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ACCOUNTING**ACCT - 1124 Financial Accounting, 4.00 Credits**

Level: Lower

Topics include: fundamental principles of accounting, the accounting cycle and basic procedures, statement of financial position, determination and reporting of periodic earnings, cash and accrual basis of accounting; accounting for a merchandising firm and inventory valuation, principles of internal control; and accounting for the acquisition, depreciation, and disposition of property, plant, and equipment.

ACCT - 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.

ACCT - 3423 Intermediate Accounting I, 3.00 Credits

Prerequisite(s): ACCT 2224 with C or better

Level: Lower

This course provides an in-depth examination of accounting theory in the treatment of assets, liabilities and stockholder's equity. The accounting cycle is reviewed in detail and a full examination and analysis of financial statement development and usage is undertaken. Continual focus will be on fundamental accounting concepts and principles with special emphasis on the contemporary theory and practice that applies to accounting statements. Topics covered include the foundations of accounting, the accounting process, accounting statements, and asset structure of the balance sheet.

ACCT - 3453 Tax Accounting I, 3.00 Credits

Prerequisite(s): ACCT 1124 with D or better

Level: Lower

Applied Learning-Practicum

Topics include: federal income taxation for the individual including filing requirements and status, exemptions, deductions, determination of taxable income, computation of tax, tax credits and tax payments; business or professional income from the sole proprietorship, self-employment tax, supplemental sources of income, and capital gains and losses.

ACCT - 4523 Intermediate Accounting II, 3.00 Credits

Prerequisite(s): ACCT 3423 with D or better

Level: Lower

Continuation of ACCT 3423. Topics include: long-term investments, fixed assets, current and long-term debt, and stockholder's equity. Special problems of income determination, statement of cash flow and statements from incomplete records.

ACCT - 4663 Acctng Sys & Computer Appl, 3.00 Credits

Prerequisite(s): ACCT 2224 with D or better

Level: Lower

Applied Learning-Practicum

This course will cover all aspects of accounting for payroll, including the requirements of the Fair Labor Standards Act, calculations relative to gross pay, statutory and non-statutory deductions, employee and employer payroll taxes, general journal entry work relative to payroll, the payroll register, and the individual earnings record. Determining the amount and timing of payroll deposits, and preparing required quarterly and annual reports will also be covered. The course will then apply payroll and other accounting activities to a contemporary accounting software product covering the following topics: creating a new business, establishing a chart of accounts, recording typical business transactions, creating related financial statements, closing the books and employing available business research and evaluation techniques.

ACCT - 5043 Accounting Perspectives, 3.00 Credits

Level: Upper

This course is intended to examine and apply the basic assumptions, principles, concepts, and methods commonly used in the accounting profession. The course is intended more for the users of accounting information than for the originators of it. Debits and credits are virtually ignored. Thus, the student examines the "whys" of accounting to a much greater degree than the "hows". The course is split into two major components. The first half examines financial accounting topics, using the financial statements as a basis of study. The second half of the course examines managerial accounting topics, with the primary emphasis being the fulfillment of the needs of management. The course would be particularly beneficial to individuals in engineering technology, management, marketing, and vocational technology curriculums where the graduate will not actually be expected to do accounting, per se, but will be expected to effectively comprehend accounting reports and statements as well as communicate with accounting personnel.

AGRICULTURE**AGRI - 1001 Farm Practicum I, 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 - 1002 Introduction to Agriculture, 2.00 Credits

Level: Lower

Applied Learning-Practicum

The introduction to Agriculture 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 II, 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 - 2013 Organic & Sustainable Ag Tech, 3.00 Credits

Level: Lower

This course will introduce students to environmentally sound methods of agriculture. The goal is to help students understand methods and technologies for using water, soil, pasture and manure resources in ways that create a biologically healthy landscape for animals and for society. This course will introduce students to a more natural approach to animal agriculture as well as to explore the synergy of an integrated organic cropping and animal agriculture system.

AGRI - 2102 Ag Equipment Operation & Repair, 2.00 Credits

Level: Lower

Applied Learning-Practicum

This course is an introduction to the operation and basic maintenance of agricultural equipment.

AGRI - 3001 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

This course enables the student to develop career professionalism, job finding techniques and the personal and social skills necessary for success in the world of work. A job search is organized, resumes prepared with cover letters, and practice interviews are conducted. Many types of jobs are studied using successful graduates. Professional and personal goals are discussed.

AGRI - 4103 Constructn Technqs for Agrictr, 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 - 4900 Directed Study, 1.00 TO 4.00 Credits

Level: Lower

Students must have permission of their advisor and the department chairperson before enrollment. An outline of the study must be submitted before enrollment. Directed study provides an opportunity to continue study in an area of special interest. Study may be carried out within any curriculum in the department in which the student is enrolled.

AGRI - 6103 Precision Agriculture, 3.00 Credits

Level: Upper

This course covers the acquisition and analysis of geographically referenced data for the management of crop production systems. Topics include: mapping, map projections, implementation of global positioning systems, data formats, geographic information systems, grid sampling, soil fertility and physical properties, yield monitoring, variable-rate application, and economics.

AGRICULTURE ECON/BUS**AGEC - 3213 Farm & Rural Business Mgmt I, 3.00 Credits**

Level: Lower

This is the first in a two semester series where both the production management and financial management of a rural or farm business are studied. The course emphasizes the skills needed to manage a profitable business including analysis of financial statements, record keeping, key production management areas, leadership and decision-making skills. Aspects and functions of management as well as types of decision making will be introduced. Acquiring and organizing financial management information will be the primary emphasis of the course including constructing and analyzing financial statements and pertinent production information. The importance of good management (financial and otherwise) to the success of the business will be stressed.

AGEC - 4303 Farm & Rural Business Mgmt II, 3.00 Credits

Prerequisite(s): AGECE 3213 with D or better

Level: Lower

This is the second in a two semester series where both the production management and financial management of a rural or farm business are studied. The course emphasizes the skills needed to manage a profitable business including analysis of financial statements, record keeping, key production management areas, leadership and decision-making skills. The relationship between good management performance and financial success will be stressed. The primary emphasis of the course is improving management skills and acquiring resources for management. This includes farm business organization and transfer, as well as the acquisition of resources for rural enterprises. The importance of risk management and enterprise analysis to the success of the business will be stressed.

AGRONOMY/PLANT SCIENCE**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 complements 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 1103 with D or better and BIOL 1304 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 Vegetb Prodtn 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.

ALFRED STU SUCCESS CENTER

ASDC - 1012 College and Life Skills*, 2.00 Credits

Level: Upper
Remedial

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.

ASDC - 1092 Methods of Inquiry, 2.00 Credits

Level: Lower

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.

ASDC - 2011 Career Exploration & Planning*, 1.00 Credit

Level: Lower
Remedial

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 marketing materials such as resumes, cover letters, and career portfolios. This is a pass/fail course.

ASDC - 2193 Intro to Academic Literacy, 3.00 Credits

Level: Lower

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.

ASDC - 2900 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.

ANIMAL HUSBANDRY/SCIENCE

ANSC - 1204 Introduction to Animal Science, 4.00 Credits

Level: Lower

Applied Learning-Practicum, Course Fee \$33.00, Liberal Arts and Science

This course provides a survey of the Dairy Cattle and Livestock industry, including beef, sheep, swine, and horses. Breeding and feeding systems, disease control measures, housing and basic management practices. The selection of animals for production, market, and breeding. Characteristics of the major breeds, their economic importance and marketing trends of their products will be covered.

ANSC - 2102 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 is a systems approach to the study of anatomy and physiology of common domestic animals, emphasizing Ruminant, Equine, Swine, Canine and Feline as the animal models. The on-line course materials will provide the student with a complete overview of how each body system functions in the maintenance of a normal healthy animal. The on-line course materials will be reinforced in the laboratory where skeletons, models and prosected specimen will allow the student to gain applied perspectives of the gross anatomy and normal physiology. Histologic slides, kodachromes, radiographs and live animals will also be used to enhance student understanding. Computer simulated dissection materials will also be used to provide the opportunity for the students to refine their understanding of the required information.

ANSC - 3003 Feeds and Nutrition, 3.00 Credits

Level: Lower

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.

ANSC - 3013 Animal Disease Control, 3.00 Credits

Prerequisite(s): ANSC 1204 with D or better or VETS 3204 with D or better

Level: Lower

Fundamental information on the nature of disease and its control and prevention are studied. Students are introduced to the causes, symptoms, prevention and treatment of common diseases as well as to the life cycles, damage, diagnosis, control and treatment of various internal and external parasites.

ANSC - 3103 Livestock Mgmt & Production, 3.00 Credits

Level: Lower

The course introduces the student to the management and production of assorted species of livestock. Breeds of sheep, beef, and swine will be studied as well as the skills in selecting and judging these species. Feeding and management of each of these species, as well as housing and equipment requirements for animals in specific types of operations will be examined. Students will be introduced to diseases and parasites that may be encountered when managing a species-specific livestock operation. Students will also gain insight into different types of marketing used in livestock production.

ANSC - 3202 Dairy Management Analysis, 2.00 Credits

Prerequisite(s): ANSC 3203 with D or better

Level: Lower

Applied Learning-Practicum

Dairy Management Analysis is an overview of specific subject matter which influences dairy cattle production units today. Subject matter includes dairy records analysis, fresh cow management, heifer and calf management, housing and ventilation, economics, profitability and employee management. Participation in the Northeast Dairy Challenge interscholastic competition or an assigned farm assessment is required.

ANSC - 3203 Dairy Cattle Production I, 3.00 Credits

Prerequisite(s): ANSC 1204 with D or better or VETS 3204 with D or better

Level: Lower

Applied Learning-Field Study

Dairy Cattle Production I is an introduction to specific subject matter which influences cattle production units today. Subject matter includes: on-farm disease control and biosecurity, calf and heifer management, milk letdown and physiology of lactation, udder health, basic herdsmanship skills and introduction to Dairy Comp 305 record keeping software.

ANSC - 3204 Dairy Cattle Production III, 4.00 Credits

Prerequisite(s): ANSC 1204 with D or better or VETS 3204 with D or better

Level: Lower

Applied Learning-Field Study

Dairy Cattle Production III focuses on dairy farm management analysis to troubleshoot and prioritize production and profitability opportunities. The course includes: developing on-farm observation skills, production records analysis using Dairy Comp 305, monitoring cow and rumen health, nutrition and feeding management and employee management.

ANSC - 3223 Dairy Calf Management, 3.00 Credits

Prerequisite(s): ANSC 2114 with D or better or ANSC 1204 with D or better

Level: Lower

Applied Learning-Field Study

This course will provide the student with a basic understanding of the nutritional, environmental and health challenges a calf must go through from birth to yearling stage. Lab sessions will focus on mastering basic calf care skills. Field trips will be incorporated into the laboratories to expose students to different management approaches including custom calf raisers, and large and small herd replacement enterprises. Students will spend two hours per week practicing calf care procedures.

ANTHROPOLOGY

ANTH - 1013 Cultural Anthropology, 3.00 Credits

Level: Lower

Gen Ed - Other World Civ, Gen Ed - Social Sciences, Liberal Arts and Science

This course promotes understanding of the world's cultures by providing an introduction to cultural anthropology and the study of contemporary cultures worldwide, with an emphasis on non-western cultures. This course will introduce the student to anthropological methods, theories and concepts. It is a broad survey of a variety of belief systems, social and family structures, and different ways anthropologists understand individuals and cultures. Case studies are selected for specific ethnographic focus, through which to explore different approaches to life. The experiences of cross-cultural encounters are examined. After completion of this class the student should be able to define basic anthropological concepts, understand theories of cultural anthropology and critically reflect on personal assumptions you may have about human beings and cultural.

ANTH - 1113 Anthropology of Europe, 3.00 Credits

Level: Lower

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 and to issues related to food allocation.

ANTH - 2900 Directed Study, 1.00 TO 4.00 Credits

Level: Lower

Liberal Arts and Science

The purpose of this course is to allow a student to continue study in an anthropological subject that is of special interest to the student. The student may contract for between one and four hours of independent study through an arrangement with an instructor who agrees to direct such a study. In consultation with the instructor, the student will develop a plan of study that must be approved by the instructor and the department chairperson. The student and instructor must confer regularly over the duration of the study.

ANTH - 5113 Cross-Cultural Encounters, 3.00 Credits

Level: Upper

Gen Ed - Other World Civ, Liberal Arts and Science

This course develops a framework for cross-cultural literacy - understanding different cultural contexts and the dynamics of cross-cultural communication. Attention is paid to the challenges that might be encountered in multi-cultural environments and how they might be resolved. Leading social, economic, and political institutions of several specific cultures will be examined. The course is writing-intensive and a project is required.

ANTH - 5223 Archaeology - Cities of Fire, 3.00 Credits

Level: Upper

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, Cuma, 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.

ARCHITECTURE AND DESIGN

ARCH - 1013 Introduction to Design, 3.00 Credits

Level: Lower

This introductory course provides students with an in-depth awareness of the role of design in society as well as the designer's ethical and social responsibilities. It introduces students to the various design disciplines and specifically how the design professions relate to one another, yet presents their distinct and differentiated aspects. The primary objective of this course is to provide students with the necessary skills for future cross-disciplinary collaboration. By training students to use a common vocabulary, increasing their awareness of these individual disciplines, and providing exposure to related contexts, philosophies, and issues, this course challenges students to more critically examine the design disciplines specifically related to the built environment: industrial and product design, environmental graphic and wayfinding design, exhibition design, landscape architecture, urban and interior design, costume and fashion design, and digital media. The course also examines the notion of "design thinking" with an increasing impact on fields beyond those traditionally related to design such as medicine, business, and sociology. Likewise, this course examines the evolution of design through the changing technological landscape that supports the professional practice of design. This course features experiential learning and provides students with an opportunity to meet design professionals from a range of design disciplines which culminates with one design-analysis project chosen by each student from several options.

