RN licensure is required for this course. This course focuses on the role of the nurse in the evaluation of current public health issues and population-focused health care delivery. Key public health concepts and frameworks will be examined from an evidenced based perspective. Principles of social justice and public health policy will be discussed as they interrelate with a variety of populations, with an emphasis on specific needs of rural communities. A forty-five hour preceptor guided community health immersion experience will provide an opportunity for the student to utilize the public health nursing model to participate in community assessment, identify resources, plan, execute and evaluate a primary health prevention/promotion project.

NURS - 7023 The History,Image & Culture Nsg, 3.00 Credits
Prerequisite(s): NURS 5003 with C or better and NURS 8003 with C or better
Level: Upper
This course is designed to provide an overview of the history of nursing and nursing images as they relate to nursing culture and the American health care system and society. Using historical research methods, students will explore fundamental principles for critiquing historical studies or narratives. The course will address issues of class, race, gender, and societal values as possible influences on the development of the nursing profession and nursing culture. By the end of the course, students will be able to describe the impact of historical, societal and cultural influences on modern nursing.

NURS - 7033 Healthy Aging in Rural Areas, 3.00 Credits
Prerequisite(s): NURS 5003 with C or better and NURS 8003 with C or better
Level: Upper
This course focuses on the healthcare of elders including the unique aspects of aging across the adult lifespan. Elders and their needs are framed from a physical, psychological, social, cultural and spiritual perspective and within a family and community environment. Emphasis in the course is on health maintenance, prevention, and promotion as well as maintaining function and preventing disability in the elderly. The student will offer a presentation addressing contemporary nursing and healthcare issues affecting elders in rural areas.

NURS - 8003 Informtics&Tech App in Hlthcare, 3.00 Credits
Prerequisite(s): NURS 2209 with C or better or NURS 2208 with C or better
Level: Upper
This course will focus on informatics and technology applications in the healthcare setting. The course covers the use of information systems and technologies such as telehealth, electronic health record (EHR), distance and e-learning, use of secondary data, and databases. In addition, the course will explore the use of portable and personal devices such as smart phones, tablets, laptop and other mobile platforms in the healthcare setting. The course will also address the integration of topics related to legal, ethical, and policy issues affecting information management and technology in healthcare delivery. Finally, the course will explore information technology systems as they relate to workflow and redesign in various healthcare settings to improve client outcomes.

NURS - 8013 Professional Capstone, 3.00 Credits
Prerequisite(s): NURS 5003 with C or better and NURS 6413 with C or better and NURS 7003 with C or better
Level: Upper
Applied Learning-Creative Work
Current RN licensure is required for this course. This capstone course continues to expand and explore content to prepare the student for an autonomous role as a baccalaureate prepared practitioner in health care. Course activities help the student identify a health care need in a rural setting to design and implement a project to address the selected concern. In addition, the course content allows the student to further develop a personal philosophy through the culminating socialization process to the expanded and autonomous role.
COURSE DESCRIPTIONS

NURS - 8043 Politics & Economics in Nursin, 3.00 Credits
Prequisite(s): NURS 5003 with C or better and NURS 8003 with C or better
Level: Upper
This course is designed to provide the student with a knowledge base and develop skills in influencing policy in today's changing health care environment. The course focuses on the politics of health policy in terms of legislative and executive processes at the local, state, and federal level. The course also explores economic, social, ethical and political factors of healthcare delivery systems. In addition, political aspects are explored relative to individuals or groups of importance, including special interest groups, lobbyists, the press, elected officials, legislative staff, and public agencies. Students will produce an analysis of healthcare systems and policies of elected countries, compared to the U.S. healthcare system and industry.

PHIL - PHILOSOPHY

PHIL - 1073 Problems of Philosophy, 3.00 Credits
Level: Lower
Gen Ed - Humanities, Liberal Arts and Science
Ethics is a course designed to inquire into the nature of values and how we acquire them. It studies some major ethical systems derived from such values that have been used to evaluate man's conduct. It encourages students to discuss theories as applied to existing moral dilemmas. Writing is continued in assignments related to readings, class discussions, and lectures.

PHYS - PHYSICS

PHYS - 2023 General Physics II, 4.00 Credits
Level: Lower
Prerequisite(s): PHYS 1024 with D or better
This is the first semester of a one-year course designed for students in Engineering Technology. The course covers the physics of motion. The topics covered include: conversion of units and dimensional analysis, vectors, linear and rotational kinematics, Newton's Laws of Motion and the application of these laws to problems, equilibrium, friction, work and energy, power, momentum, circular motion and the dynamics of rotational momentum. The course includes laboratory work covering some of these topics.

PHYS - 2064 Physics for Engr & Science II, 4.00 Credits
Prequisite(s): PHYS 2064 with D or better
This course is the first of two calculus-based courses intended to cover elementary classical physics for those students who are planning to transfer into a four-year program in engineering, mathematics, or one of the natural sciences. The topics covered include: measurements, vectors, kinematics, dynamics, work and energy, impulse and momentum, rotational kinematics and dynamics, including energy and momentum principles, for single and multiple particle systems including rigid bodies. In addition the laboratory component of this course will be used to expose students to activities that will require them to apply the knowledge they have learned to design experiments, collect and analyze appropriate data and then interpret the results in such a way as to demonstrate their understanding of the concepts being covered.

PHYS - 2074 Modern Physics II, 4.00 Credits
Prequisite(s): PHYS 2074 with D or better
This is a one-semester course for liberal arts students or technical students. This course provides students with information about the discoveries made, ideas and concepts advanced, and the knowledge gained in physics since 1900. Topics include: special theory of relativity, relativistic calculation, modern experiments, atomic structure, matter waves, quantum mechanics, and quantum theory of hydrogen. Hands-on lab activities require students to make appropriate measurements, perform data analysis, and discuss the results to reinforce their understanding of the subject matter.
PLSC - POLITICAL SCIENCE

PLSC - 1043 American Government, 3.00 Credits
Level: Lower
Gen Ed - American History, Gen Ed - Social Sciences, Liberal Arts and Science
This course provides an introduction to American government. Students will examine the basic framework and institutions of government, including the U.S. Constitution and branches of government. The development and historical growth of government will be discussed as well as the effect of government on diverse social groups. Emphasis will also be on national policies regarding economy, foreign relations, natural resources, and various moral/ethical issues, including civil rights and individual liberties.

PLSC - 1053 International Relations, 3.00 Credits
Level: Lower
Gen Ed - Other World Civ, Liberal Arts and Science
This course examines the dynamics of the nation-state and the interrelationship among states. Attention will be given to the position of the United States as a world power in the past, present, and future. Topics will include the history of international relations; U.S. foreign policy and security challenges; the problems faced by less developed countries; international organizations; "globalization" and the dynamics of the world economy; and regional and national perspectives. An emphasis will be placed on current events and areas of conflict around the world.

PSYC - PSYCHOLOGY

PSYC - 1013 General Psychology, 3.00 Credits
Level: Lower
Gen Ed - Social Sciences, Liberal Arts and Science
This course covers a broad range of topics in psychology, including the historical and philosophical foundations of psychology, the scientific method, and the major theories of personality. Students will learn how to think critically about psychological research and how to evaluate psychological claims.

PSYC - 1023 Human Development, 3.00 Credits
Prerequisite(s): PSYC 1013 with D or better
Level: Lower
Gen Ed - Social Sciences, Liberal Arts and Science
This course is designed to introduce students to the major issues and concepts in human development. Students will learn how to think critically about psychological research and how to evaluate psychological claims.

PSYC - 1033 Human Relations, 3.00 Credits
Level: Lower
Gen Ed - Social Sciences, Liberal Arts and Science
This course is designed to introduce students to the major issues and concepts in human development. Students will learn how to think critically about psychological research and how to evaluate psychological claims.

PSYC - 1063 Basic Helping Skills, 3.00 Credits
Prerequisite(s): PSYC 1013 with D or better
Level: Lower
Gen Ed - Social Sciences, Liberal Arts and Science
This course is designed to introduce students to the major issues and concepts in human development. Students will learn how to think critically about psychological research and how to evaluate psychological claims.

PSYC - 2033 Adolescent Development, 3.00 Credits
Prerequisite(s): PSYC 1013 with D or better
Level: Lower
Gen Ed - Social Sciences, Liberal Arts and Science
This course is designed to introduce students to the major issues and concepts in human development. Students will learn how to think critically about psychological research and how to evaluate psychological claims.