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-Intl/Dom Trvl

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, 3.00 Credits

Prerequisite(s): MATH 1033 with C or better or MATH 1034 with C or better or MATH 1054 with C 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 residential and commercial buildings. MEP system components, their integration into the building, and energy conservation are discussed and illustrated. Students will design various systems and will solve problems related to heat loss, fuel usage, fixture quantity, and supply and drain, waste, and vent piping.

ARCH - 3014 Construction Technology 1, 4.00 Credits

Prerequisite(s): ARCH 2014 with D 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 - 5306 Design Studio 3, 6.00 Credits

Prerequisite(s): ARCH 4304 with C or better or CIAT 4304 with C or better
 Level: Upper
 Course Fee \$106.00

This studio is designed to develop the student's ability to apply and integrate architectural principles and methods to 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 Sustainable Building Design, 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
 Level: Upper

This is a course covering advanced technical and design strategies to maximize sustainability in building design. Students will concentrate on the five major areas of sustainability including energy, air, water, materials and site planning and how they impact building design. Lecture material for the student notation will be presented via power point presentations, web site references, slides, academic videos and invited guest speakers. Relevant local and regional architectural sites will be discussed and associated tour(s) included. Students will produce design projects that integrate the five major areas discussed.

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 medial 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 Defn, 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): CIVL 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.

ARCH - 8776 Design Studio 8-Thesis Develop, 6.00 Credits

Prerequisite(s): ARCH 8716 with C or better

Level: Upper

Applied Learning-Creative Work, Course Fee \$159.00

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 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 - 8793 Professional Development, 3.00 Credits

Prerequisite(s): ARCH 8003 with C or better or CIAT 8003 with C or better

Level: Upper

Applied Learning-Service-Learn

This course, offered in the final year, provides the students with practical application of skills developed in their specific major. This directed study provides valuable real-life experience while extending the skills and good-will of the students towards the college and/or local community. The student will be responsible for all aspects of the project for a college or community organization while under the guidance of the curriculum faculty. Internships outside the Alfred community are also an option and will be discussed prior to the student registering for the course.

AUTOMOTIVE

AUTO - 1109 Brakes, Steering & Susp Sys, 9.00 Credits

Level: Lower
 Applied Learning-Practicum

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.

AUTO - 1124 Automotive Welding, 4.00 Credits

Level: Lower
 Applied Learning-Practicum, Course Fee \$54.00

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.

AUTO - 1135 Bsc Elctrn & Compnt Overhaul, 5.00 Credits

Level: Lower
 Applied Learning-Practicum

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.

AUTO - 1149 Inspec, Main, AC Htng & Cing, 9.00 Credits

Level: Lower
 Applied Learning-Practicum

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.

AUTO - 1169 Auto Electric, Fuel & Emission, 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 - 1219 Truck Brake, Steer & Sus Sys, 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 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.

AUTO - 1224 Welding, 4.00 Credits

Level: Lower

Applied Learning-Practicum, Course Fee \$54.00

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 "booth time" is supplemented by the use of various processes in the actual repair of vehicles and equipment.

AUTO - 1239 Trk Insp, Maint, AC, Cng/Htng, 9.00 Credits

Level: Lower

Applied Learning-Practicum

This course includes lab application of vehicle preventive maintenance and mandated annual safety inspection. Repair techniques to insure driver comfort and engine efficiency through the control of heat are studied as 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 Elctrns & Cmpnt Ovrhal, 5.00 Credits

Level: Lower

Applied Learning-Practicum

This course is designed to provide 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

Encompasses the causes, repair, and prevention of rust formation and develops an awareness in the student that it is his/her ethical duty to make rust repairs properly and economically.

AUTO - 1313 Wrecker Operation & Estimating, 3.00 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 - 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 - 1343 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 Recondtng & Mechanc'l Componts, 4.00 Credits

Level: Lower

Applied Learning-Practicum

Designed to acquaint trainee with the proper process of reconditioning a vehicle before customer delivery. Students will learn how to remove and install seat upholstery as well as interior trim panels and hardware.

AUTO - 2169 Truck Gas 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 Anlys, 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 unit of instruction is designed to enable trainees to become proficient in chassis electrical testing, repair, and component replacement.

AUTO - 2503 Prev Maint for Hvy Tk & Diesel, 3.00 Credits

Level: Lower

Applied Learning-Practicum

This course is designed to teach scheduled preventive maintenance procedures as they apply to trucks and heavy equipment. Vehicle system checks include air brakes, tires, critical fluids and lubrication points. Training is focused on ensuring safety and reliability between scheduled Preventive Maintenance checks.

AUTO - 3409 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 repairs 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 - 3429 Adv Elctrn & Engine Perfmnc, 9.00 Credits

Level: Lower

Applied Learning-Practicum

Lecture sessions cover most areas of the automobile except engine and drive train 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 Hgh Prfrmnce Tune-up/Electrnics, 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 techniques and skills to modify fuel and ignition systems.

AUTO - 3534 Hgh Prfrmnce Sternng/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 Hgh Prfrmnce 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 Meritor clutches, Mack and Eaton transmissions, and Meritor, 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 nine credit hour course covers the procedures needed to understand, test, repair, and overhaul diesel engines and their related components. Major emphasis is placed on the mid-range and 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 Inspec, Gen Alignment & 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 Skls/Computerized 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 - 4363 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 vehicles 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.

BACHELOR OF SCI ENGR TECH**BSET - 7001 Senior Seminar & Project Des, 1.00 Credit**

Level: Upper

First of two-semester sequence Bachelor of Science seniors. Students design technical project for completion in BSET 8003. Project proposal and design oral reports are presented. Weekly seminar deals with various aspects of post-graduation professional employment.

BSET - 8003 Senior Technical Project, 3.00 Credits

Level: Upper

Applied Learning-Creative Work

Students build and test a technical project designed in BSET 7001. Each student must complete a formal oral presentation, project demonstration and submit a written project report. The project is subject to faculty approval. Each student chooses or is assigned a faculty project advisor.

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 subjects.

BIOL - 1104 General Biology I, 4.00 Credits

Level: Lower

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

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, profiting 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

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 lumber, fuel, aesthetics, 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

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

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

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, immunity, 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

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

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 - 2633 Histotechniques, 3.00 Credits

Prerequisite(s): BIOL 1104 with D or better or BIOL 1404 with D or better or BIOL 1114 with D or better or ANSC 1214 with D or better or VETS 2014 with D or better

Level: Lower

Course Fee \$129.00

An applied and theoretical technology course which provides instruction and hands-on experiences in the preparation of tissues for microscopic examination by paraffin, and frozen section and smear techniques. Normal and diseased animal and plant tissues will be used to provide the students an opportunity to use a variety of techniques involved in processing tissues. Tissue identification and classification will be discussed as it relates to preparation procedures. Care, maintenance, and use of instrumentation in tissue preparation will be stressed. One-hour lecture and 2 two-hour laboratories per week with significant additional supervised time spent in the lab by students.

BIOL - 2801 Environmental Sciences Lab, 1.00 Credit

Prerequisite(s): BIOL 2803 with D or better *

Level: Lower

Applied Learning-Field Study, Course Fee \$96.00, Liberal Arts and Science

This course is a series of field-oriented laboratory experiences involving analyses of various local ecosystems. Topics to be stressed include identification of organisms, use of environmental monitoring equipment, and collection and interpretation of field data.

BIOL - 2803 Environmental Science, 3.00 Credits

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

Course Fee \$29.00, Gen Ed - Natural Sciences, 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 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 - 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 with D or better

Level: Upper

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 *Kyococcus 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

Course Fee \$152.00, Liberal Arts and Science

This course focuses on the development of advanced practical skills, competencies, and knowledge in laboratory techniques commonly used across 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 principally 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 2013 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 - 6003 Molecular and Cell Biology, 3.00 Credits

Prerequisite(s): BIOL 6534 with D or better

Level: Upper

Liberal Arts and Science

This course will provide a firm foundation on the principles of modern molecular and cellular biology. The first half of the course will focus on the molecular structure and function of DNA, RNA and proteins and the tenets of the central dogma of molecular biology. The second half of the course will focus on the fundamental processes that enable cells to grow, move, and communicate as well as introduce the processes underlying tissue formation and cell death. During recitation the students will read and analyze primary journal articles, create a short oral presentation on a topic and submit a short "News and Views" article written for a general audience.

BIOL - 6403 Advanced Pathophysiology, 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 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.

BIOL - 6534 Genetics, 4.00 Credits

Prerequisite(s): BIOL 1104 with C or better or BIOL 1304 with C or better or BIOL 1404 with C or better or VETS 1214 with C or better

Level: Upper

Course Fee \$104.00, Liberal Arts and Science

A study of heredity and the gene from the perspective of the individual, the cell, and the population. The human species will be emphasized along with recent advances in biotechnology. Laboratory work includes *Drosophila* breeding, polymerase chain reaction, and DNA electrophoresis.

BIOL - 8803 Senior Research Project, 3.00 Credits

Prerequisite(s): BIOL 8823 with C or better

Level: Upper

Applied Learning-Research

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 to 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.

BIOL - 8813 Professional Internship, 3.00 Credits

Prerequisite(s): BIOL 8823 with C or better

Level: Upper

This course is intended for students in the final year of the four-year Health Science curriculum. Students are required to complete a supervised internship at an approved off-campus site. Students will work under the supervision of a 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.

BIOL - 8823 Research Mthds in Hlth Science, 3.00 Credits

Prerequisite(s): BIOL 2204 with D or better and CHEM 4524 with D or better

Level: Upper

Liberal Arts and Science

This course familiarizes the student with laboratory protocols, safety, and experimental design. It covers searching for, reading, writing, and presenting scientific literature. Students also learn skills for exploring and obtaining careers in the health professions.

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. This course will present the parts of blueprints in detail including symbols, the title block, and grid lines. Students will be introduced to site plans and the concept of preparing graded surfaces using heavy equipment. Identification of construction stakes and interpretation of marks on each type of stake will be covered. The process for grading slopes will also be discussed.

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.

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 shop 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, D.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 *

Level: Lower

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 transits. An introduction to commercial construction is also included with a focus on apprenticeship training, energy insulated foam systems, and pre-fab concrete systems.

BLCT - 2054 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, lineal 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.

BLCT - 3023 Supervision Part I, 3.00 Credits

Level: Lower

In this course students will learn the principles of project planning, scheduling, estimating, and management, and the basic skills required for supervising personnel.

BLCT - 3033 Cabinet & Counter Top Const, 3.00 Credits

Prerequisite(s): BLCT 1022 with D or better and BLCT 2032 with D or better

Level: Lower

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.

BLCT - 3123 Constructn Drawings & Specifct, 3.00 Credits

Prerequisite(s): BLCT 2054 with D or better

Level: Lower

The four major plan groups are architectural, structural, mechanical, and civil. The students will be able to identify major types of plans. Emphasis is placed on residential plan reading and development.

BLCT - 3159 Masonry III, 9.00 Credits

Level: Lower

This course covers job supervision, foundations, material estimates, fireplace design and construction, stone masonry skills in these areas and to provide repetition to increase production and accuracy.

BLCT - 3169 Masonry IV, 9.00 Credits

Level: Lower

This course provides instruction in mortar types for specific applications, masonry repair and restoration, ornamental masonry and bonding patterns. Cold weather construction techniques relevant to concrete and masonry construction is studied. A unit on engineered brick masonry and prefabrication is included. Lab activities are provided to develop hands-on skills.

BLCT - 3203 Estimating III, 3.00 Credits

Prerequisite(s): BLCT 2132 with D or better

Level: Lower

This course is a study of cost and quantity estimating, for materials, labor, and work units for residential and light commercial construction. Construction Specification Institute (CSI) Division specifications are applied in an estimate and bid project as part of the course requirements.

BLCT - 3213 Exterior Construction Details, 3.00 Credits

Prerequisite(s): BLCT 2054 with D or better

Level: Lower

This course covers the methods used in the construction and installation of residential exterior elements. The course content includes the construction of porches, decks and breezeways. Students will learn about flooring and decking materials, different types of entrance doors and their installation, garage doors, footings and fasteners, railing systems and structural supports, and building code requirements.

BLCT - 3223 Home Remodeling, 3.00 Credits

Level: Lower

This course covers the evaluation of overall conditions found in older buildings. Students will learn about the construction techniques used in remodeling and how they differ from new construction. This will include the process of identifying and handling hazardous materials, historical framing styles, and different styles of interior and exterior trim.

BLCT - 3233 Advanced Framing, 3.00 Credits

Prerequisite(s): BLCT 2054 with D or better

Level: Lower

Applied Learning-Practicum

This course will teach roof design, including the cutting and fitting of hip and valley rafters. The course will also cover truss design and installation of trusses.

BLCT - 3313 Basic CAD for Resid Drawings, 3.00 Credits

Prerequisite(s): BLCT 2054 with D or better

Level: Lower

Course instruction provides basic computer aided drafting (CAD) techniques. Eight initial projects incorporate the application 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.

BLCT - 3323 Interior Trim, 3.00 Credits

Prerequisite(s): BLCT 1024 with D or better and BLCT 2044 with D or better

Level: Lower

Applied Learning-Practicum

This course covers hanging and trimming doors; trimming windows; and installing interior moldings in a laboratory setting.

BLCT - 3413 Blueprint Reading-Bldg Construct, 3.00 Credits

Corequisite(s):

Level: Lower

This course covers instruction in blueprint reading, concentrating on plumbing blueprints, building blueprints, and instruction in the use of the architect's scale for taking measurements. The course covers all components of a wood frame structure including foundations. Students will be taught the proper installation of piping and fixtures so as not to jeopardize the building's structural integrity.

BLCT - 3423 Pipe Fitting - Math Estimating, 3.00 Credits

Corequisite(s):

Level: Lower

This course covers basic math and materials estimating the plumbing trades. Pipe fitting math is practiced and applied to ensure proper plumbing drainage, as well as water and gas line pipe length installations. Material lists and job estimating is also taught as it pertains to various plumbing systems and fixtures. The students are given instruction on materials mark up for profit, proper customer billing, and required income and sales tax as it pertains to a self-run plumbing business.

BLCT - 3433 Cop Pipe & Tub, Water Sys Des, 3.00 Credits

Corequisite(s):

Level: Lower

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.

BLCT - 3443 Drainage Systems & Piping, 3.00 Credits

Corequisite(s):

Level: Lower

Applied Learning-Practicum

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.

BLCT - 3453 Plumb Trade History & Safety, 3.00 Credits

Level: Lower

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.

BLCT - 3463 Watr Heatrs-Plumb Fix Inst/Rpr, 3.00 Credits

Corequisite(s):

Level: Lower

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 also covers the instruction of plumbing fixture specifications and installation. Fixture troubleshooting and repair is also covered in this course.

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

The purpose of the 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 - 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 Funda & Heat Sources, 3.00 Credits

Prerequisite(s): BLCT 3453 with D or better

Level: Lower

This course will introduce 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 - 3533 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 - 4002 Below Grade Const(Hvy Highway), 2.00 Credits

Level: Lower

Applied Learning-Practicum

This course discusses 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 - 4003 Paving Part II, 3.00 Credits

Prerequisite(s): BLCT 3013 with D or better

Level: Lower

This course explains how to perform hot mix asphalt paving and concrete paving. The course covers the operation of asphalt pavers and all equipment required to perform paving. Discussions will include concrete paving equipment such as concrete pavers, slip-form pavers, and texture/curing machines.

BLCT - 4004 Operations Part IV, 4.00 Credits

Prerequisite(s): BLCT 3005 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 - 4012 Earth Moving (Hvy Highway), 2.00 Credits

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 - 4013 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 - 4022 Finish Operations, 2.00 Credits

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 - 4023 Form Building, 3.00 Credits

Level: Lower

This course provides the basics of building footer forms and installing concrete wall forms. It will also introduce students to SMAW (Shielded Metal Arc Welding) electric arc welding and cutting steel with an oxy-acetylene torch.

BLCT - 4032 Finishing & Grading, 2.00 Credits

Level: Lower

This course provides instruction in the use of various types of heavy equipment to finish and trim grades and slopes of roads, pads, ditches, and other structures; specifications used for grading will be discussed as well as procedures for checking the final grade.

BLCT - 4033 Historic Framing Techniques, 3.00 Credits

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 - 4042 Construct Business Operation, 2.00 Credits

Prerequisite(s): BLCT 3203 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 \$13.00

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 Effy 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 System & 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 & Ht 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 3323 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.

BUSINESS ADMINISTRATION

BUAD - 1043 Occupational Experience, 3.00 Credits

Level: Lower

Pass/Fail

This is a semester-long experience where a business student can gain hands-on work experience in a sponsor company. Students benefit from this employer-employee relationship as an extension of classroom theory/applications and learn to work within corporate rules/regulations as expected of a newly hired worker. Satisfactory completion of this training, as well as related assignments, is required.

BUAD - 1103 Keyboarding, 3.00 Credits

Level: Lower

Three lectures per week. When this course serves as the prerequisite for another course, the student must receive a grade of C or better. Learning to locate and operate the keys by touch; improving techniques and keyboarding speed and accuracy; and application activities to help to improve related language arts skills.

BUAD - 1543 Grammar for Court Reporters, 3.00 Credits

Level: Lower

In this course students will develop a high-level ability in spelling, vocabulary, sentence structure, word choice, capitalization and punctuation with direct application to business writing and speaking. This course encourages application of this knowledge through editing activities. Attention is given to diagnosing fragments, run-ons, comma splices and parallelism errors. Emphasis is placed upon mastery of grammatical structure needed for effective writing of sentences, paragraphs, and essays. When this course serves as the prerequisite for another course, the student must receive a grade of "C" or better in this course.

BUAD - 2033 Business Communications, 3.00 Credits

Prerequisite(s): COMP 1503 with D or better

Level: Lower

Gen Ed - BC-COMP1503/BUAD2033, Gen Ed - BC-COMP3503/BUAD2033

Students will develop skills in communication within business activities. In addition to learning fundamentals of communication theory and principles, special attention is given to preparation of letters, researching techniques, written and oral reports. Emphasis is also given to preparing students for the job search process including preparation of application letters, resumes, interviews, and the follow-up activity.

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

The course 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 are enhanced 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 is a major concern.

BUAD - 4004 Ess of Entrepr & 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, 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.

BUAD - 4053 Business Law II, 3.00 Credits

Level: Lower

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 which 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.

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.

BUAD - 5003 Management Communications, 3.00 Credits

Prerequisite(s): COMP 1503 with D or better or BUAD 2033 with D or better

Level: Upper

This course is designed to provide the student with the range of communication issues a manager will face in the future. Enduring issues on how to write and speak effectively and devise a successful communications strategy as well as how to make the best use of telecommunications technology will be explored. Through lecture and application, the student will study such areas as handling feedback, managing meetings, communicating change, communicating with diverse populations and external audiences. Special emphasis will focus on how to use communications to achieve organizational missions, how to adapt their communications to the specific needs of their audiences, and how to prepare for intercultural communications challenges.

BUAD - 5013 Principles of Leadership, 3.00 Credits

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

Level: Upper

This course is an examination of the theory, practice, and principles of leadership within the realm of management. Major topics include the evolution of leadership theory, an examination of the major leadership theories operating in modern organizations, and the impact of each on organizational effectiveness. The development, refinement, and application of effective leadership principles and skills are also examined. Students will be expected to analyze the spectrum of leadership theories and formulate opinions as to the most effective and efficient forms of leadership given a specific situation or organizational context.

BUAD - 5023 Human Resource Management, 3.00 Credits

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

Level: Upper

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 effectiveness and competitiveness. Discussion and research will take place on some of the challenges and workforce 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.

BUAD - 5033 Retirement Planning, 3.00 Credits

Prerequisite(s): BUAD 4203 with D or better

Level: Upper

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.

BUAD - 5043 Business Ethics, 3.00 Credits

Prerequisite(s): (BUAD 3043 with D or better or BUAD 7023 with D or better) and (BUAD 3153 with D or better or TMGT 7153 with D or better)

Level: Upper

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. Course work 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.

BUAD - 5053 Software Applications in Business, 3.00 Credits

Level: Upper

Software Applications in Business prepares students to analyze and solve real-life business problems using spreadsheet, database, word processing, and Web tools. It challenges students to use critical thinking, research, and analysis to find efficient and effective solutions to typical business situations. Students will be assigned case problems in accounting and finance, marketing, manufacturing, and human resources, and they will present the solutions in class.

BUAD - 5900 Directed Study - Upper Level, 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.

BUAD - 6003 Managerial Finance, 3.00 Credits

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

Level: Upper

This course is a comprehensive examination of the theoretical and practical approaches to financial management. Analyzing, planning, controlling investment and short and long term financing are examined for decision-making purposes. Topics include: the financial environment, risk and rates of return, capital budgeting techniques, the cost of capital and capital structure, analysis of financial statements, financial planning and control, and ethics in finance.

BUAD - 6113 Strategic & Creative Prob Solv, 3.00 Credits

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

Level: Upper

The focus of this course is the analysis of issues that managers typically address in technology-based environments and application of creative problem techniques. Emphasis is on fostering creative thinking as a way to approach and solve problems, and analysis of personal thinking styles. Problem, evaluation, and decision analysis techniques as well as computer-assisted problem solving will be used. Preparation and presentation of written and oral reports is required. The course offers an opportunity for students to practice communication of ideas and accomplishments through informal discussion, formal presentation, team decision-making and written case analysis. The applied case study problems explored in this course are based upon real and current industry problems.

BUAD - 6213 Business in the European Union, 3.00 Credits

Level: Upper

The course describes how economic, political and social factors interrelate, and influence business in the European Union. Students will research sustainable business practices from different European Union member state's perspective. Guest lecturers and field trips are planned for students enrolled in the study abroad program.

BUAD - 6303 Mktg & Commntg thru Soci Media, 3.00 Credits

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)

Level: Upper

Upon completion of this course, the student will understand the key concepts of social media and their application in today's business environment. This course is designed specifically to address business needs related to the design, development, and implementation of social media projects in areas such as customer relationship management (CRM), marketing and public relations, and internal organizational communication. In addition to the presentation of key concepts via lectures, this course will use case studies 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.

BUAD - 6403 Proj Mgmt for Busi Prfssnls, 3.00 Credits

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)

Level: Upper

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 develop the key deliverables for a Project Management Plan. Microsoft Project will be used 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 cost estimating). Students will also become familiar with the use of GANTT charts and critical path analysis related to project management in general business settings.

BUAD - 6503 Intro to Supply Chain Mgmt, 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, along with application of, theoretical approaches and practices to managing a global supply chain. Course focus will be on managing material and information outside of the factory walls including aspects of product design collaboration, demand planning and forecasting, inventory management and deployment, understanding and designing distribution channels, procurement in global economy, general logistics, and career opportunities. Supply chain management (SCM) is a system approach to managing the entire flow of information, materials, and services from raw materials suppliers through operations facilities and warehouses to the end-customer. This course stresses the need to identify and maintain customer value throughout the entire process. Students will learn how supply chain strategies support corporate strategies.

BUAD - 7003 Systems Thinking for Busi Prof, 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 key concepts of systems thinking applied to complex business challenges. The Systems Thinking course focuses on the interrelationships of elements within economic, social, political, technological, environmental, and other types of systems. This course is designed to help students understand and apply the principles of systems thinking in a business context to resolve complex issues and difficult problems.

BUAD - 7004 Small Business Planning & Mgmt, 4.00 Credits

Prerequisite(s): MKTG 2073 with D or better or BUAD 3153 with D or better or TMGT 7153 with D or better

Level: Upper

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.

BUAD - 7023 Legal Environment of Business, 3.00 Credits

Level: Upper

This course is designed to expose students to the legal environment within which businesses operate. It focuses on business' relationship with government agencies (public law issues) as well as with other businesses, consumers, suppliers, etc., (private law issues). The course specifically addresses the global, political, social, environmental and regulatory legal issues confronting businesses, with a special emphasis on the law of technology. It is intended to better equip the business manager for decision making by exploring the legal issues involved in contracts, torts, business organizations, employment law, the Uniform Commercial Code, intellectual property law and Constitutional Law. A variety of specific problems for business 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.

BUAD - 7033 Operations Management, 3.00 Credits

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

Level: Upper

Upon completion of this course, the student will understand modern (quantitative and qualitative) concepts in production management and their application to problems relevant to today's workplace, for both industrial and service organizations. This course specifically addresses the impact of operational decisions on the firm and emphasizes cross-functional decision making. The course essentially deals with the process design, delivery systems, quality management, ERP, inventory control, scheduling and management of transformation processes to create and deliver value to customers by identifying opportunities and direction for change. This course will cover the terminology, problems, concepts and tools associated with managing operations. Special topics include: supply chain management, e-operations, service blueprinting, competency-based strategy, Six Sigma, lean systems, and mass customization.

BUAD - 7273 Organizational Behavior, 3.00 Credits

Prerequisite(s): TMGT 7153 with C 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) 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, 3.00 Credits

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

Level: Upper

Applied Learning-Entrepreneur

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. In addition the course will cover strategic control and corporate governance, creating organizational designs, creating a learning/ethical organization, as well as managing innovation and fostering corporate entrepreneurship.

BUAD - 8033 Int'l Business w/Study Abroad, 3.00 Credits

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

Level: Upper

Applied Learning-Intl/Dom Trvl

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 field trip 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. Guest lecturers and field trips are planned for students enrolled in this study abroad offering.

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 1114 or CHEM 1984 is concurrently or previously taken.

CHEM - 1114 General Chemistry I, 4.00 Credits

Level: Lower

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. Typical 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

Course Fee \$8.00, Gen Ed - Natural Sciences, Liberal Arts and Science

This course is intended for physical science and engineering majors. While providing a general overview of modern chemistry, the course emphasizes the development of chemical concepts and problem-solving techniques that are essential in science. General topics include atomic structure of matter, chemical reactions, thermochemistry, electronic structure of the atom and chemical bonding.

CHEM - 2124 General Chemistry II, 4.00 Credits

Prerequisite(s): CHEM 1114 with D or better or CHEM 1984 with D or better

Level: Lower

Course Fee \$27.00, Gen Ed - Natural Sciences, Liberal Arts and Science

This course is a continuation of General Chemistry I and is intended for science majors. It completes the presentation of topics started in General Chemistry I by surveying the topics of: Acids & Bases, Electrochemistry and Nuclear Chemistry. After these foundations are laid, the course will then explore two broad chemical themes: 1) Organic Chemistry, where the language and chemistry of selected functional groups (alkanes, alkenes, aromatics, alcohols, aldehydes, ketones, amines, and carboxylic acids), along with an exploration of chirality will be covered and 2) Biochemistry, where the chemistry and structure of carbohydrates, lipids and proteins will be surveyed.