PSYC - 2093 Abnormal Psychology, 3.00 Credits
Prerequisite(s): PSYC 1013 with D or better
Level: Lower
Gen Ed - Social Sciences, Liberal Arts and Science
This course is designed to introduce students to the major issues and concepts in human development. Students will learn how to think critically about psychological research and how to evaluate psychological claims.

PSYC - 2900 Directed Study, 1.00 TO 4.00 Credits
Level: Lower
Liberal Arts and Science
This course is designed to introduce students to the major issues and concepts in human development. Students will learn how to think critically about psychological research and how to evaluate psychological claims.

PSYC - 5013 Counseling Theory, 3.00 Credits
Prerequisite(s): PSYC 1013 with D or better
Level: Upper
Liberal Arts and Science
This course is designed to introduce students to the major issues and concepts in human development. Students will learn how to think critically about psychological research and how to evaluate psychological claims.

PSYC - 5093 Health Psychology, 3.00 Credits
Prerequisite(s): PSYC 1013 with D or better
Level: Upper
Liberal Arts and Science
This course is designed to introduce students to the major issues and concepts in human development. Students will learn how to think critically about psychological research and how to evaluate psychological claims.

PSYC - 5103 Industrial/Organizational Psychology, 3.00 Credits
Prerequisite(s): PSYC 1013 with D or better
Level: Upper
Liberal Arts and Science
This course is designed to introduce students to the major issues and concepts in human development. Students will learn how to think critically about psychological research and how to evaluate psychological claims.

PSYC - 6103 Family & Intimate Rel Violence, 3.00 Credits
Prerequisite(s): PSYC 1013 with D or better
Level: Upper
Liberal Arts and Science
This course is designed to introduce students to the major issues and concepts in human development. Students will learn how to think critically about psychological research and how to evaluate psychological claims.
COURSE DESCRIPTIONS

PSYC - 7003 Working w/Diverse Populations, 3.00 Credits
Prerequisite(s): PSYC 1013 with D or better
Level: Upper
This course will examine and promote understanding, sensitivity, awareness, and knowledge of human diversity. Patterns and trends in victimization and victim-blaming will be examined, particularly as they relate to high-risk groups that are often hidden or forgotten by society (the homeless, persons living with mental disorders, veterans, those suffering from dementia, addicts, etc.). Emphasis will be placed on the psychological aspects of the individuals and groups, as well as the professional responsibilities and skills that are critical to working with these vulnerable populations.

PSYC - 7103 The Psychology of Killers, 3.00 Credits
Prerequisite(s): PSYC 1013 with C or better
Level: Upper
This course examines the psychological factors that are unique to mass murderers and serial killers. This course will examine what accounts for that violent rage that is unleashed against other human beings who are simply in the wrong place at the wrong time. To what extent might lethal forms of violence be caused by genetics or neurological deformities, a history of childhood neglect and abuse, or a socialization of hatred toward others? At what point in the psychological evolution of a killer might that person be considered "crazily insane"? Using a case study approach drawn from readings, film, and television, students will explore the "dark side" of human psychology in order to understand why these killers kill.

RADI - RADIOLOGIC TECHNOLOGY

RADI - 1003 Radiation Physics, 3.00 Credits
Level: Lower
This course is designed to provide a basic knowledge of the principles of physics as it pertains to radiation especially ionizing radiation used in the clinical setting. Fundamental physics principles, units, measurements, atomic structure, and properties/properties of radiation are emphasized, in particular ionizing radiation. Other topics presented include the fundamental X-ray circuit components as well as X-ray production by the X-ray tube.

RADI - 1004 Fundamentals of Radiologic Sci, 4.00 Credits
Level: Lower
This course is designed to provide a general overview of the study of radiologic science and the role it serves in the health care delivery system. Several key topics in imaging including introductory principles of radiography, basic radiation protection, discipline terminology, radiology specialties and careers in the profession will be explored. The course will also include a dialogue of medical legal ethics and the radiographer's role in making ethical decisions. Patient care topics including transfer techniques, patient history and vital signs, infection control, sterile techniques, medical emergencies and basic pharmacology will be presented. Finally, cultural awareness and the radiographer's role in a multicultural health care setting will be discussed.

RADI - 2003 Radiobiological Protection, 3.00 Credits
Prerequisite(s): RADT 1003 with C or better
Level: Lower
This course provides the characteristics of ionizing radiation and the biological effects that radiation produces in human tissues. Principles of ionizing radiation including basic interactions of radiation and matter, radiation quantities, units and dose limits for exposure, radiation protection for patients and employees as well as limitation monitoring devices are all discussed. In addition emphasis will be placed upon biological interactions with radiation, early and late effects of ionizing radiation on tissue, and radiation pathology.

RADI - 2013 Radiographic Exposure & Qualiti, 3.00 Credits
Prerequisite(s): RADT 1004 with C or better and RADT 1003 with C or better and RADT 2014 with C or better
Level: Lower
This course is designed to provide fundamental principles of radiographic exposure. These principles include the radiographic factors; density, contrast, recorded detail and distortion that affect and influence the radiographic image and the technique compensation necessary to produce a diagnostic image as these factors change. Digital image acquisition and film screen imaging as well as film processing are also discussed. The fundamental criteria of image analysis and evaluation of quality diagnostic imaging are emphasized.

RADI - 2014 Radiographic Procedures I, 4.00 Credits
Prerequisite(s): RADT 1003 with C or better and RADT 2013 with C or better
Level: Lower
Applied Learning-Practicum
This course provides the theoretical basis for performing radiographic procedures with specific patient positioning instruction in the laboratory. The examination protocols and imaging evaluation for the thoracic cavity, abdominal cavity, upper extremities and lower extremities will be included. The laboratory setting will reinforce the theoretical foundation of the lecture through demonstration, role playing and skill practice in the laboratory. Image analysis will be included and require problem solving and critical thinking skills to evaluate diagnostic quality of the images obtained in the laboratory.

RADI - 2041 Radiology Clinical I, 1.00 Credit
Prerequisite(s): RADT 1003 with C or better and RADT 2014 with C or better and RADT 2041 with C or better and RADT 2003 with C or better
Level: Lower
Applied Learning-Practicum
This course is designed to provide an introduction to the radiology department and patient care routines. The students will develop the basic skills necessary for a professional healthcare worker and will achieve competency in required diagnostic procedures established for the Radiologic Technology Program. Performance assessment in the clinical setting will provide the foundation to build clinical skills necessary to be successful in the field. This clinical experience consists of 120 hours, which will be completed 8 hours per week for 15 weeks.

RADI - 2044 Radiology Clinical II, 4.00 Credits
Prerequisite(s): RADT 2003 with C or better and RADT 2014 with C or better and RADT 2041 with C or better
Level: Lower
Applied Learning-Practicum
This course provides the theoretical basis for performing radiographic procedures with specific patient positioning instruction in the laboratory. The examination protocols and imaging evaluation for fluoroscopy, the skull, special views of the upper extremities and lower extremities, special views of the spine, bone surveys, arthrograms, pediatric and geriatric procedures, and trauma radiography will be introduced. The laboratory setting will reinforce the theoretical foundation of the lecture through demonstration, role playing and skill practice. Image analysis will be included and require problem solving and critical thinking skills to evaluate diagnostic quality of the images obtained in the laboratory.

RADI - 3014 Radiographic Procedures II, 4.00 Credits
Prerequisite(s): RADT 2014 with C or better and RADT 2013 with C or better
Level: Lower
Applied Learning-Practicum
This course provides the theoretical basis for performing radiographic procedures with specific patient positioning instruction in the laboratory. The examination protocols and imaging evaluation for fluoroscopy, the skull, special views of the upper extremities and lower extremities, special views of the spine, bone surveys, arthrograms, pediatric and geriatric procedures, and trauma radiography will be introduced. The laboratory setting will reinforce the theoretical foundation of the lecture through demonstration, role playing and skill practice. Image analysis will be included and require problem solving and critical thinking skills to evaluate diagnostic quality of the images obtained in the laboratory.

RADI - 3023 Diagnostic Imaging I, 3.00 Credits
Prerequisite(s): RADT 2014 with C or better and RADT 3043 with C or better
Level: Lower
This course provides an overview of the specialized imaging system of computed tomography (CT) including sectional anatomy. Essential concepts of tomography and CT including multi-slice spiral CT will allow for proficiency in performing and understanding this advanced imaging technology. Basic CT protocols will be presented along with corresponding cross sectional anatomy to enhance learning of this advanced imaging modality. This course will allow for completion of specific CT examination competencies during the clinical experience.