CHEM - 2984 Chemical Principles II, 4.00 Credits

Prerequisite(s): CHEM 1984 with D or better or CHEM 1114 with D or better

Level: Lower

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.

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

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 alkanes; 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

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 alkenes 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 carbonyl compounds 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 amines, 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 spectroscopy 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

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 methods, 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

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

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 microscopy, 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 6114 with C or better

Level: Upper

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 4 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

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 catabolic and anabolic metabolism of major biochemicals 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.

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 is an introduction to aggregates and concrete as construction materials. Standard techniques of measurements and computation are presented, and then applied to testing materials. Portland Cement Concrete is studied with emphasis on quality control in the field and preparing the student to reach the level of Concrete Field Testing Technician Grade 1, by the American Concrete Institute. Concrete masonry block is also 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 is on the use and care of transit, level, tape and leveling rod, note keeping and basic surveying calculations and adjustment of data. The course is designed to introduce 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, the spiral, 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, the professional land surveyor's legal responsibility to the public, systems used to describe real property, types of transfer of real property, techniques of record research, and 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 - 3554 Comm Bldg Const Methods & Prac, 4.00 Credits

Prerequisite(s): CIVL 1013 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 as well as their knowledge of the building construction process. Approximately equal emphasis will be placed on 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 - 4104 Structural Technology, 4.00 Credits

Prerequisite(s): (PHYS 1024 with D or better or PHYS 1044 with D or better) and (MATH 2043 with D or better or MATH 1054 with D or better or MATH 1084 with D or better or MATH 1063 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 stress 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. Practice is given in the estimating of earthwork, masonry, concrete, steel, and wood. Students 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 - 4144 Construction Management, 4.00 Credits

Level: Lower

This course is a study of the business organizations, contracts, personnel and ethics used in construction projects. Topics include the stakeholders, contracts, cost accounting, construction documentation, planning and scheduling, bonding, insurance, labor relations and ethics as specifically experienced in the construction industry.

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 is a series of field and office problems for fourth semester AAS Surveying Engineering Technology majors only. 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 analysis, data adjustment, mapping calculations and the application of computer graphics.

CIVL - 4273 Photogrammetry, 3.00 Credits

Prerequisite(s): CIVL 3214 with D or better

Level: Lower

This course will introduce the advantages of photogrammetry 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 4.00 Credits

Level: Lower

Special course organized to enable students to elect independent study of engineering problems. Course may entail laboratory or analytical solution of problems or application of principles to engineering problems.

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 in land surveying. The legal concepts of the rules of evidence are presented and applied to written and unwritten transfers of land ownership. Riparian rights, fractional conveyances, reversionary rights, problems of apportionment, procedures, both field and office, for locating written title boundaries and the writing of deed descriptions are 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

Upper division independent study.

CIVL - 6102 Community-Economic Redevelopme, 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.

CIVL - 6104 Anlys & Adjmnts of Surv Mrmnts, 4.00 Credits

Prerequisite(s): MATH 2074 with D or better or MATH 2094 with D or better

Level: Upper

This course is an introductory treatment of 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 are covered. A final project will consist of adjusting survey data.

CIVL - 6113 Environmental Tech Concepts, 3.00 Credits

Prerequisite(s): MATH 1033 with D or better

Level: Upper

This course focuses on environmental technology systems. Topics covered in the course include: basic environmental concepts, water quality, water pollution, drinking water, stormwater management, wastewater treatment, municipal solid waste, hazardous waste, air pollution, noise pollution, erosion control and environmental assessments. The student will analyze a site plan to determine the "best practice" solutions to storm water management challenges using industry standards. 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

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 - 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 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

The foundation of this course is the development of an estimating database. Students will use data base estimating software in construction estimating. Students will gain experience in estimating commercial building projects and heavy civil projects, as well as lump sum and unit price contract estimating. The course will involve several project based learning experiences.

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 Land Surveying Engineering Technology Bachelor seniors. Students design and implement a technical project for completion of CIVL 8003. Project proposal 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 MATH 2043 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 - 7104 Land Development and Design, 4.00 Credits

Prerequisite(s): CIVL 2204 with D or better and MATH 2043 with D or better and PHYS 2023 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 calculations, 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. Laboratory experiences will include experiments related to fluid flow, computer analysis of laboratory data, and computations including the development of spreadsheet programs to be used in the designs covered.

CIVL - 7114 Geographic Information Systems, 4.00 Credits

Prerequisite(s): CIVL 3214 with D or better

Level: Upper

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

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 the 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 ensure 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 - 8003 Sr Seminar & Project Design 2, 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 4144 with D or better

Level: Upper

This course is an in depth study of the documents and processes for construction project administration, including submittals, subcontracting, expediting, pay procedures, closeout, and reporting. This course culminates in a simulated construction project where students assume various stakeholder roles.

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 types, 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

Gen Ed - BC-COMP1503/SPCH1083, Gen Ed - BC-COMP1503/SPCH5083, Gen Ed - BC-COMP1503/BUAD2033, Liberal Arts and Science

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 4333 with C or better or LITR 7003 with C or better)

Level: Lower

Gen Ed - BC-COMP3503/SPCH1083, Gen Ed - BC-COMP3503/SPCH5083, Gen Ed - BC-COMP3503/BUAD2033, Liberal Arts and Science

This course focuses on developing the student's ability to write at an advanced level about topics of broad cultural importance. Students will demonstrate assurance and skill in producing written communications on par with published prose. This class will go beyond the mechanics of proper English composition and explore concepts such as originality, honesty of both fact and presentation, clarity, sincerity of emotion, economy of expression, and naturalness of style. This course can be taught from many perspectives. It will strive to instill Alexander Pope's thought that "true ease in writing comes from art, not chance". Writing is emphasized in response to readings from accomplished essayists such as Plutarch, Montaigne, Johnson, Orwell, Emerson, Thoreau, Mencken, Didion, and Dillard, among others.

COMP - 3603 Writing for Emergent Media, 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 4333 with D or better or LITR 7003 with D or better)

Level: Lower
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 - 5703 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 4333 with D or better or LITR 7003 with D or better)

Level: Upper
Liberal Arts and Science

This course is offered for students completing requirements for a bachelor's degree. It will prepare students to handle typical workplace assignments in a competent and professional manner. It will also prepare students to communicate their ideas effectively in writing to persons in and out of their particular professional disciplines. The course centers on the knowledge and practice of format and style in technical writing when producing upper-level documents; this includes an emphasis on audience analysis and document design as well as research and editing decisions in the composition of long formats.

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
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
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
This course covers the fundamentals of computer problem solving and programming. Topics include: program development process, differences between the object-oriented, structured, and functional programming methodologies, 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
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
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
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 Microcmprtr 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
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
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 Prgrmmg 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

This 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

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

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

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

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 Prog in C and C++, 3.00 Credits

Prerequisite(s): or MATH 1033 with D or better

Level: Upper

Students will learn structured and object-oriented programming techniques to solve scientific and engineering applications using the C and C++ programming languages. Topics include data types and structures, control structures, I/O pointers, program design and maintenance, 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

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

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

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

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 - 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

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

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

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

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 - 6703 Network Design Concepts, 3.00 Credits

Prerequisite(s): CISY 4033 with D or better *

Level: Upper

In this course students will design and implement network systems, utilizing various topologies, media, and protocols. Students will control network hardware such as switches, and routers. Design concepts will be implemented through a variety of laboratory exercises. Students will be required to analyze and present a network design plan.

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

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 4033 with D or better and CISY 4053 with D or better

Level: Upper

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 - 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

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

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

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 Sftw Intgtn & Interoperability, 3.00 Credits

Prerequisite(s): CISY 6703 with D or better and CISY 4723 with D or better

Level: Upper

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

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

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

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.

CISY - 8703 Information Security Capstone, 3.00 Credits

Prerequisite(s): CISY 5133 with D or better

Level: Upper

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.

CISY - 8706 Info Technology Internship, 6.00 Credits

Level: Upper

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

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.

CISY - 8716 Info Technology Internship, 6.00 Credits

Level: Upper

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.

COURT REPORTING**CTRP - 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 on-line computer-aided technology and teacher interaction; live practice dictation for speed and accuracy; read back and analysis of shorthand notes. NCRA 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 NCRA requirements.

CTRP - 2274 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. Each class requires a minimum of three hours of practice time per day. The course is designed for both on campus and internet training. On campus students will meet at a designated time and place. Internet students can access the class at any time during the day, but are required to spend the same amount of time in class and out of class as an on campus student. All students are expected to spend a minimum of three hours a day on homework, which includes practicing accuracy and speed. Students are required to transcribe steno notes and speed takes under 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 NCRA. Successful completion of the course requires a grade of "C" or better. The course includes on-line computer-aided technology for realtime translation.

CTRP - 2603 Persnl Dictionary Prod & Maint, 3.00 Credits

Prerequisite(s): CTRP 1174 with C or better and CTRP 2274 with C or better

Level: Lower

This course will be an extension of the material learned in the Computer Aided Transcription course (CTRP 3373) and is a direct application of the realtime techniques learned in the Realtime Writing Theory I course (CTRP 1174). The topics to be covered will include personal dictionaries; update area; 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.

CTRP - 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.

CTRP - 3163 Speedbldg I for Report & Capt, 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-ready 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 suffices as 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 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. 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 translation.

CTRP - 3363 Tech for Reporting/Captioning, 3.00 Credits

Prerequisite(s): CTRP 2274 with C or better

Level: Lower

This course will complement the Computer Aided Transcription course (CTRP 3373) to the extent that information pertaining to the computers, hardware, software, maintenance, and upkeep will be enhanced. The material covered in this class for reporting students will relate to reporting technology, computer operating systems, realtime applications, realtime reporting in the captioning/CART environment, litigation support, videotaping, and information on related software packages used by judicial reporters. The material covered in this class for captioning students will relate to captioning technology, computer operating systems, on-line translations systems, administrative hearings, indexing and archiving steno notes, both paper and electronic, care and maintenance of computer hardware data input device, basic setup and maintenance of broadcast captioner's equipment, broadcast news production preparation, prescribing, psychology of on-air captioning, verbatim vs. word substitutes, finger spelling, history of captioning, and information relating to the deaf and hard-of-hearing community.

CTRP - 3373 Computer Aided Transcription, 3.00 Credits

Level: Lower

This course will teach the student how the computer works with the shorthand writing machine to produce an instantaneous transcript using realtime translation. The course includes computer concepts and terminology and basic file management, saving, editing, and printing. This course will take the student from the basics of a computer application software program to a more advanced level of understanding and appreciation. The goal of 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. The student will continue to learn to write, read, and transcribe the spoken word by means of a conflict-free, realtime-ready shorthand theory. Reporting students must be able to transcribe five minutes of unfamiliar dictation with at least 95 percent accuracy in each of the areas listed: literary at 130 wpm, jury charge at 150 wpm, and two-voice at 170 wpm. Dictation 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 five minutes of literary material at 130 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 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. 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 on-line computer-aided technology for realtime translation.

CTRP - 4364 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-ready shorthand theory. In this course dictation includes two-voice and multi-voice testimony (including medical and technical material), literary, and jury charge. 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 30-minute broadcast news program with an accuracy of 96 percent or better. Students are required to perform a line-by-line edit/analysis of steno notes. 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 will be 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 takes will 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. 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. Students must be able to pass three 5-minute dictations with 95% accuracy in each of the following areas: Q & A at 225 wpm, jury charge at 200 wpm, and literary at 180 wpm. The course includes on-line computer-aided technology for realtime translation.

CTRP - 4602 Int & Prac for Reporter & Capt, 2.00 Credits

Prerequisite(s): CTRP 4264 with C or better

Level: Lower

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 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.

CTRP - 4634 Proc for Reporters & Captioner, 4.00 Credits

Prerequisite(s): CTRP 3163 with C or better

Level: Lower

The procedures course is an introduction of court and realtime reporting procedures and practices for the court reporter including: professional responsibilities of federal and state court systems; civil and criminal trials; logistics of reporting (marking exhibits, research and references, filing notes, invoicing, indexing, delivery of transcripts); reporting techniques (interruption of speaker, identification of speaker, swear or affirm witness or interpreter, report with an interpreter, voir dire, etc.) and methods of transcript production. This course includes a description and discussion of the role of the captioner and CART provider. Included in the course will be a simulation of trial and deposition where the student will take the part of the reporter and administer the oath, mark exhibits, and perform other responsibilities the court reporter should be aware of. Also, students will be required to apply professional ethics to various situations and identify and use appropriate library and reference material used in transcript preparation including software and Internet search engines. Students will also be required to simulate and transcribe the National Court Reporter's Association Registered Professional Reporter (RPR) test as well as the Certified Realtime Reporter (CRR) test.

CTRP - 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.

CRIMINAL JUSTICE**CJUS - 1003 Intro to Criminal Justice, 3.00 Credits**

Level: Lower

This course examines the three segments of the criminal justice system in the U.S. - law enforcement, the courts and corrections. Included is study of their evolution, philosophy, structure, responsibilities, agencies, and ethical obligations. Also examined are the role of the U.S. Constitution and of state and federal laws, the role of the criminal justice system in a democratic society and current issues facing those who work in the criminal justice field.

CJUS - 2003 Introduction to Law, 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 - 4003 Corrections Process in the U.S, 3.00 Credits

Prerequisite(s): CJUS 1003 with D or better

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 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.

CJUS - 4103 Policing in a Free Society, 3.00 Credits

Prerequisite(s): CJUS 1003 with C or better

Level: Lower

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.

CJUS - 5003 Constitutional Issues in Crim, 3.00 Credits

Prerequisite(s): CJUS 1003 with D or better

Level: Upper

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.

CJUS - 5103 Courts in Contemporary Society, 3.00 Credits

Prerequisite(s): CJUS 1003 with D or better

Level: Upper

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, recidivism, and specialty courts. This examines the law and its origins, compares the federal and state court systems, and examines juvenile justice process in America.

CJUS - 5113 Contemp Public Safety Leadersh, 3.00 Credits

Prerequisite(s): BUAD 3153 with D or better or CJUS 4103 with D or better

Level: Upper

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.

CJUS - 6003 Law & Criminal Evidence, 3.00 Credits

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

Level: Upper

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.

CULINARY ARTS

CULN - 1083 Food Safety & Service Training, 3.00 Credits

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 pertaining to the safe use 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 - 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 introductory course will teach students the proper procedures, mixing methods, and equipment used in basic baked goods production. Culinary and baking history will be discussed.

CULN - 1373 Purchasing & Cost Control, 3.00 Credits

Level: Lower

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

Applied Learning-Practicum

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

Applied Learning-Practicum

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 ingredients 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, allergens, special needs diets and food additives.

CULN - 2183 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 brioche, 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

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

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 Intl 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 - 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 meringues, 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

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

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, candy making, 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

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

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

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.

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

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 - 1403 Digital Foundations I, 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 - 1413 Foundations:Form/Space Rltshp, 3.00 Credits

Level: Lower

This is a visual rendering course in the Digital Media and Animation major. Broad experience is emphasized with diverse graphic tools and techniques to develop observation of and analyze visual information. This course is designed to deconstruct preconceived ideas of form/space relationships and replace them with objective understandings.

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 - 2603 Media Forge I, 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-Intl/Dom Trvl

Students will explore 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

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

In this course, students will be introduced to 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 delves 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 - 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 exploration of visual communication through interactive media and interface design. Students will explore the fundamental concepts of interactivity and visual perception with regard to computer interfaces with special focus on design for websites and online media. Students will complete interactive titles of their own design with intuitive interfaces that incorporate concepts covered in class.

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 design.

DGMA - 4443 Advanced 3D Animation, 3.00 Credits

Prerequisite(s): DGMA 3403 with C or better

Level: Lower

Applied Learning-Practicum

This course focuses on rigging and animation for 3D. Students will continue their work with modeling, texturing, lighting, rigging, and animation from previous courses, and apply it towards creating an animated short.

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): (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 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 - 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 - 5403 Adv Modeling, Texturing & Ligh, 3.00 Credits

Prerequisite(s): (CIAT 4443 with C or better or DGMA 4443 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 communicate 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

In this course, students expand their skills in interactive design as they are introduced to new control systems and developing interactive technologies. Students will create applications that communicate with viewers through text, image and sound utilizing skills developed in previous courses. Special emphasis will be given to the incorporation of video and animation in interactive environments. Students will explore the possibilities of communication through interactive media in studio experiments and complete interactive titles of their own design that incorporate concepts covered in class.

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 is an advanced course that expands upon the fundamental concepts involved in time based visual communications. Emphasis will be placed on the creative process of making images that can convey ideas and information to others. Students will learn advanced cinematography, editing and collaborative workflow techniques while incorporating expanded theoretical concepts from the history of narrative and non-narrative media to their projects.

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 compositing, 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 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 project(s) aligned with a special topic. Topics may vary each time the course is offered.

DGMA - 6413 Advanced Animation, 3.00 Credits

Prerequisite(s): DGMA 3403 with C or better

Level: Upper

Applied Learning-Creative Work

This course is a continuation of the sequence of animation, focusing on more in depth and complex character animation as well as the animation of organic and non-organic shapes and object. Areas covered in this class include: pre-visualization, advanced character set-up and animation, facial animation, soundtrack synchronization, and advanced animation principles and techniques.

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-Practicum

This course continues to develop the students' media design studio practice. Students in this upper level course lead design teams on real-world media design problems, with emphasis on video production, motion graphics, and project management.

DGMA - 7203 Senior Seminar, 3.00 Credits

Level: Upper

This seminar will enhance students' understanding of opportunities in the field of animation and digital media through presentations, workshops and discussions. Emphasis will be placed on generating new techniques for problem solving in digital media projects. The course will include in-class exercises, discussions and responses to visiting artist presentations.

DGMA - 7403 Senior Studio Project I, 3.00 Credits

Prerequisite(s): DGMA 6103 with C or better and DGMA 6413 with C or better

Level: Upper

Applied Learning-Creative Work

In this course, students will integrate aspects of their studies from the previous three years in a semester-long production. Students will use this semester to create a short animation, video or interactive piece from start to completion. Students will be responsible for all aspects of this project, including conceptualization, design, pre-production, animation, cinematography, sound design, post production and final delivery.

DGMA - 7503 Digital Media & Anmtn Internsh, 3.00 Credits

Level: Upper

Pass/Fail

This course provides the students with practical application of skills in the Digital Media and Animation major. The internship provides valuable real-life experience while extending the skills of the student towards various businesses, organizations, and professionals. The student will be responsible for all aspects of the project for a business or organization.

DGMA - 7603 Advanced Motion Graphics, 3.00 Credits

Prerequisite(s): DGMA 6203 with C or better

Level: Upper

Applied Learning-Creative Work

This course builds on the knowledge and skills gained in Motion Graphics. Focus is on 3D motion graphics, special effects, and compositing. Students will complete projects using Motion Graphics software.

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 - 7803 Professional Practices, 3.00 Credits

Prerequisite(s): DGMA 6103 with C or better

Level: Upper

In this course there will be an exploration of the importance of integrity in professional relationships, which lies in all aspects of the design process. Students will examine multiple communication paths and how to maintain coherent communication that follows the design process from conception to completion. Forms, documents and ethical issues of the business relationship shall be covered.

DGMA - 8103 Portfolio, 3.00 Credits

Prerequisite(s): CIAT 7403 with C or better or DGMA 7403 with C or better

Level: Upper

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

This is a cumulative two-part course where 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 - 8203 Media Design Seminar, 3.00 Credits

Prerequisite(s): DGMA 6103 with C or better

Level: Upper

This seminar will prepare Graphic Media and Design seniors to transition into the professional world by focusing on critical self-evaluation. Students will examine their own body of work as well as the work of professionals in the field. Special focus will be given to a designer's responsibilities in social, cultural, and environmental contexts. This course will include field trips and lectures from visiting artists.

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

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.

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.

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 dimensioning 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 Dfting 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 & Tolerncng, 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 - 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.

DCAD - 4900 Directed Study, 1.00 TO 9.00 Credits

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.

ECONOMICS

ECON - 1013 Macroeconomics, 3.00 Credits

Level: Lower

Gen Ed - Social Sciences, Liberal Arts and Science

Macroeconomics is concerned with obtaining an overview of the basic sectors of the economy such as households, businesses, and government. In analyzing the economy we deal with such factors as total output, total levels of employment, and the general level of prices. Topics covered include the nature and method of economics, supply and demand, measuring domestic output, national income, and the price level, aggregate demand and supply, and fiscal and monetary policy.

ECON - 2023 Microeconomics, 3.00 Credits

Level: Lower

Gen Ed - Social Sciences, Liberal Arts and Science

Microeconomics deals with the behavior of specific economic units such as individual households, industries, or firms within an industry. Topics covered include the nature and method of economics, demand and supply analysis, consumer behavior, price and output determination under various degrees of competition, and production and the demand for resources.

EDUCATION

EDUC - 2163 Foundations of Education, 3.00 Credits

Level: Lower

Applied Learning-Creative Work

The course examines the social, historical, ethical and philosophical foundations of the U.S. educational system. Attention also will be paid to contemporary educational opportunities and challenges including the evolving teaching role, school equity and funding, educational standards and assessment, classroom diversity and multicultural education, social justice, and reform initiatives. Students will complete a portfolio as the culmination of their work within the program.

ELECTRICAL ENGI TECH

ELET - 1001 Seminar, 1.00 Credit

Level: Lower

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.

ELET - 1103 Circuit Theory I, 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 2043 with D or better

Level: Lower

In circuit theory, a student will analyze electrical circuits according to the fundamental definitions and laws as they apply to direct current circuits. The physical parameters defined include charge, voltage, current, resistance, capacitance and inductance. The laws applied include Ohm's Law, Joule's Law, Kirchhoff's Voltage Law, and Kirchhoff's Current Law. The analysis relies on algebra and exponentials.

ELET - 1104 Circuit Theory I, 4.00 Credits

Prerequisite(s): MATH 1033 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 2043 with D or better

Level: Lower

In circuit theory, a student will analyze electrical circuits according to the fundamental definitions and laws as they apply to direct current circuits. The physical parameters defined include charge, voltage, current, resistance, capacitance and inductance. The laws applied include Ohm's Law, Joule's Law, Kirchhoff's Voltage Law, and Kirchhoff's Current Law. The analysis relies on algebra and exponentials. A required recitation is included as a group problem solving sessions.

ELET - 1111 Digital Logic Laboratory, 1.00 Credit

Corequisite(s):

Level: Lower

Applied Learning-Other

This laboratory implements the theoretical principles of ELET 1133, Digital Logic. Students learn to build working circuits based upon design goals. Logic solutions utilize transistor-transistor logic (TTL) integrated circuits, simulation software and programmable logic devices (PLD).

ELET - 1133 Digital Logic, 3.00 Credits

Level: Lower

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.

ELET - 1142 Electronic Fabrication, 2.00 Credits

Level: Lower

Applied Learning-Practicum

This course covers the fundamentals of prototype design, fabrication, and documentation. Major topics include: safety, sheet metal fabrication, printed circuit board design & fabrication, schematic & wiring diagram drafting & analysis, computer applications for schematic drawing & printed circuit board layout, circuit construction, troubleshooting fundamentals, soldering techniques, project parts procurement & cost analysis, and the ability to work in teams. Personal laptop computers are required.

ELET - 1143 Electronic Fabrication, 3.00 Credits

Level: Lower

Applied Learning-Practicum

The fundamentals of prototype design, fabrication, and documentation will be covered. Major topics include: safety, sheet metal fabrication, printed circuit board design and fabrication, schematic and wiring diagram drafting and analysis, computer applications for schematic drawing and printed circuit board layout, circuit construction, troubleshooting fundamentals, soldering techniques and project parts procurement and cost analysis.

ELET - 1151 Circuit Theory Laboratory, 1.00 Credit

Prerequisite(s): ELET 1104 with D or better * or ELET 1103 with D or better *

Level: Lower

Applied Learning-Other

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.

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, LEDs, 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 1104 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)

Corequisite(s): (ELET 1104 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 1104 with D or better and MATH 2043 with D or better) or (ELET 1103 with D or better and MATH 2043 with D or better)

Level: Lower

Applied Learning-Practicum

Why is imaginary power so expensive? This course requires students to mind their P's and Q's (real and reactive power). Students will build upon circuit theory concepts as they apply to alternating current using phasor analysis. 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. Laboratory sessions will back up the analysis with hands on exercises using electronic instrumentation.

ELET - 2143 Embedded Controller Fundmntls, 3.00 Credits

Prerequisite(s): ELET 1111 with D or better and ELET 1133 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 - 2151 Electronics Laboratory I, 1.00 Credit

Prerequisite(s): ELET 1103 with D or better and ELET 1151 with D or better

Corequisite(s): ELET 1103 with D or better and ELET 1151 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 - 2163 Data Communications, 3.00 Credits

Level: Lower

This course will provide a comprehensive overview of the converging world of computers and telecommunications. It will introduce basic building blocks of telecommunications and most current information on new technologies. It will provide an in-depth knowledge of communications fundamentals, data networking, next generation networks, wireless networks, IP protocols, IP telephony, VPN, Digital video and TV standards, optical networking and broadband networking.

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 concentrates on the theory and application of operational amplifiers. The gain, frequency response, and impedance of inverting and non-inverting amplifiers are analyzed in detail. Different feedback circuits are studied to realize basic mathematical operations such as summing, integration and differentiation. Operational amplifier topologies are then used to design filters, oscillators, communications circuits and regulated power supplies.

ELET - 3151 Electronics Laboratory II, 1.00 Credit

Prerequisite(s): ELET 2103 with D or better

Corequisite(s): ELET 2103 with D or better

Level: Lower

Applied Learning-Other

This laboratory is an experimental study of operational amplifiers and linear integrated circuits as applied to comparators, amplifiers, waveform generators, signal conditioning, and regulated power supplies. Emphasis is placed on design, proper measuring techniques and documentation of results. Device characteristics and limitations will be studied. The use of manufacturer's data sheets is required. Computers are used to design, analyze and test circuits along with manual measuring techniques.

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 - 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.

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 analog and digital communication concepts and systems. Students begin by learning the terminology and measurements used in the communication industry. The course includes analysis of AM, and FM transmission and reception, Single-Sideband communications, Digital Wired and Wireless Communications, Network Communications, and Multiplexing and De-multiplexing techniques. Emphasis is on the system approach with block diagrams, with the presentation of theoretical fundamentals and study of the concepts within each diagram. The associated laboratory and projects augment the lecture theory. Students investigate further by completing an individual project.