RADI - 3043 Radiology Clinical III, 3.00 Credits
Prerequisite(s): RADT 2044 with C or better and RADT 3041 with C or better
Level: Lower
Applied Learning-Practicum
This course provides ongoing experience in the radiology department clinical setting allowing implementation of advanced learning objectives and skills. This course allows for continued progression of skills in the clinical setting. Procedural competence and the acquisition of additional proficiencies in radiography is the focus. Continued assessment of learning and proficiency is conducted using summative competencies and advanced level learning objectives. This clinical experience consists of 360 hours, which will be completed 24 hours per week for 15 weeks.

RADI - 4003 Intro to Adv Diagnostic Imag, 3.00 Credits
Prerequisite(s): RADT 3023 with C or better and RADT 4023 with C or better
Level: Lower
This course introduces the many advanced imaging modalities that are included in the radiology department. Computer tomography (CT) and its operation is discussed along with department archival systems and digital medical image storage. The course then introduces basic mechanisms of image acquisition, basic operating principles and applications for the advanced imaging modalities of magnetic resonance imaging (MRI), nuclear medicine, positron emission tomography (PET) and single-photon emission computed tomography (SPECT) imaging, ultrasound, radiation therapy and interventional radiography including arteriograms, cardiac angiography and venograms.
COURSE DESCRIPTIONS

RADT - 4013 Prof Development in Imaging Sc, 3.00 Credits
Level: Lower
This course is an overview of the radiographer's professional development and the course is designed to encourage active participation in professional organizations and a development of lifelong learning. The course will culminate in a senior research project and presentation on a topic within the field of radiologic science and imaging.

RADT - 4023 Diagnostic Imaging II, 3.00 Credits
Prerequisite(s): RADT 3023 with C or better and RADT 3043 with C or better
Level: Lower
This course provides an overview of the functional imaging equipment components, operational principles and clinical applications of conventional and digital fluoroscopy systems. Emphasis will be given to dynamic imaging of various body systems and its use in advanced interventional procedures. Imaging system quality assurance and quality control procedures are also introduced as each relates to imaging equipment and patient safety.

RADT - 4043 Radiology Clinical IV, 3.00 Credits
Prerequisite(s): RADT 3014 with C or better and RADT 3023 with C or better and RADT 3043 with C or better
Level: Lower
Applied Learning Clinical Picm, Clinical Liability Insurance
This course is designed to allow for expanded experience in radiology by implementing advanced proficiencies in the clinical setting. Various imaging modalities will be introduced and experienced including computed tomography (CT) scanning, special procedures, magnetic resonance imaging (MRI), nuclear medicine and ultrasound. Procedural competencies and characteristics of an entry-level radiographer will be demonstrated at the conclusion of this clinical experience as documented by the terminal competencies and mastery level objectives. This clinical experience will consist of 360 hours, which will be completed 24 hours per week for 15 weeks.

RADT - 4900 Directed Study, 1.00 Credit
Prerequisite(s): RADT 3043 with D or better
Level: Lower
This course is an elective course designed to allow students to pursue advanced work in radiologic technology or obtain extended clinical opportunities. A student may contract for one credit hour of independent study through an arrangement with the clinical coordinator, who agrees to direct such a study. Enrollment is limited by clinical site participation.

SOCI - SOCILOGY

SOCI - 1163 General Sociology, 3.00 Credits
Level: Lower
Gen Ed - Social Sciences, Liberal Arts and Science
Sociology is the scientific study of society and social groups. This introductory course discusses the research methods, basic concepts, theories and perspectives used by sociologists. Among the topics covered are culture, socialization, social structure, deviance, social stratification, diversity, globalization, minority groups, gender, and selected social institutions.

SOCI - 1183 Contemporary Social Problems, 3.00 Credits
Prerequisite(s): SOCI 1163 with D or better
Level: Lower
Gen Ed - Social Sciences, Liberal Arts and Science
The purpose of this course is to acquaint the student with a broad spectrum of social problems within contemporary United States. The factors causing social and cultural problems will be emphasized. Students are required to conduct research and analyze a specific social problem and create new policy to deal with the social problem. Students will discuss and critically analyze social policies that address social topics discussed in class.

SOCI - 1193 Marriage & Family Acrs Wrd Clt, 3.00 Credits
Level: Lower
Gen Ed - Other World Civ, Gen Ed - Social Sciences, Liberal Arts and Science
This course provides a cross-cultural perspective on marriage and family while giving students the opportunity to explore similarities and differences in marriage and family practices. Specific cultures will be examined to enhance student understanding of cultural and environmental influences on beliefs, values and practices relating to kinship patterns.

SOCI - 1223 Power, Privilege, & Difference, 3.00 Credits
Prerequisite(s): SOCI 1163 with D or better
Level: Lower
Gen Ed - Social Sciences, Liberal Arts and Science
This course examines the social forces at work directing the distribution of power and privilege in American society. Using a sociological perspective, students learn about the multiple hierarchies defined by class, race/ethnicity, gender, and sexuality and the consequences of one's location in them. Students will learn intersectionality theory and its application to the study of inequality; that "difference" is socially constructed in systems of privilege to create "otherness," and, in turn, prejudice and discrimination.

SOCI - 1243 Criminology, 3.00 Credits
Prerequisite(s): SOCI 1163 with D or better
Level: Lower
Gen Ed - Social Sciences, Liberal Arts and Science
The course introduces the study of crime, criminal behavior, and the justice system. Included in this study is the process of making laws, breaking laws, and society's reaction to the breaking of laws. Students will be introduced to theories of crime as demonstrated in the current policies of crime and punishment. In addition, there will be an overview of the criminal justice system: law enforcement, the courts, and corrections.

SOCI - 5023 Research Methods, 3.00 Credits
Prerequisite(s): MATH 1123 with D or better or MATH 1113 with D or better or MATH 2124 with D or better
Level: Upper
Liberal Arts and Science
This upper-level course focuses on the how and why of doing research in the social and behavioral sciences, including evaluation research. The research techniques used by human services practitioners and social and behavioral scientists are emphasized including correlational and experimental methods. Ethical ways to conduct research and to build knowledge through research are examined. Writing in professional formatting style is stressed, as is understanding the parts of a journal article, the methods utilized within those professional journal articles, and how research is disseminated at professional conferences.

SOCI - 5213 Science, Technology & Society, 3.00 Credits
Prerequisite(s): HIST 1113 with D or better or HIST 1143 with D or better or HIST 2153 with D or better or PLSC 1043 with D or better or SOCI 1163 with D or better
Level: Upper
Gen Ed - Social Sciences, Liberal Arts and Science
This course is an overview of the radiographer's continued professional development. The course is designed to encourage active participation in professional organizations and a development of lifelong learning. The course will culminate in a senior research project and presentation on a topic within the field of radiologic science and imaging.

SOCI - 5233 Gerontology-Sociology of Aging, 3.00 Credits
Level: Upper
Liberal Arts and Science
This course provides an overview of the sociological, psychological, physical and cultural aspects of the aging process. It will review demographic trends, theories and contemporary issues for this population. The course will also provide students with the opportunity to explore their views and attitudes on aging.

SOCI - 6003 Juvenile Justice Admin, 3.00 Credits
Prerequisite(s): CJUS 1003 with C or better
Level: Upper
This course examines the evolution of the juvenile justice system and the transformation of the juvenile court within the United States. This course is an analysis of the juvenile justice system in the United States - its components and functions. Students will evaluate the adjudication of juveniles and application of legal precedent established by the U.S. Supreme Court that results in social policy. Students evaluate ethical decision making and diversity in the adjudication and treatment of juveniles. The United States system and the systems of other countries are also compared. Students will apply course findings to a case study in a significant written document for final evaluation.