ELET - 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.

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.

ELET - 6143 Electrical Machines & Controls, 3.00 Credits

Prerequisite(s): ELET 1103 with D or better or ELET 1104 with D or better

Level: Upper

Applied Learning-Practicum

Students will study electromagnetic machines through circuit models, mathematical analysis, and experimental measurements. Mechanical, electrical, and electromagnetic fundamentals are reviewed as applied to motors and generators. Machine topologies studied include single and three-phase ac, wound field and permanent magnet dc, servo and stepper. Students will control these machines by designing relay ladder logic circuits and programming programmable logic controllers. Variable frequency drives and SCR drives are analyzed and tested. Green engineering is promoted in this course through the selection of the most efficient and appropriate machine and control system for the application.

ELET - 7104 Integrated Circuit Technology, 4.00 Credits

Prerequisite(s): MATH 1063 with D or better or MATH 1084 with D or better

Level: Upper

Applied Learning-Practicum

This course is an introduction to the physics, chemistry and materials of integrated circuit fabrication. Topics include the basic process steps of crystal growth, oxidation, photolithography, diffusion, ion implantation, chemical vapor deposition (CVD) and metallization used to build integrated circuits. The laboratory uses a 4-level metal gate PMOS process to fabricate a working integrated circuit test-chip and provide experience in device design, process design, materials evaluation, in-process characterization and device testing.

ELET - 7404 Embedded & Real Time Systems, 4.00 Credits

Prerequisite(s): ELET 2143 with D or better and CISY 5123 with D or better

Level: Upper

Applied Learning-Practicum

This course prepares the students for the design and implementation of a real-time operating system (RTOS) on an embedded microcontroller. The course is constructed around a project where each student is required to design and prototype a real-time traffic light using MicroC/OS-II operating system loaded on a PIC18F452 microcontroller. The lecture portion of the course is comprised of lectures and quizzes that support the course project. Lecture topics include basic characteristics of the real-time applications and real-time operating systems, hardware interfacing techniques, fixed and dynamic priority scheduling algorithms, concurrency theory, intertask communication, synchronization, response-time analysis, Petri-net modeling, fixed-point computations, and optimization. The lab portion of the course consists of labs that provide the building blocks of the course project. Upon completion of the course project students will compare MicroC/OS-II with other similar operating systems such as FreeRTOS and Salvo.

ELECTRICAL/ELECTRONICS**ELTR - 1156 Residential Wiring I, 6.00 Credits**

Corequisite(s):

Level: Lower

This lecture course introduces a student to the theories, principles, and laws of static and dynamic electricity. Direct and alternating current circuits are studied utilizing the related trade mathematics covering topics such as Ohm's law, resistance, power, inductance, and capacitance. Major emphasis is placed on applying trade related mathematics and analytical reasoning to troubleshooting series, parallel and compound circuits. National Electrical Code requirements and proper techniques for soldering/terminating conductors are covered. Students will learn to interpret and draw electrical schematics and wiring diagrams relating to low voltage signal circuits. The National Electrical Code and its application to residential branch circuit requirements and non-metallic wiring methods as well as correct electrical and component terminology is introduced.

ELTR - 1166 Residential Wiring Lab IA, 6.00 Credits

Corequisite(s):

Level: Lower

Applied Learning-Practicum, Course Fee \$26.00

Students will apply techniques learned in theory required to make proper terminations and soldered splices. Alternating and direct current circuits are constructed and students will analyze and confirm electrical principles and applicable laws. Emphasis is placed on safety, craftsmanship, correct, and accurate laboratory test procedures using appropriate test equipment such as Volt- Ohm-Milliampere Meters (VOM). Schematic drawings are required for each circuit and outside of lab, report and analysis writing is necessary.

ELTR - 1176 Residential Wiring Lab IB, 6.00 Credits

Corequisite(s):

Level: Lower

Applied Learning-Practicum, Course Fee \$26.00

Students receive hands-on training in the fundamentals of low and line voltage circuit construction. An emphasis is placed on safety, craftsmanship, NEC requirements, circuit planning, and circuit layout using the appropriate cable wiring methods. The correct selection and terminology of electrical components used for assigned circuits is required. Students will also demonstrate proper troubleshooting methodology and usage of test equipment required to find faults and repair electrical circuits. Time will be spent working on actual job sites. Schematic and wiring diagrams are required for each circuit and outside of lab, report and analysis writing is necessary.

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

Understanding and interpretation of the National Electrical Code requirements for residential branch circuits are covered in detail. Practical considerations for the economic and adequate distribution of electrical energy are discussed, as well as the adequacy of circuit design. Reading and interpreting floor plan drawings as they relate to all trades is taught. Power calculations along with all N.E.C. and utility company requirements for the installation of any type of residential service are covered. Conduit wiring methods are covered as well as all related National Electrical Code requirements. Substantial time is spent performing the mathematical calculations utilized for designing, laying out and bending conduit. Students are required to perform all tasks in a neat craftsman-like manner. Emphasis is placed on the reasonings of why workmanship is important.

ELTR - 2166 Residential Wiring Lab IIA, 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

Substantial time is spent with students working the wiring systems on actual residential homes built off campus. In lab students design, layout, and manufacture every type of bend utilized with conduit raceway systems. Conduit fill calculations are applied as well as utilizing correct methods for installing branch circuit conductors. Students are required to apply the National Electrical Code to all work done in labs and on the outside projects. Major emphasis is placed on safety, craftsmanship, circuit analysis, and troubleshooting of circuit faults. Schematic and wiring diagrams are required for each circuit and outside of lab, report and analysis writing is necessary.

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

The lab emphasizes the application of the complete wiring system used for residential applications. Students will be required to complete several types of services, such as riser, mast, conduit and cable installations. Students will complete their freshman capstone project, which requires each student to redraw a two story residential home to scale. They will then perform the design work and layout all of the wiring required by the National Electrical Code and ensuring that it will meet the minimum adequacy requirements of a prospective homeowner. Students will then complete a spreadsheet containing all the components with their complete descriptions that are necessary to complete the Capstone project. Schematic and wiring diagrams are required for each circuit and outside of lab, report and analysis writing is necessary.

ELTR - 3156 Electrical Power Systems, 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 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 applied mathematics, circuit analysis, design, installation, distribution methods, protection, and trouble of single phase and three phase electrical power systems.

ELTR - 3306 Alarms and Special Systems, 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 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 applied mathematics, operation, design methodology, installation requirements, and National Electrical Code requirements for alarms and special systems.

ELTR - 3326 Magnetic Motor Controls, 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 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 is designed to teach foundational concepts of motors and motor control. Safe work practices and code compliment procedures will be reinforced. The student will be introduced to the basic circuits, devices and components used in their control; advanced circuits of alternating, sequencing, latching, and time delay operations of motor control will be presented. The lab will progressively lead the student to a basic understanding of individual control devices. The student will apply the basic knowledge and safety protocol towards integration into a totally automated system using magnetic and solid state controls. Throughout all projects, from basic to fully automated systems, the student will be taught troubleshooting techniques of industrial motor controls. Students will be evaluated to assess their troubleshooting skills and techniques within the lab practicums.

ELTR - 3336 Photovltc & Wind Trbn Systm In, 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 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

The course will cover the fundamentals of photovoltaic 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.

ELTR - 3356 Prgmble Cntrls for Ind Autotn, 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 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 presents the origin and evolution of programmable logic controllers. Special emphasis is placed on the fundamentals of Relay Ladder Logic (RLL) programming methods and 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, program, 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 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 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 how pneumatics, hydraulics, Servo motors, and system automation are used in industry today for the manufacturing of products. This course also involves the practice of hands-on effective process control theory. A systems approach is used in an effort to understand each instrument's function within the system.

ELECTROMECH ENGR TECH**EMET - 5004 Instrumentation, 4.00 Credits**

Prerequisite(s): (PHYS 2023 with D or better or PHYS 2044 with D or better) and (MATH 1063 with D or better or MATH 1084 with D or better)

Level: Upper

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 - 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.

EMET - 6004 Feedback Control Systems, 4.00 Credits

Prerequisite(s): MATH 6114 with D or better

Level: Upper

Feedback control systems with topics in time response, stability, criteria, system representation, root locus diagrams, and compensation. The systems include electrical, mechanical, and electromechanical networks. The laboratory features simulation of electrical and mechanical systems using MATLAB and SIMULINK as well as a variety of physical controllers.

EMERGING PIONR LDRSHP 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 individual values. The mentoring relationship will provide the resources necessary to aid students in their individual, group, and community experiential growth and development. This learning experience focuses on the first 3 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 - 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 Theory: Collaboration, Common Purpose and Controversy with Civility. The learning takes places in a variety of classroom and team-based settings, focusing on self-identified civic engagement passions that the group shares. Through practical application (i.e., service learning), students gain experience that is directly applicable to employment after college. The course will focus on a greater awareness of community needs and societal issues. Students will work with faculty, student affairs educators, and other students.

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

The third of three Emerging Pioneers Leadership development classes seeks to address the last C of the Social Change Theory - Citizenship 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.

ENGINEERING SCIENCE**ENGR - 1201 Engineering Sci Orientation, 1.00 Credit**

Level: Lower

An examination of strategies for success, including organizational and study skills, and transfer and career opportunities for engineering 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, employment application techniques such as resume writing, letters of application, interviewing, follow-up communications, and an introduction to MS word and Excel.

ENGR - 2001 Engineering Computing Appictns, 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 will 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

The purpose of this course is to assist sophomore engineering science students in choosing and transferring to the college or university of their choice in order to complete a baccalaureate degree in engineering. Transfer admissions visitors are invited to classes and there may be class trips to potential transfer institutions depending on the interest of the students. This is a required course for the Engineering Science associate degree.

ENGR - 3004 Circuit Analysis I, 4.00 Credits

Prerequisite(s): MATH 2094 with D or better

Corequisite(s): MATH 2094 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, parallel and combined 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

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

This course is an introduction to modeling, analysis 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 digital computer simulation of independent and coupled, first and second order electrical and mechanical systems using MATLAB and SIMULINK.

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 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.

ENVIRONMENTAL TECHNOLOGY**ENVR - 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.

ENVR - 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.

ENVR - 4424 Environmntl Chem & Microbiology, 4.00 Credits

Prerequisite(s): BIOL 2801 with D or better and BIOL 2803 with D or better and (CHEM 2984 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.

ENVR - 6102 Community-Economic Redevelopme, 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.

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.

FINANCIAL SERVICES MANAG**FSMA - 5003 Investment Planning, 3.00 Credits**

Prerequisite(s): BUAD 4133 with D or better and BUAD 4203 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

Level: Upper

This course will enable the student to design an employee benefit plan that encompasses the client's stated goals and objectives while keeping the plan in compliance with federal regulations. A capstone project will be required. The capstone project will consist of a given set of facts, goals and objectives with which the student must design an employee benefits plan, keeping within the constraints assigned and using 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 and BUAD 4193 with D or better and FSMA 5003 with D or better and FSMA 5103 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 - 7123 Persnl Finan Planning Capstone, 3.00 Credits

Prerequisite(s): BUAD 4203 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 * and FSMA 7103 with D or better *

Level: Upper

This course will engage the student in critical thinking and decision-making about personal financial management topics in the context of the financial planning process. Students can meet the objectives of this course by developing one or more comprehensive financial plans that are presented in written and oral formats. Plans may be based on prepared directed cases, prepared open-ended cases, or on actual client households. Students are exposed to cases involving a broad spectrum of financial planning issues rather than single-issue cases. Students will be required to complete two hypothetical directed cases, one written comprehensive financial plan, and an oral presentation of the comprehensive financial plan. This is the Capstone course in the financial planning curriculum.

FSMA - 8112 Financial Planning Internship, 12.00 Credits

Level: Upper

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.

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: Ancnt 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, 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 - 2433 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

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 archaeology, history, zoology, botany, and geology. Classic drawing exercises, as suggested by authors such as Kimon Nicolaidis 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.

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 Westn 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.

FOOD SERVICE**FDSR - 1084 Sanitation & Food Safety, 4.00 Credits**

Level: Lower

This course is an introduction to the basic aspects of culinary arts sanitation with emphasis on various types of food service operations, correct sanitation procedures, rules and regulations pertaining to the safe use and maintenance of small tools and heavy equipment, correct methods of customer service, and personal hygiene as related to foods and food service. Students may earn certification from the Education Foundation of the National Restaurant Association as part of the program.

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.

FDSR - 1153 Introduction to Baking, 3.00 Credits

Level: Lower

Applied Learning-Practicum

This is an introductory course in baking. The course will cover basic baking ingredients and how they affect final product outcome. Emphasis will be placed on quality baked goods, weights, measurements, equipment and importance of accuracy, and basic procedures common to baker formulas.

FDSR - 1373 Foods, Ingredients & Products, 3.00 Credits

Level: Lower

Applied Learning-Practicum

This course emphasizes definitions and explanations of cooking and baking terms and selection of ingredients and products. The students will learn about the foundation principles of food preparation through a study of the chemical and physical properties of food, the nature of reactions caused by environmental conditions during preparation, cooking or baking, and the affect of materials added during some phase of preparation or cooking. The student will explore common practices in food preparation including soups, stocks, vegetables, sauces, salads and dressings, etc.

FDSR - 1478 Quantity Food Lab Unit 1, 8.00 Credits

Level: Lower

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 à la carte restaurant. The course covers basic equipment usage, knife skills, and 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 economics as well as the artistic aspects of food preparation will also be developed as the student becomes involved in each area of food production.

FDSR - 1578 Quantity Baking Lab Unit I, 8.00 Credits

Level: Lower

Applied Learning-Practicum, Course Fee \$60.00

This lab section introduces students to the fundamental aspects of baking. Students will learn about the preparation and use and safety considerations of baking equipment. Students will get hands-on experience preparing fried bakery goods, yeast doughs, 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.

FDSR - 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 ingredients 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, weight loss diets, and food additives.

FDSR - 2183 Food Purchasing Techniques, 3.00 Credits

Level: Lower

This course introduces students to the procedures and techniques involved with food service purchasing and storage, including the "Five Rights" (right product, right quantity, right supplier, right price, and the right time). The course will cover product grading specifications as well as storeroom operations such as inventory procedures and classification of products, receiving, and storing of food products. The course will also emphasize product identification, and packaging, and will cover new trends in purchasing such as organic and locally produced products.

FDSR - 2253 Hospitality Cost Control, 3.00 Credits

Level: Lower

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.

FDSR - 2479 Quantity Food Lab Unit II, 9.00 Credits

Prerequisite(s): 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. The rotation of duties involves all areas of preparation, service and sanitation within the à la carte restaurant and cafeteria. The course emphasizes improvement of basic knife skills, fabrication skills, and bakery skills needed for the preparation of breakfast items, meat, fish and poultry, soups and vegetables.

FDSR - 2489 Quantity Baking Lab Unit II, 9.00 Credits

Prerequisite(s): 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 FDSR 1578 and will rotate bi-weekly through experiences with yeast doughs, pastries, specialty cookies, finishing and decorating.

FDSR - 3163 Furnishing and Equipment, 3.00 Credits

Level: Lower

Applied Learning-Practicum

This course is a study of food service equipment and furnishings. The course will emphasize specifications, definition and justification of equipment needed, the selection of furnishings, the cost factors, and the proper procedures involved in effective maintenance.

FDSR - 3253 Beverages, 3.00 Credits

Level: Lower

Applied Learning-Practicum

This course addresses the problems peculiar to the alcoholic beverage industry. Students will learn about the history, classification, methods of production, and characteristics of wine, spirits and beers, mixology and lounge service, systems of beverage controls, and laws controlling beverage sales.

FDSR - 3293 Intermediate Baking, 3.00 Credits

Level: Lower

Applied Learning-Practicum

This course will teach students the proper procedures and mixing methods used in retail bakeries with an emphasis on the intricate techniques used to produce quality baked goods. The course will cover the specifics of yeast doughs, pastries, fillings, gateaux, meringues, and icings.

FDSR - 3353 Hospitality Pers Relations I, 3.00 Credits

Level: Lower

This course is the study of various supervisory techniques. This course will emphasize the responsibilities of management and personnel including elements of operational control, profit motivation, employee productivity, and the development of personal communication skills. Labor cost and budgets will be discussed. Students will give an oral report on their summer work experience as it relates to the personnel management.

FDSR - 3479 Quantity Food Lab Unit III, 9.00 Credits

Prerequisite(s): FDSR 1478 with D or better and FDSR 2479 with D or better

Level: Lower

Applied Learning-Practicum, Course Fee \$60.00

Students will practice menu planning and preparation of restaurant items in the working labs of the program. This lab provides introductory experience to develop supervisory skills in the kitchens and dining room. The student is expected to develop mastery of skills for a la carte and volume feeding, food preparation and service, with emphasis on accepted culinary techniques and presentation.

FDSR - 3489 Quantity Baking Lab Unit III, 9.00 Credits

Prerequisite(s): FDSR 1578 with D or better and FDSR 2489 with D or better

Level: Lower

Applied Learning-Practicum, Course Fee \$60.00

This lab section develops advanced techniques and disciplines for fine dining and high volume baking operations. Students will rotate weekly through experiences with wedding cakes, specialized pastries, cakes, tortes, seasonal baked goods, and specialty dough. The student will gain an understanding of advanced baking techniques as documented in the Lab Outcomes and Requirements Handbook.

FDSR - 4032 Facilities Planning & Design, 2.00 Credits

Level: Lower

Applied Learning-Creative Work

This course covers the planning and designing of a food service facility, from the initial concept, to menu design, demographics, choice of building facility, economic factors, legal and regulatory issues, space allocation, "back of the house" issues, and flow patterns. There will be special emphasis on design and environmental issues such as lighting, HVAC, sound control, ambience, and energy conservation.

FDSR - 4043 Advanced Baking, 3.00 Credits

Level: Lower

Applied Learning-Practicum

This course will introduce the student to specialized techniques in baking and pastry skill development covering a wide-range of topics not included in the intermediate baking course. Topics include petit fours, candy making, fillings; decorative sugar, pretzels, bagels, specialty breads, along with assigned special projects.

FDSR - 4163 Advanced Cuisine, 3.00 Credits

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 with a view to refining their use, and will study basic methods of merchandising in the foodservice industry. The course will introduce topics and begin discussion (and raise awareness) about sustainable food production and will establish a firm connection between cooking and culture for the students.

FDSR - 4255 Hospitality Personnel Relat II, 5.00 Credits

Level: Lower

This course will cover the fundamentals of personnel management relating to motivation, performance, employee rights and labor relations. The course emphasizes basic strategic planning, ways to implement plans, and the application of planning to daily operations. The course will cover topics such as management and employee points of view, organizational patterns, job procurement and training, job analysis, and the role of the government. Special emphasis will be placed on the study of unions and the role they play in the workplace.

FDSR - 4478 Quantity Food Lab IV, 8.00 Credits

Prerequisite(s): FDSR 1478 with D or better and FDSR 2479 with D or better and FDSR 3479 with D or better

Level: Lower

Applied Learning-Practicum, Course Fee \$60.00

This lab section provides students with hands-on managerial experience in the planning, organizing and directing 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.

FDSR - 4488 Quantity Baking Lab Unit IV, 8.00 Credits

Prerequisite(s): FDSR 1578 with D or better and FDSR 2489 with D or better and FDSR 3489 with D or better

Level: Lower

Applied Learning-Practicum, Course Fee \$60.00

This lab section provides students with hands-on managerial experience planning, organizing, and direction of bake-shop production. Students will rotate weekly through experiences with plated desserts, chocolate sculpting, sugar artistry, candy production and artisan breads. This lab will help students develop a personal/professional baking style through creativity, innovation, and synthesis.

FDSR - 4900 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.

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 the requirements and expectations for success within the Forensic Science Technology program as well as various technical disciplines and skills commonly brought to bear during a criminal investigation.

FRSC - 2001 Intro to Forensic 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. It is an introductory expository course designed 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 presentation 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

Topics in Forensic Science I is a one-credit course designed for Forensic Science Technology majors to be completed during their third semester of study in the academic program. This is the first in a two-semester required sequence of courses (along with FRSC 4001) for Forensic Science Technology majors. The focus of this course is to expand on topics covered during other curriculum coursework and to discuss the relevance of this coursework to forensic science. The format of the course is reading and discussion, with each student accepting responsibility for serving as a discussion leader at least once during the year. The discussion leaders' roles are to introduce a topic, provide background information about the topic, and encourage 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.

FRSC - 4001 Topics in Forensic Science II, 1.00 Credit

Prerequisite(s): FRSC 3001 with C or better

Level: Lower

Topics in Forensic Science II is a one-credit course designed for Forensic Science Technology majors to be completed during their fourth semester of study in the academic program. This is the second in a two-semester required sequence of courses (along with FRSC 3001) for Forensic Science Technology majors. The focus of this course is to expand on topics discussed during other curriculum coursework including organic and inorganic chemistry, microbiology, genetics, mathematics, and physics. The format of the course is reading and discussion, with each student accepting responsibility for serving as a discussion leader at least once during the year. The discussion leaders' roles are to introduce a topic, provide background information about the topic, and encourage 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.

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 including 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 - 7104 Criminalistics I, 4.00 Credits

Prerequisite(s): CHEM 4524 with C or better and CHEM 6614 with C or better

Level: Upper

Course Fee \$13.00

This course is an exploration of the basic theory and practice of trace and transfer physical evidence analysis. Specific topical focus includes: crime scene investigation; evidence collection and handling; microscopic techniques; recovery and analysis of fingerprint evidence; recovery and analysis of hair, fiber, paint, soil, and glass evidence; firearms examinations; recovery and analysis of gunshot residue; recovery and analysis of impression and toolmark evidence; and recovery and analysis of questioned document evidence.

FRSC - 7214 Forensic Chemistry, 4.00 Credits

Prerequisite(s): FRSC 6214 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; 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 to include inks, dyes, colors, colorants and polymers.

FRSC - 8104 Criminalistics II, 4.00 Credits

Prerequisite(s): FRSC 7104 with C or better

Level: Upper

Course Fee \$13.00

This course is a continuation of FRSC 7104 (Criminalistics I). The students' repertoire of forensic techniques is extended into the general areas of chemical and biological evidence as well as the introduction of special topics in forensic science. Specific topical focus includes recovery and analysis of arson and explosive evidence; recovery and analysis of toxicological evidence; chemistry and analysis of controlled substances; legal issues connected to controlled substance analysis; recovery and analysis of blood and body fluid evidence; basic blood spatter evidence interpretation; principles and techniques of serology and forensic DNA analysis; and an introduction to forensic anthropology, entomology, odontology and computer and digital evidence. The course culminates in a detailed, practical case study.

FRSC - 8111 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 typically in their eighth and final semester of Learning the four-year Forensic Science Technology curriculum and is to be taken concurrently with FRSC8113. The course is designed to prepare the student to enter the workforce and/or continue their education at the graduate level. Students will complete a capstone project requiring the analysis of physical evidence in a simulated casework setting. Students will also apply 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.

FRSC - 8113 Forensic Scie Tech Prof Prepar, 3.00 Credits

Prerequisite(s): FRSC 7214 with C or better

Corequisite(s): FRSC 7214 with C or better

Level: Upper

This course is intended for students typically in their eighth and final semester of the four-year Forensic Science Technology curriculum and 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 will learn the details of topics such as resume and cover letter preparation, interview success, the importance of ethical behavior in the field of Forensic Science, and theoretical and practical aspects of crime laboratory work including a look at standard operating procedures and quality assurance practices. A debate on current issues and legal decisions challenging the validity of scientific testing procedures commonly performed in Forensic Science will also be held. Students will also be required to prepare and deliver expert witness testimony in a mock courtroom setting.

FRSC - 8213 Forensic Biology, 3.00 Credits

Prerequisite(s): FRSC 7214 with C or better
 Level: Upper
 Applied Learning-Practicum

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): FRSC 6614 with C or better and FRSC 6214 with C or better
 Level: Upper
 Applied Learning-Creative Work, Course Fee \$47.00

This course is intended for students in the final year of the four-year Forensic Science Technology curriculum. Students are required to complete an approved research project in an area of special interest in Forensic Science Technology. The student will submit a plan for research acceptable to the Forensic Science Technology program director and to 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 Forensic Science conference.

FRSC - 8813 Forensic Scien Tech Internship, 3.00 Credits

Prerequisite(s): FRSC 6614 with C or better and FRSC 6214 with C or better
 Level: Upper

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.

GEOLOGY

GEOL - 1133 Introduction to Geology, 3.00 Credits

Level: Lower
 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 plain 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
 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 environments. 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 mounts) and groundwater flow in volcanic aquifers and exploitation of thermal waters (the case of Ischia).

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.

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 - 1151 Ultimate Frisbee, 1.00 Credit

Level: Lower
 Ultimate Frisbee is an exciting and rapidly growing sport. Most people can find opportunities to play within their own communities. The purpose of this course is to cover all the rules and regulations of the game Ultimate Frisbee. The students will be given the opportunity to play and develop certain skills of the sport. This sport could be a lifelong activity that promotes a healthier lifestyle by obtaining certain cardiovascular benefits from participating in this sport.

HPED - 1171 Aerobics, 1.00 Credit

Level: Lower
 Aerobics to music where the student will learn sound lifetime habits of fitness.

HPED - 1221 Power Volleyball, 1.00 Credit

Level: Lower
 To develop the skills of passing, serving, spiking, and blocking.

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 designed to serve as a foundation for future coaching experiences. The primary goal of this course is to enhance students' knowledge and understanding of coaching concepts and techniques and their application to achieving important objectives in working with athletes. Students will 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 - 3061 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 students 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.

HEALTH INFO TECH**MEDR - 1114 Intro to Health Info Managemnt, 4.00 Credits**

Prerequisite(s): COMP 1503 with C or better * and (BIOL 1114 with C or better * or BIOL 1404 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 1133 with C or better *

Level: Lower

This is a lecture-based online course for those entering a health care profession, and it covers the study of basic concepts and terminology associated with medication structure, function, interaction, and administration. Core concepts in pharmacology are introduced, including terminology, consumer safety and drug regulations, sources and bodily effects of drugs, medication preparation, abbreviations and systems of measurements, responsibilities, and principles of drug administration. Students also identify diseases associated with certain medications as well as medications that would be prescribed for certain diseases. Commonly used drugs are organized according to classification, and each classification is described along with characteristics of typical drugs, purpose, side effects, cautions and interactions. Patient education for each category is included.

MEDR - 1133 Medical Terminology, 3.00 Credits

Prerequisite(s): BIOL 1114 with C or better * or BIOL 1404 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 references).