SOCI - 8003 Terrorism, 3.00 Credits
Prerequisite(s): SOCI 1163 with D or better
Level: Upper
This course examines the phenomena of international and domestic terrorism from the historical and criminological perspectives. The course evaluates historical and political viewpoints and examines the changing trends in security and justice. Students will examine ethical issues including an analysis of diversity factors and policy issues for consideration. This terrorism course provides a critical analysis of leadership styles required to alleviate fears of civil liberties erosion and public safety. The course will culminate with a research project.
### COURSE DESCRIPTIONS

**SONO - SONOGRAPHY**

**SONO - 1003 Fundamentals Sonography/Pt Care, 3.00 Credits**  
**Level:** Lower  
This course is designed to provide a general overview of the study of diagnostic medical sonography and the role it serves in the health care delivery system. Several key topics in imaging including introductory principles of sonography, discipline terminology, sonography specialties and careers in the profession will be explored. The course will also include a dialogue of medical legal ethics and the sonographer's role in making ethical decisions. Patient care topics including transfer techniques, patient history and vital signs, infection control, sterile techniques, medical emergencies and basic pharmacology will be presented. Finally, cultural awareness and the sonographer's role in a multicultural health care setting will be discussed.

**SONO - 2003 Sectional Anatomy, 3.00 Credits**  
**Level:** Lower  
This course is designed to provide the tools necessary to understand basic sectional anatomy of the human body. Emphasis is placed on imaging correlation to human cadaver cross-sections. Sectional anatomy of the abdomen, male and female pelvis, neck, thorax, head and fetal anatomy will be reviewed. In addition, vascular anatomy will also be discussed.

**SONO - 2013 US Physics and Instrument I, 3.00 Credits**  
**Prerequisite(s):** SONO 1003 with D or better  
**Level:** Lower  
This course is designed to provide a practical understanding of the principles of ultrasound physics and sonographic instrumentation as it pertains to diagnostic medical sonography and its use in the clinical setting. Topics include the properties of sound waves, interactions of sound waves, ultrasound instrumentation and functions of the components of processing, scan converter displays, image and display techniques, film and methods of permanent image recording, ultrasound transducers, operating standards, equipment calibration, resolution, gray scale photography and film critique. In addition, sonographic artifacts will be analyzed.

**SONO - 2024 Sonographic Procedures I, 4.00 Credits**  
**Level:** Lower  
**Applied Learning-Practicum**  
This course provides the theoretical basis for performing sonographic procedures with specific patient scanning instruction in the laboratory. The examination protocols and imaging evaluation for the abdominal organs, pelvic cavity and organs and superficial/small parts such as thyroid will be introduced. The laboratory setting will reinforce the theoretical foundation of the lecture through demonstration, role playing and skill practice in the laboratory. Sonographic image analysis will be included and require problem solving and critical thinking skills to evaluate diagnostic quality of the images obtained in the laboratory.

**SONO - 3013 US Physics & Instrument II, 3.00 Credits**  
**Prerequisite(s):** SONO 2013 with D or better  
**Level:** Lower  
This course is a continuation of SONO 2013 and is designed to provide a practical understanding of the principles of ultrasound physics and sonographic instrumentation as it pertains to diagnostic medical sonography and its use in the clinical setting. Topics include the properties of sound waves, interactions of sounds waves, ultrasound instrumentation and functions of the components of processing, scan converter displays, image and display techniques, film and methods of permanent image recording, ultrasound transducers, operating standards, equipment calibration, resolution, gray scale photography and film critique. Additionally, Doppler physics and applications along with sonographic artifacts discussed and practiced.

**SONO - 3016 Sonography Clinical I, 6.00 Credits**  
**Prerequisite(s):** SONO 2024 with C+ or better  
**Level:** Lower  
**Applied Learning-Clinical Plcm, Clinical Liability Insurance**  
This course allows for the continued progression of skills in the clinical setting. Procedural competence and the acquisition of additional proficiencies in diagnostic medical sonography are the focus of this clinical experience. Continued assessment of learning and proficiency is conducted using summative competencies and initial and intermediate level learning objectives during the clinical rotation. This clinical experience consists of 480 hours, which will be completed 40 hours per week for 12 weeks.

**SONO - 3024 Sonography Clinical II, 4.00 Credits**  
**Prerequisite(s):** SONO 3016 with C+ or better  
**Level:** Lower  
**Applied Learning-Clinical Plcm, Clinical Liability Insurance**  
This course allows for the continued progression of skills in the clinical setting. Procedural competence and the acquisition of additional proficiencies in diagnostic medical sonography are the focus of this clinical experience. Continued assessment of learning and proficiency is conducted using summative competencies and initial and intermediate level learning objectives during the clinical rotation. This clinical experience consists of 360 hours, which will be completed 40 hours per week for 9 weeks.

**SONO - 3034 Sonographic Procedures II, 4.00 Credits**  
**Level:** Lower  
**Applied Learning-Practicum**  
This course provides the theoretical basis for performing sonographic procedures with specific patient scanning instruction in the laboratory. The examination protocols and imaging evaluation for the female pelvic organs; First, Second and Third Trimester Obstetrical; Carotid, Peripheral Arterial and Venous Vascular Scanning will be introduced. The laboratory setting will reinforce the theoretical foundation of the lecture through demonstration, role playing and skill practice in the laboratory. Sonographic image analysis will be included and require problem solving and critical thinking skills to evaluate diagnostic quality of the images obtained in the laboratory.

**SONO - 4003 Professional Dev in Sonography, 3.00 Credits**  
**Level:** Lower  
This course is an overview of the radiographer's continued professional development. The course is designed to encourage active participation in professional organizations and a development of lifelong learning. The course will culminate in a senior research project and presentation on a topic within the field of radiologic science and imaging. Students will be expected to prepare for the Registry Exam(s).

**SONO - 4024 Sonography Clinical III, 4.00 Credits**  
**Prerequisite(s):** SONO 3024 with C+ or better  
**Level:** Lower  
**Applied Learning-Clinical Plcm, Clinical Liability Insurance**  
This course allows for the continued progression of skills in the clinical setting. Procedural competence and the acquisition of additional proficiencies in diagnostic medical sonography are the focus of this clinical experience. Continued assessment of learning and proficiency is conducted using summative competencies and initial and intermediate level learning objectives during the clinical rotation. This clinical experience consists of 360 hours, which will be completed 40 hours per week for 9 weeks.

**SONO - 4034 Sonographic Procedures III, 4.00 Credits**  
**Level:** Lower  
**Applied Learning-Practicum**  
This course provides the theoretical basis for performing sonographic procedures with specific patient scanning instruction in the laboratory. The examination protocols and imaging evaluation for the Breast; Thyroid; Scrotum; GI Tract; Interventional and Pediatric Scanning will be introduced. The laboratory setting will reinforce the theoretical foundation of the lecture through demonstration, role playing and skill practice in the laboratory. Sonographic image analysis will be included and require problem solving and critical thinking skills to evaluate diagnostic quality of the images obtained in the laboratory.

**SONO - 4900 Directed Study, 1.00 Credit**  
**Prerequisite(s):** SONO 3024 with D or better  
**Level:** Lower  
This course is an elective course designed to allow students to pursue advanced work in sonography or obtain extended clinical opportunities. A student may contract for one credit hour of independent study through an arrangement with the clinical coordinator, who agrees to direct such a study. Enrollment is limited by clinical site participation.

**SPAN - SPANISH**

**SPAN - 1203 Spanish I, 3.00 Credits**  
**Level:** Lower  
**Gen Ed - Foreign Languages, Liberal Arts and Science**  
This course focuses on developing the student's ability to speak, to write, and to read Spanish. Additional emphasis is given to learning about the diverse cultures of the Spanish-speaking world. Instruction centers on oral communication, grammar (especially formation of verbs), and cultural awareness. Writing is continued in assignments related to readings, class discussions, and lectures.
SPMG - 2013 Sport in Europe Soc Study Abrd, 3.00 Credits
Prerequisite(s): SPMG 1123 with D or better and SPMG 3001 with D or better
Level: Lower
This course encompasses a semester of supervised, hands-on experience working in the field of sport management. A minimum of 45 hours of work throughout the semester is required.

SPMG - 3001 Field Experience I, 1.00 Credit
Prerequisite(s): SPMG 1123 with D or better and SPMG 3001 with D or better
Level: Lower
This course encompasses a semester of supervised, hands-on experience working in the field of sport management. The student will produce a four-page paper outlining their evaluation of their career future.

SPMG - 4001 Field Experience II, 1.00 Credit
Prerequisite(s): SPMG 1123 with D or better and SPMG 3001 with D or better
Level: Lower
This course provides an in-depth examination of sport in society, particularly in the United States. A review of the role of sport participants, spectators, and the media on society is included. Various organizational levels of sporting opportunity and sporting behavior, including sport ethics, resulting from the influence of society will be covered.

SPMG - 2003 Sport in Society, 3.00 Credits
Prerequisite(s): SPMG 1123 with D or better
Level: Lower
This course is designed to help students obtain the speaking skills with which to respond to various oral communication situations encountered throughout college and in professional, civic, and social areas before and after graduation. Students will be required to deliver presentations to a live audience of mature adults in both traditional and online classes.

SPMG - 3013 Sport Communication, 3.00 Credits
Prerequisite(s): SPMG 1123 with D or better and SPMG 3001 with D or better
Level: Lower
This course is an introduction to the study of policies and procedures utilized in dealing with communication issues occurring within the sports industry, including print and electronic media, the internal and external constituencies to be served, and the development of specific forms of communication approaches. Heavy emphasis will be placed on the practical as opposed to the theoretical, as well as, a thorough understanding of the unique aspects of communication in sport.

SPMG - 4003 Sport Law, 3.00 Credits
Prerequisite(s): SPMG 1123 with D or better and ( BUAD 3043 with D or better or BUAD 7023 with D or better )
Level: Lower
This course is designed to expose students to the legal environment within which sport management professionals function. It focuses on sport's relationship with government agencies (public law issues) as well as with other businesses, consumers, suppliers, etc., (private law issues). It is intended to better equip the sport business manager for decision making by exploring the legal issues involved in contracts, torts, business organizations, employment law, risk management, intellectual property law and Constitutional Law. Legislation specifically related to sport will be highlighted. A variety of specific problems for the business of sport, found within the law will be examined and analyzed through case briefs and studies, research projects and advocacy exercises. Students will have an opportunity to explore law-related topics of particular interest to themselves with oral presentations to the class.

SPMG - 4123 Sport Facility Management, 3.00 Credits
Prerequisite(s): SPMG 1123 with D or better
Level: Lower
This course investigates the elements, issues, and problems that shape the planning and management of sport facilities and events. Similarities and differences of facility types, reasons for development, terminology, types of events held, service contracts, financial operations, marketing and economic impacts are some of the issues covered. Building revenues from the sport facility, even services, and financing sources are all critical to the successful management of the multi-million dollar facilities that house today's major sport events. Course content will include lectures, guest speakers, and group discussions.

SPMG - 5003 Sport Business and Finance, 3.00 Credits
Prerequisite(s): SPMG 1123 with D or better and ACCT 1124 with D or better
Level: Upper
This course is a focus on business topics as they relate to the fiscal and budgetary control of public and private sport organizations, leagues, and facilities. Topics include sources of funding and revenue, the implementation and use of an economic impact analysis, and a review of budgeting and financial statements.
COURSE DESCRIPTIONS

SPMG - 5013 Sport Communication, 3.00 Credits
Prerequisite(s): SPMG 1123 with D or better and COMP 1503 with D or better and BUAD 2033 with D or better
Level: Upper
This course focuses on the policies and procedures utilized in dealing with communication issues occurring within the sports industry, including print and electronic media, the internal and external constituencies to be served, and the development of specific forms of communication approaches. Heavy emphasis will be placed on the practical as opposed to the theoretical, as well as a thorough understanding of the unique aspects of communication in sport.

SPMG - 6003 Sport Marketing, 3.00 Credits
Prerequisite(s): MKTG 2073 with D or better
Level: Upper
This course is designed to be an examination of the unique nature of Sport Marketing. This course will examine the elements of the marketing mix form that perspective. Major topics include an overview of the sport market, the critical nature of market research and market segmentation, developing an understanding of the special nature of the sport product, pricing within sport marketing, the role of promotion in the sport market, and the theory of “place” in sport. Students will be responsible for designing, implementing and evaluating a sport marketing research plan.

SPMG - 6013 Licensing and Endorsements, 3.00 Credits
Prerequisite(s): SPMG 1123 with D or better and SPMG 6003 with D or better
Level: Upper
This course covers the details involved in the development of a corporate licensing program, as well as the licensing of intellectual property from corporations. The student will be exposed to the necessary details of becoming a licensee or licensor. Product value, agreements, endorsements, royalties, enforcement, and legal issues will all be included.

SPMG - 6023 Event Promotion and Sales, 3.00 Credits
Prerequisite(s): SPMG 1123 with D or better and SPMG 4123 with D or better
Level: Upper
This course is a comprehensive review of the skills and tasks required to successfully sell a sporting event to the consumer. Creating an effective sales culture, examining incentives for sport consumers, sales management and servicing, and the role of technology in sport promotion and sales are included. Additionally, this course explores sales training, the art of ticket sales, customer retention, branding, and sales risk management.

SPMG - 6033 Sponsorship, 3.00 Credits
Prerequisite(s): SPMG 1123 with D or better and SPMG 6003 with D or better
Level: Upper
This course is a study of corporate sponsorships. Topics will include acquisition, service, sponsor and property objectives, rights, negotiations, sponsorship evaluations, contracts, proposals, and presentations.

SPMG - 6043 Sport Law, 3.00 Credits
Prerequisite(s): SPMG 1123 with D or better and ( BUAD 3043 with D or better or BUAD 7023 with D or better )
Level: Upper
This course is designed to expose students to the legal environment within which sport management professionals function. It focuses on sport's relationship with government agencies (public law issues) as well as with other businesses, consumers, suppliers, etc., (private law issues). It is intended to better equip the sport business manager for decision making by exploring the legal issues involved in contracts, torts, business organizations, employment law, risk management, intellectual property law and Constitutional Law. Legislation specifically related to sport will be highlighted. A variety of specific problems for the business of sport, found within the law will be examined and analyzed through case briefs and studies, research projects and advocacy exercises. Students will have an opportunity to explore law related topics of particular interest to themselves with oral presentations to the class.

SPMG - 7001 Pre-Internship Seminar, 1.00 Credit
Prerequisite(s): SPMG 1123 with D or better
Level: Upper
This course is a focus on the development, analysis, and pursuit of internship and career goals. Emphasis is placed on the development of a professional portfolio, including cover letters, resumes, and basic interviewing techniques. Related issues, professional ethics, and etiquette will be explored.

SPMG - 7013 Sport Management Capstone, 3.00 Credits
Level: Upper
Applied Learning-Creative Work
This course is designed to expand knowledge and understanding of large-scale events and sport organizations through concentrated research that culminates in a senior research project. This course is designed with a two-part focus. The first half of the course will emphasize Sport Management scholarly research through a review of literature. The second half of the course is focused on a hands-on learning approach and application of scholarly research. This culminates in a capstone project, providing unique and innovative solutions to a sport organization.

SPMG - 7023 Strategic Mgmt in Sport Organtn, 3.00 Credits
Prerequisite(s): SPMG 1123 with D or better and BUAD 3153 with D or better
Level: Upper
This course is a study of the administrative structure of sport organizations including those operating at a local, national, and international level. Emphasis will be placed on existing structures and how best to function within each to accomplish objectives.

SPMG - 8112 Internship, 12.00 Credits
Level: Upper
Applied Learning-Internship, Pass/Fail
A work experience designed to assist the student in making the transition from the classroom to a segment of the sport management field. The internship permits a degree of independence and an electric learning that is not possible in a conventional classroom. The intent of the internship is to provide each student with an experiential learning opportunity as a pre-professional in sport management. Students will complete supervised field work in a sport management segment, that segment to be determined mutually by the Internship Coordinator and the student. Each student will have a planned program of educational objectives approved by the student, Site Supervisor, and Internship Coordinator. A written paper, and a public, oral presentation, along with a journal of work activities and experiences, will be required. The final grade will be determined by the Internship Coordinator and the Site Supervisor.

TMGT - TECHNOLOGY MANAGEMENT

TMGT - 5900 Directed Study, 1.00 TO 6.00 Credits
Level: Upper
Pass/Fail
A student may contract for one to six credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.

TMGT - 7003 Managing Tech & Innovation Cap, 3.00 Credits
Prerequisite(s): TMGT 7153 with D or better or BUAD 3153 with D or better
Level: Upper
Applied Learning-Practicum
This course is an application of theoretical approaches to technology management and innovation applied through running a simulated business. Major concepts, tools, and processes will be explored through lecture, readings, team activities, and case study applications. Major topics include technology innovation, the assessment of technology, and the importance of technology forecasts. Students will learn how to manage innovation strategy, technological evolution, and organizational context for technology management. Additional topics will also include strategic actions required by business, developing a firm's organizational innovation capabilities, creating and implementing a development strategy, new product development, and challenges to managing innovation.

TMGT - 7153 Principles of Management, 3.00 Credits
Level: Upper
This course deals with understanding management concepts and functions of encouraging employee's enthusiasm and creativity; finding shared vision, norms, and values, sharing information and power; and encouraging teamwork and participation. The concepts of planning, organizing, leading, and controlling are explored to show how these basic principles can be used to create a healthy and thriving environment in today's global environment of business and technology.
COURSE DESCRIPTIONS

TMGT - 8006 Technology Management Internship, 6.00 Credits
Level: Upper
Applied Learning-Internship, Pass/Fail
This internship is designed to assist the student in making the transition from the classroom to industry. This integration of work allows a degree of independence and an element of learning that is not possible in a conventional classroom. The intent of the internship is to provide each student with an experiential learning opportunity in a management situation as a pre-professional supervisor or manager. Students will complete supervised field work in a selected business, industry, government or educational setting. Students carry out a planned program of educational experiences under the direct supervision of an owner, manager, or supervisor in their technical field or professional area. The interns will also be supervised by a faculty member who serves as the Internship Coordinator. Written reports, weekly journals of work activities and experiences, and self and supervisor evaluations are required. Evaluation will be based on the quality of experiences gained from the internship and student work performance.

TMGT - 8103 Technology Management Internship, 3.00 Credits
Level: Upper
Applied Learning-Internship
This internship is designed to assist the student in making the transition from the classroom to industry. This integration of work allows a degree of independence and an element of learning that is not possible in a conventional classroom. The intent of the internship is to provide each student with an experiential learning opportunity in a management situation as a pre-professional supervisor or manager. Students will complete supervised field work in a selected business, industry, government or educational setting. Students carry out a planned program of educational experiences under the direct supervision of an owner, manager, or supervisor in their technical field or professional area. The interns will also be supervised by a faculty member who serves as the Internship Coordinator. Written reports, weekly journals of work activities and experiences, and self and supervisor evaluations are required. Evaluation will be based on the quality of experiences gained from the internship and student work performance.

TMGT - 8106 Technology Management Internship, 6.00 Credits
Level: Upper
Applied Learning-Internship, Pass/Fail
This internship is designed to assist the student in making the transition from the classroom to industry. This integration of work allows a degree of independence and an element of learning that is not possible in a conventional classroom. The intent of the internship is to provide each student with an experiential learning opportunity in a management situation as a pre-professional supervisor or manager. Students will complete supervised field work in a selected business, industry, government or educational setting. Students carry out a planned program of educational experiences under the direct supervision of an owner, manager, or supervisor in their technical field or professional area. The interns will also be supervised by a faculty member who serves as the Internship Coordinator. Written reports, weekly journals of work activities and experiences, and self and supervisor evaluations are required. Evaluation will be based on the quality of experiences gained from the internship and student work performance.

TMGT - 8109 Technology Management Internship, 9.00 Credits
Level: Upper
Applied Learning-Internship
This internship is designed to assist the student in making the transition from the classroom to industry. This integration of work allows a degree of independence and an element of learning that is not possible in a conventional classroom. The intent of the internship is to provide each student with an experiential learning opportunity in a management situation as a pre-professional supervisor or manager. Students will complete supervised field work in a selected business, industry, government or educational setting. Students carry out a planned program of educational experiences under the direct supervision of an owner, manager, or supervisor in their technical field or professional area. The interns will also be supervised by a faculty member who serves as the Internship Coordinator. Written reports, weekly journals of work activities and experiences, and self and supervisor evaluations are required. Evaluation will be based on the quality of experiences gained from the internship and student work performance.

TMGT - 8112 Tech Management Internship, 12.00 Credits
Level: Upper
Applied Learning-Internship, Pass/Fail
This internship is designed to assist the student in making the transition from the classroom to industry. This integration of work allows a degree of independence and an element of learning that is not possible in a conventional classroom. The intent of the internship is to provide each student with an experiential learning opportunity in a management situation as a pre-professional supervisor or manager. Students will complete supervised field work in a selected business, industry, government or educational setting. Students carry out a planned program of educational experiences under the direct supervision of an owner, manager, or supervisor in their technical field or professional area. The interns will also be supervised by a faculty member who serves as the Internship Coordinator. Written reports, weekly journals of work activities and experiences, and self and supervisor evaluations are required. Evaluation will be based on the quality of experiences gained from the internship and student work performance.

VETS - VETERINARY TECHNOLOGY

VETS - 1002 Applied Veterinary Med Term, 2.00 Credits
Level: Lower
This course is designed to introduce Veterinary Technology students to the animal and procedural terminology they will need to understand during their studies. Students will be expected to learn the acronyms and abbreviations commonly used in the field of Veterinary Medicine. Basic animal anatomic terminology and veterinary equipment identification will be taught, as well as the basic calculations that will be required in veterinary technology course work. Students will also be given an overview of the expectations of the profession, college experience and will be given an introduction to the services available at the Student Success Center.

VETS - 1203 Intro to Veterinary Technology, 3.00 Credits
Level: Lower
Applied Learning-Pacticum, Course Fee $33.00
This course introduces the student to the terminology and specialization of the Veterinary Technology Curriculum. The nature of professional and ethical practices will be explored. Breeds and strains of domesticated animals will be studied and the student will be introduced to the basic concepts of animal behavior. The nature and form of medicines and the calculation of dose and dosages will be studied. The small animal handling laboratories will be held on site using animals from the local SPCA and Humane Society. A kennel assignment will be performed as a required part of the class.

VETS - 1214 Anatomy & Physlogy of Animals I, 4.00 Credits
Level: Lower
Applied Learning-Other, Liberal Arts and Science
This course is an organ systems approach to the study of anatomy and physiology using Domestic and Exotic animal species as the primary model. The course provides a functional integration of basic science and clinical information as it relates to the normal healthy animal in an integrated lecture and laboratory approach. Prosected animal specimen both fresh and preserved, as well as skeletons and models will be utilized in the laboratory to allow applied reinforcement of concepts presented in the lecture. Histologic slides, kochchromes and radiographs will be utilized to enhance organ recognition through multiple formats and give the student a better understanding of organ function. The students will explore in greater depth and detail the course materials through questions and discussions fostered by the development of group Power Point presentations on topics that are related to the organ systems studied.

VETS - 2014 Anatomy & Physlogy of Animals II, 4.00 Credits
Prerequisite: VETS 1214 with D or better and VETS 1203 with C or better
Level: Lower
Applied Learning-Other, Liberal Arts and Science
This course continues the study of anatomy and physiology using Domestic and Exotic animal species as the models on which we complete the discussion of the normal anatomy and physiologic function of animals. The course provides a functional integration of basic science and clinical information as it relates to the healthy animal in an integrated lecture and laboratory approach. Animal specimen will be fresh and preserved. Radiographs and histologic slides will be utilized to enhance organ recognition and understanding of organ function. The students will explore in greater depth and detail the course materials through questions and discussions fostered by the development of group Power Point presentations on topics that are related to the organ systems studied.

VETS - 2104 Pathophysiology of An Disease, 4.00 Credits
Prerequisite(s): VETS 1214 with D or better and VETS 2014 with C or better
Level: Lower
Pathophysiology of Animal Disease is a course which provides a multidisciplinary approach to the understanding of basic science and clinical information as it relates to health and disease in domestic animals. Using a body systems approach, students will receive in-depth exposure to the most common diseases of domestic animals. They will build on their foundation in anatomy and physiology from previous courses to learn how disease affects normal anatomy and physiology. They will learn their role in management, prevention and treatment of disease in domestic animals.

VETS - 2333 Domestic Animal Behavior, 3.00 Credits
Level: Lower
This course is designed to further develop an understanding of domestic animal behavior for students in the Veterinary Technology Program. It will help the student to work as a veterinary technician with a strong understanding of the behaviors they see and to help educate clients when behavior issues arise. In addition to the text the students will be viewing videos and images of domestic animal behavior. This course may include interactions with live domestic animals (primarily dogs and cats) and behavior modification related to handling issues that commonly arise in the clinic (nail trimming, blood draws, etc.).
VETS - 3003 Animal Health Care, 3.00 Credits
Prerequisite(s): VETS 1203 with C or better and (VETS 1214 with D or better or ANSC 2114 with C or better)
Level: Lower
Applied Learning-Practicum, Course Fee $33.00
This course is designed to give first year students intensive animal handling skills and familiarity with basic procedures such as injections, venipuncture, bandaging, and dosage and fluid therapy calculations. Students will also develop skills to perform proficient physical examination of animals. Common outpatient diagnostic tests used for eye, ear, and skin disease will be mastered. Urinalysis and collection of urine samples will be practiced and students will also learn how to measure packed cell volumes and plasma protein levels in blood samples. Dentistry prophylaxis, recognition of dental abnormalities, and dental charting using both anatomic and Triadan systems will also be covered thoroughly. Students will also visit the local Humane Society to perform technician-related duties.

VETS - 3004 Anesthesia & Surgical Nursing, 4.00 Credits
Prerequisite(s): VETS 2014 with C or better and VETS 3003 with C or better and VETS 3023 with C or better
Level: Lower
Applied Learning-Practicum, Course Fee $33.00
This course is designed to prepare the second year Veterinary Technology student to become the individual who can induce, maintain and recover small animal surgical patients. The student will also prepare the animals for surgery and assist in the surgical procedures. Upon course completion, the student will possess an understanding of all procedures done in vet practice with anesthesia and surgical nursing.

VETS - 3013 Animal Parasitology, 3.00 Credits
Prerequisite(s): VETS 1214 with D or better and VETS 1203 with C or better
Level: Lower
Applied Learning-Practicum, Course Fee $33.00
Parasitology is a multidisciplinary approach to the study of internal and external parasites of companion, exotic and farm animals. This course will integrate the student’s knowledge of anatomy and pharmacology while providing the student the opportunity to understand life cycles, diagnostic protocol, control and treatment of the most common internal and external parasites. The course will also develop the student’s understanding of how to appropriately provide both verbal and written communications for the client concerning management, prevention and potential zoonziosis of the common parasites. The laboratory will emphasize the common techniques used to identify the parasites of companion, laboratory and farm animals.

VETS - 3022 Intro to Anesthesia & Surg Nsg, 2.00 Credits
Prerequisite(s): VETS 2014 with C or better and VETS 3003 with C or better and VETS 3013 with C or better
Level: Lower
Applied Learning-Practicum, Course Fee $69.00
This course will provide the student the opportunity to gain an initial understanding of the principles of veterinary anesthesia and veterinary surgical nursing. The students will be introduced to the currently used veterinary anesthetic drugs and their effect on the animal by utilizing their knowledge of the normal anatomy, physiology as a basis for understanding. In the laboratory the student will be given an introduction to the technical skills needed to preanesthetize, anesthetize, maintain and recover the animal patient, by utilizing current appropriate anesthetic agents, equipment, and protocols. The student will also learn to use critical thinking skills in gaining an understanding of how anesthetic monitoring equipment will be used to evaluate the surgical patient during the anesthetic period. The students will also be introduced to surgical nursing skills including preoperative management of surgical patients, assisting veterinary surgeons, preparing surgical patients, learning and practicing suture techniques, IV fluid support, analgesia, and providing postoperative patient and incision care. The dog and the cat will be the surgical patients providing educational support in this course. Students will also perform pre- and postoperative assessments of surgical patients outside of class time as well as one week of assigned kennel duty.

VETS - 3023 Radiography, 3.00 Credits
Prerequisite(s): VETS 1214 with D or better and VETS 1204 with C or better
Level: Lower
Applied Learning-Practicum
In this course students will examine body systems using radiographic, endoscopic, and ultrasound procedures to evaluate animals for the diagnosis and prognosis of trauma or disease. The course integrates the production of the radiograph and its clinical use as it relates to the evaluation of healthy and diseased animals. In the laboratory, students will utilize animal models, inanimate objects, and living animals to perfect their understanding of patient positioning, radiographic exposure, and imaging techniques. Emphasis is placed on safely producing diagnostic quality radiographs using both conventional and digital radiographic techniques, as well as providing the basic skills in the set up and operation of an ultrasonic unit. The veterinary endoscope will also be used in the laboratory setting.

VETS - 3024 Clinical Laboratory Techniques, 4.00 Credits
Prerequisite(s): VETS 2014 with C or better and BIOL 5254 with C or better or VETS 3012 with D or better
Level: Lower
Applied Learning-Field Study, Course Fee $69.00
This course introduces laboratory techniques performed in veterinary offices and clinics. Examination and testing of blood, feces, urine, and exudates are performed for diagnostic and prognostic purposes. Lectures deal with testing theories and relevance to animal health and disease. Laboratories develop skills necessary to maintain a safe laboratory working environment, institute quality control programs, collect, process, store, and transport clinical biological specimens. Major emphasis of the course is development of skills necessary to operate and maintain clinical analyzers, accurately perform laboratory tests, interpret, and report laboratory results on clinical specimens.

VETS - 3204 Farm Animal Management, 4.00 Credits
Level: Lower
Applied Learning-Practicum, Course Fee $33.00
This course is designed to provide the student insight into the behavior, care and management of farm animals. Dairy cattle, horses, sheep, swine, goats and other animals will be discussed. Emphasis will be placed on the practical aspects of veterinary nursing such as proper handling, restraint, evaluation, medication, treatment, and examination procedures that apply to farm animal species. Characteristics of the major breeds, terminology, disease control measures, housing, and basic management practices will also be covered. Additional farm experiences outside of regularly scheduled classes will be required for successful completion of this course.

VETS - 4002 Advanced Animal Health Care, 2.00 Credits
Prerequisite(s): VETS 3003 with D or better
Level: Upper
Applied Learning-Practicum
This course will be two functions. The first is to introduce concepts in veterinary critical care and advanced medical and surgical cases including advanced diagnostics, treatment options, and long term and follow-up animal care. The second is to serve as both a review of classroom material provided throughout the Veterinary Technology curriculum and as a preparation for actual cases and client communication requirements in a veterinary practice.

VETS - 4103 Laboratory Animal and Exotics, 3.00 Credits
Prerequisite(s): VETS 1203 with D or better and VETS 2014 with D or better and VETS 3003 with D or better
Level: Lower
Applied Learning-Practicum, Course Fee $33.00
This course is designed to provide the student with basic knowledge and understanding of research facilities and their function. Students will be instructed in the care and handling of small animals used in the research laboratory. Emphasis will be placed on species differences, housing requirements, nutrition, reproduction, health, sanitation, and laboratory techniques applied in animal research and pharmaceutical facilities. Animal handling, observation and management time will be provided in the laboratory time as well as during assigned vivarium duty. In addition an exotic animal section has been added to familiarize the students with the care and identification of common exotic species. (Exotics in this case will not include dogs or cats or species commonly found on farms.)

VETS - 4202 Small Animal Nutrition, 2.00 Credits
Prerequisite(s): VETS 1203 with C or better
Level: Lower
Applied Learning-Practicum, Course Fee $33.00
This is an introductory course for students accepted in the veterinary technology program, providing identification and function of nutrients, understanding pet food labels, and applications for wellfed, life stage, and therapeutic nutrition (prescription food) for dogs and cats. The course will utilize an interactive Internet connection in the classroom.

VETS - 4302 Pharmacology for the Vet Techn, 2.00 Credits
Prerequisite(s): VETS 2013 with C or better or VETS 2104 with C or better
Level: Lower
Applied Learning-Practicum, Course Fee $33.00
This course will review pharmacology and pharmacology that is touched upon in other Veterinary Technology courses and add additional topics in pharmacology to provide the student with a comprehensive and organized overview of veterinary pharmacology.

VETS - 4900 Directed Study, 1.00 TO 4.00 Credits
Level: Lower
A student may contract for one to four credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.
COURSE DESCRIPTIONS

WELD - WELDING

WELD - 1104 Intro Shielded Metal Arc Welding, 4.00 Credits
Level: Lower
Applied Learning-Practicum
This course provides the student with an introduction to shielded metal arc welding, welding safety and power sources. Through hands-on technical training, the student will develop the skills necessary to make quality fillet welds on mild steel using the shielded metal arc welding process in all positions and on varying plate thickness.

WELD - 1204 SMAW I, Carbon Arc Cutting & Gouging, 4.00 Credits
Level: Lower
Applied Learning-Practicum
This course provides the student with a thorough technical understanding of shielded metal arc welding (SMAW), carbon arc cutting, welding and cutting safety, power sources, and electrodes. Through hands-on technical training, the student will develop skills necessary to make quality groove welds on mild steel, in all positions and on varying plate thickness. Carbon arc skills will include cutting and gouging of mild steel.

WELD - 1723 Welders Calculations I, 3.00 Credits
Level: Lower
Basic mathematical functions used by the welder in the performance of their duties will be the subject of this course. Mathematical operations such as manipulation of fractions, decimals and unitarily converting between the two and into the metric measurement system along with calculating perimeter, volumes, weight and bend calculations will be taught in this course. This mathematics course will be trade related and will focus on the math needed by the welder to perform their required tasks. All of the math topics taught in this course are trade related. This course is designed to meet the daily needs of welders. This course is not intended for a general math audience.

WELD - 1724 Gas Wldng/Cutting & Plasma Cutting, 4.00 Credits
Level: Lower
Applied Learning-Practicum, Course Fee $112.00
This course is designed to teach the student the fundamental skills of oxy-fuel and plasma processes used in industry. Major topics include principles of operation, component identification, equipment set up, minor repairs, process variables, and manual and automatic performance exercises. Laboratory exercises emphasize technique and skill development.

WELD - 1728 ArcWldng, Crbn Arc Cting Gaung, 8.00 Credits
Level: Lower
Applied Learning-Practicum
This course provides the student with a thorough technical understanding of shielded metal arc welding, carbon arc cutting, welding and cutting safety, power sources, and electrodes. Hands-on technical training will develop skills necessary to make quality arc welds on mild steel, in all positions and on varying plate thickness. Carbon arc skills will include cutting, gouging, and weld washing of mild steel.

WELD - 1733 Weld Metrgy,Blipnt Rdng,Insp,Ts., 3.00 Credits
Level: Lower
This course provides the student with a thorough technical understanding of blueprint reading for welders, and welding trades, symbol interpretation and application. The welding symbol and its meaning will be stressed through-out the course. Students will also learn methods of inspection, and practical application and interpretation of welding code.

WELD - 2715 Shld Mil Arc & Fx Crd Arc Wld, 5.00 Credits
Level: Lower
Applied Learning-Practicum, Course Fee $112.00
This course is designed to provide instruction on those welding processes used in industry that are in high demand including flux cored arc welding and shielded metal arc welding. All processes, positions, and joint types studied will be in accordance with American Welding Society specifications. Students will be active in the American Welding Society.

WELD - 2725 Gas Metal Arc Welding, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course is designed to provide instruction on those welding processes used in industry that are in high demand including flux cored arc welding and shielded metal arc welding. All processes, positions, and joint types studied will be in accordance with American Welding Society specifications. Students will be active in the American Welding Society.

WELD - 2733 Tolerancing & Working Drawings, 3.00 Credits
Level: Lower
This course is designed for the welding student to understand the typical working drawing and any tolerances that may apply. These tolerances include unilateral, bilateral and geometric tolerances. The importance of accuracy and proper orientation of weldments will be stressed. This application will address all possible tolerancing and drawing applications the student will need to be effective as an industrial welder.

WELD - 2735 Gas Tungsten Arc Welding I, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course provides the student with a thorough technical understanding of gas tungsten arc welding, welding safety, arc characteristics and welder certification. Hands-on technical training will develop skills necessary to make quality gas tungsten arc welds on mild steel, stainless steel, and aluminum using both direct and alternating current. Certification documentation for the student will be performed for all welding processes with special attention placed on code conformance and welding procedure development.

WELD - 3005 SMAW II, Codes/Insp Basic CNC, 5.00 Credits
Level: Lower
Applied Learning-Practicum, Course Fee $112.00
This course covers safety standards, CNC machine set-up and operation, programming, theory, practice and performance of Shielded Metal Arc Welding (SMAW II). Students will learn and apply OSHA standards and correct CNC machine operation. CNC programming and SMAW II theory will also be covered. Students will be performing and variety of fillet and groove welds. All position qualification testing will prepare students for welder certification testing.

WELD - 3015 GMAW II, FCAW II, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course will cover the practice and proper use of protective clothing, equipment, and hand tools for the safe use of constant voltage welding equipment. Students will learn to work with different shielding gas mixtures, make adjustments and repairs to equipment according to manufacturer's recommendations. Proper set up, operation and theory will qualify the student for certification in gas metal arc welding of steel, stainless and aluminum in the short arc, spray and globular modes of metal transfer. Qualification testing will also be performed in outer shield and inner shield flux cored arc welding.

WELD - 3025 GTAW II Comp of Materials, 5.00 Credits
Level: Lower
Applied Learning-Practicum
Students will learn setup and operating procedures, gas cylinder handling, flow meter and torch operations for welding aluminum, carbon and stainless steel pipe, tube and plate. The course will also cover the various methods of testing and inspection of welds. All position qualification testing will prepare students for welder certification testing.

WELD - 3813 Metlogy, Code, Cert & Insp & Tst, 3.00 Credits
Level: Lower
This course will cover the principles related to the welding metallurgy, the properties of metals, and the residual stress and distortion caused by the welding process. Locate the essential information for codes and standards pertaining to the industry and work assignments for the materials used. Students will be able to perform inspections of cut surfaces of prepared metals (pre-welding) and inspect, as well as test welds during and post welding.

WELD - 4013 Senior Project, 3.00 Credits
Level: Lower
Applied Learning-Creative Work
This course is designed as a capstone project to verify a student's ability in all aspects of welding. The student will be required to identify a need for a new product or improvement on an existing product. After identification, the completion of the project will occur with minimal instructor guidance. This will allow the student to demonstrate their ability to perform independently. Upon completion, the student will demonstrate the functionality of their project in the form of a formal presentation. This will be a functional model of the student's own design.
WELD - 4425 GMAW III, FCAW III, SAW, 5.00 Credits
Level: Lower
Applied Learning-Practicum, Course Fee $112.00
This course will involve the safety inspections of the MIG welding equipment and its accessories. Student will be capable of making minor repairs to this equipment and accessories. This will also include the changing of wire electrodes and cable liners. Students will learn the troubleshooting of welding equipment problems, how to recognize them, and the correct procedures in the use of the equipment. As before, setup and safe operation would be taught for both short circuit welding and for the pulsed spray transfer methods of welding. Students will perform welds on both carbon steel pipe and aluminum pipe. Using flux cored electrode, the student will be instructed in the use of self-shielding and gas shielding methods of filler transfer. Students will learn each method of welding as well as combinations of each.

WELD - 4435 SMAW III, GTAW III, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course involves the safety inspections of welding equipment and accessories. Student will be able to make external repairs to the equipment and accessories. Setup the components and accessories for a complete shielded metal arc welding system. Setup and operate the SMW equipment for alloy pipe. Execute corrective actions to repair surface flaws on welds and base metals. Perform an unlimited thickness performance qualification test on carbon steel pipe. Perform a limited thickness performance qualification test on carbon steel and 300 series stainless steel pipe using stainless steel electrodes. Refinement will be made to student capabilities in SMAW, GTAW, and GMAW using various materials. Pipe welding using a variety of processes will be stressed. All instruction shall lead toward student certification for Level II AWS certification.

WELD - 4445 Welding Fabrication, 5.00 Credits
Level: Lower
Applied Learning-Practicum
This course will be conducted as though the student were employed in an actual work environment. The student will perform all necessary work in the fabrication of various parts. Safe and proper set up and use of appropriate equipment for various applications will be expected. Along with the setup and use of equipment, the student will be required to generate and apply weld process sheets and inspect each weld using industrially accepted inspection processes. The student will be observed in performing various duties common in industry today, as well as applications of any certifications, codes, and standards that must be met for qualifications. The student must also interpret destructive and non-destructive test results, as well as perform bend, penetrant and magnetic particle testing. They will perform visual examination and complete inspection records and reports.

WELD - 4900 Directed Study, 1.00 TO 5.00 Credits
Level: Lower
A student may contract for one to five credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.

WGST - WOMEN AND GENDER STUDIES

WGST - 1003 Intro to Women/Gender Studies, 3.00 Credits
Level: Lower
Liberal Arts and Science
This course explores critical questions about the meaning and role of gender in society. The course will expose the students to diverse values, perspectives and backgrounds relating to gender sexuality. Cultural and societal constructs and influences will be examined as they relate to gender. The course will focus on how gender, sex, race, sexual orientation, class and age influence individual attitudes and society's views.