MEDR - 1223 Hlth Data Mgmt & Hlthcare Stat, 3.00 Credits

Prerequisite(s): MEDR 1114 with C or better *

Level: Lower

This is a lecture and lab-based online course. Topics of study include health data management (data collection, validity, and accuracy), data governance and information governance, analytics and decision support, secondary data sources, clinical indices, databases, and registries. Reporting of data, healthcare report generation, presentation of data, graphic representation, healthcare descriptive statistics (census, percent of occupancy, length of stay, healthcare rates), measures of central tendency (frequency distribution), vital statistics data and rates, research methods, productivity, staffing levels, and budgeting will be covered.

MEDR - 1234 ICD-10-CM & ICD-10-PCS Coding, 4.00 Credits

Prerequisite(s): MEDR 1114 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 * and MEDR 1223 with C or better * and MEDR 1132 with C or better *

Level: Lower

This is a lecture- and lab-based online course that includes a study of clinical classification systems (e.g., ICD-10-CM and ICD-10-PCS) and 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 (paper-based coding manuals and encoder software); ensuring the accuracy of diagnostic and procedural groupings (e.g., DRGs, MS-DRGs); interpretation of regulations and coding guidelines; validation of coding accuracy by using clinical information located in the health record; use and maintenance of applications and processes to support other clinical classification and nomenclature systems (e.g., DSM-IV-TR, SNOMED-CT); and use of clinical data for reimbursement and prospective payment systems.

MEDR - 1244 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 * and MEDR 1223 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 clinical 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 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.

MEDR - 2614 Advanced Coding & Reimbursemt, 4.00 Credits

Prerequisite(s): MEDR 1234 with C or better and MEDR 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 patient 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, Quantim) 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).

MEDR - 3114 Electronic Health Record Mgmt, 4.00 Credits

Prerequisite(s): MEDR 1114 with C or better and MEDR 1223 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 requisitions; training and development methodology, cultural issues affecting health, healthcare quality, cost, and programs; and policies that support a culture of diversity.

MEDR - 4214 Insurance&Reimbursmt Processing, 4.00 Credits

Prerequisite(s): MEDR 1114 with C or better and MEDR 1223 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-1450 (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 Intro to HIM 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

Level: Lower

Clinical Liability Insurance

A professional practical experience (PPE) that includes a combination of Internet-based laboratory projects/assignments and the completion of on-site hours in the health information management (HIM) department of a hospital (or other healthcare facility) with adequate facilities to provide varied work opportunities in HIM. Internet-based laboratory HIM projects/assignments are evaluated by college faculty. On site at the hospital (or other healthcare facility), students will work under the supervision of a qualified Registered Health Information Administrator, Registered Health Information Technician or other qualified personnel to whom they are assigned. The PPE is designed to enable students to obtain actual work experience in theoretical and application-based procedures previously studied. Students will complete a maximum of 80 hours on site, which can be completed on a full-time basis (40 hours/week for two weeks) or on a part-time basis over an extended period of time (e.g., eight hours/week for 10 weeks).

MEDR - 4322 Coding PPE, 2.00 Credits

Prerequisite(s): MEDR 1114 with C or better and MEDR 1223 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 MEDR 4514 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

Clinical Liability Insurance

This course is a professional practical experience (PPE) that includes a combination of Internet-based laboratory coding projects/assignments and the completion of on-site hours in the health information department of a hospital (or other healthcare facility) with adequate facilities to provide varied work opportunities in ICD-10-CM, ICD-10-PCS, CPT and HCPCS level II coding. Internet-based laboratory coding projects/assignments are evaluated by college faculty. On site at the hospital (or other healthcare facility), students will work under the supervision of a qualified Registered Health Information Administrator, Registered Health Information Technician or other qualified personnel to whom they are assigned. The PPE is designed to enable students to obtain actual work experience in theoretical and application-based procedures previously studied. Students will complete a maximum of 80 hours on site, which can be completed on a full-time basis (40 hours/week for two weeks) or on a part-time basis over an extended period of time (e.g., 8 hours/week for 10 weeks).

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 alternate 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-O-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.

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.

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 regulating 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 Biology of Human Sexuality, 3.00 Credits

Level: Lower

Gen Ed - Natural Sciences, Liberal Arts and Science

This course studying human sexuality approaches 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 - 1313 Nutrition, 3.00 Credits

Level: Lower

Gen Ed - Natural Sciences, Liberal Arts and Science

This course is intended for both the science and non-science major. Coverage will include the fundamental biochemical aspects of the essential nutrients and their effects when consumed in less than recommended or excessive amounts. These nutritional facts will help answer some of the questions brought forward concerning the relationship between food and heart disease, weight control, preservatives, cancer, athletic performance, vegetarianism, pregnancy and lactation, just to name a few. Beyond these facts will be the understanding of the non-nutrient characteristics of food as related to culture, family and society. Most importantly, this course will present the tools necessary to properly evaluate the purchase and preparation of nutritious foods via personal assessment.

HLTH - 5113 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 of complementary 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

Prerequisite(s): BUAD 7023 with D or better

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 private and governmental reimbursement methodology.

HLTH - 5233 The Culture of Healthcare, 3.00 Credits

Level: Upper

This course implements a two pronged approach to healthcare as an interface between the biology of health and health outcomes. Students will investigate questions on both the health and care of patients from a cultural perspective. Differences in the physiology and genetics of disease regionally in the U.S. and globally in other countries will be discussed as well as cultural differences in the care of patients and their families.

HLTH - 5333 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 health care decisions, relationships among professionals and patients, and the management aspects of health care delivery. It provides students with the knowledge and skills necessary to recognize legal and ethical issues that arise in health care 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 health care 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 health care law and ethics. Students will have a working knowledge of pertinent law and ethical procedures and how to apply them in health care arena.

HLTH - 5433 Healthcare Marketing, 3.00 Credits

Prerequisite(s): BUAD 6003 with D or better

Level: Upper

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 process, understanding the consumer, and marketing mix. 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 - 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, nutritional intervention and the research that substantiates both. The relationship of nutrition to common maladies, 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.

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 an introductory survey of American history from the early Native Americans and European colonization through the Civil War and Reconstruction. Topics include native cultures, European heritage, the colonial experience, revolution and the new republic. Emphasis will be placed on the formation of the constitution, reform movements and political compromises. Special attention will be paid to the common institutions in American society and their affects on different groups.

HIST - 1223 Contemporary Italian History, 3.00 Credits

Level: Lower

Liberal Arts and Science

This course gives an overview of recent Italian history. Students will trace the history of Italy from the end of the Second World War to the current crisis facing Italy. Topics will include: the birth of the Republic, the clash between the Christian Democrats and the Communist Party in the 50s, the economic boom, terrorism in the 70s and of the "opposite extremes", the political degeneration of the 80s, "Tangentopoli," and the new political system in the Berlusconi era. Particular attention will be devoted to foreign policy, focusing on Italy's role in the international arena with emphasis on the birth of the European unification process. As a member of NATO and as a country in the Mediterranean, Italy will be analyzed as a bridge between Europe, Asia and Africa.

HIST - 1333 Mediterranean Culture & Histry, 3.00 Credits

Level: Lower

Liberal Arts and Science

This introductory course examines the historical, cultural and religious evolution of the peoples surrounding the Mediterranean Sea. The main topics covered are the region's ancient civilizations (Greece, Rome, Germanics, and Byzantines); its major religions (Judaism, Christianity, Islam); the relationships between and among the Mediterranean countries; the various Mediterranean family forms; and the regional challenges and opportunities created by globalization.

HIST - 2153 Surv of American History II, 3.00 Credits

Level: Lower

Gen Ed - American History, Liberal Arts and Science

This is an introductory survey of American History from the Civil War and Reconstruction to the present. Topics include western migration, the impact of industrialization and urbanization, the rise of organized labor and the rise of the United States as a world power. The course will cover the social, political, cultural and economic life of the people of the United States, with a special focus on unity and diversity during the 19th and 20th centuries

HIST - 3003 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.

HIST - 5133 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 will introduce students to the relationship between Western countries and sub-Saharan Africa over the last five centuries and today. Particular attention will be paid to the political, economic, and cultural links established between Europe and Africa, including the imperialist occupation and exploitation of Africa by Europeans. Historical topics covered will include the slave trade; European exploration of Africa; the diaspora of Africans in the West, and of Europeans in Africa; racial attitudes; patterns of economic development and impoverishment; the political evolution of European colonial regimes in Africa; and the process of decolonization, including its political, economic, and social consequences. Contemporary topics covered will include political instability and poverty in Africa; the AIDS crisis; the legacy of colonialism and white settlement; the democratization of African political systems; and competing approaches to African development.

HIST - 6133 The World at War: 20th Century, 3.00 Credits

Prerequisite(s): HIST 1113 with D or better or PLSC 1053 with D or better

Level: Upper

Liberal Arts and Science

This class surveys global military history during the 20th century, with particular emphasis on World War I, World War II, and the Cold War. It examines the origins of major and minor conflicts; the political, social, and economic context of modern warfare; changes in strategy, tactics, logistics, intelligence, battlefield technology, and other salient features of warfare; the contributions of political leaders and major military commanders; and the effects of modern warfare on soldiers and civilians. This class will feature student presentations and a research paper.

HUMAN SERVICES**HUSR - 1074 Practicum in Human Services, 4.00 Credits**

Level: Lower

Applied Learning-Practicum, Pass/Fail

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 - 1323 Spcl Pblm Alchl/Sub Abs Trtmt, 3.00 Credits

Level: Lower

This course is designed for students interested in the field of chemical dependency treatment, and will focus on the special issues, problems and treatment dilemmas in the field of alcoholism and substance abuse counseling. Students will develop an awareness of the current state of knowledge concerning the nature of addiction. Attention is paid to the biological, psychological and social aspects of addictive behavior. The focus of this course is reinforcing strengths in a self-directed program of harm reduction with special populations. These populations include those with a history of family violence, neglect, incest, other substance abuse/dependence, psychiatric disorders and HIV/AIDS issues. Students will also develop an awareness of the special issues faced by particular sub-groups such as adolescents, women, the elderly, gays, and ethnic groups, and will learn specific intervention strategies to be utilized in the treatment of these groups.

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 - 2900 Directed Study, 1.00 TO 4.00 Credits

Level: Lower

A course that allows students who have successfully completed a previous course in Human Services to continue study in that subject. A student may contract for one to four credit hours. However, directed study may be contracted by a student only with the approval of the directing instructor and the department chairperson.

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 service profession.

HUSR - 5003 Community Organizations, 3.00 Credits

Prerequisite(s): HUSR 2083 with D or better and SOCI 1163 with D 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 4033 with D 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 impact of social policy on the delivery of human services and will emphasize individual communication skills, research and analysis of social welfare policy. Students will engage in debates, letter writing, and other class presentations. 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 2083 with D or better and PSYC 1063 with D 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)

Level: Upper

Pass/Fail

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 services 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 and taken full-time for a semester. Faculty supervision and communication may be through various technologies that students must utilize. All enrolled students meet together in seminar one afternoon per week for three hours. Concurrently students are in a one-semester block placement of 40 hours per week for the academic semester. A complete list of practicum requirements are stated in Human Services management program description in the college catalog.

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.

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 - 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 Pr, 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.

INTERIOR DESIGN**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.

DSGN - 2223 History of Interior Design, 3.00 Credits

Prerequisite(s): COMP 1503 with D or better

Level: Lower

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.

DSGN - 2304 Interior Design II, 4.00 Credits

Prerequisite(s): DSGN 2204 with C or better or CIAT 2204 with C or better

Level: Lower

Course Fee \$106.00

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 branding a client image through design of the interior architecture and selection of a representative FF&E (Furniture, Fixtures & 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 "greenness" 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 drawing 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.

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 - 2303 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 - 3303 Italian III, 3.00 Credits

Prerequisite(s): ITAL 2303 with D or better

Level: Lower

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. Writing 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 - 4303 Italian IV, 3.00 Credits

Prerequisite(s): ITAL 3303 with D or better

Level: Lower

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 focus 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 Literature, 3.00 Credits

Prerequisite(s): ITAL 4303 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.

ITAL - 5223 Modern Italian Literature, 3.00 Credits

Prerequisite(s): ITAL 4303 with D or better

Level: Upper

Liberal Arts and Science

Students will study Italian literature from the 17th to the 19th century. Students will critically analyze internationally renowned literary texts in the Italian language. Authors include Galileo Galilei, Carlo Goldoni, Giuseppe Parini, Ugo Foscolo, Giacomo Leopardi, Alessandro Manzoni, Giovanni Verga, 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.

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 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 - 5333 Medieval Italian Literature I, 3.00 Credits

Prerequisite(s): ITAL 4303 with D or better

Level: Upper

Liberal Arts and Science

Dante Alighieri is the most important Italian poet, the father of the Italian language, and the principal figure of Medieval Literature in Europe. This course will examine Dante Alighieri's *La Divina Commedia* (The Divine Comedy) and some of his minor works such as *La Vita Nuova* (The New Life) and *Il Convivio* (The Banquet). Attention will be given to the *Epistola a Cangrande della Scala* (Letter to Cangrande della Scala) which is believed to be Alighieri's letter to his foremost patron. The course will allow students to examine these internationally renowned literary texts in their original language. 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.

ITAL - 5443 Medieval Italian Literature II, 3.00 Credits

Prerequisite(s): ITAL 4303 with D or better

Level: Upper

Liberal Arts and Science

Students will study Italian literature from the 14th to the 16th Century. Students will read and critically analyze internationally renowned literary texts in their original language. Authors include Francesco Petrarca (Petrarch), Giovanni Boccaccio, Ludovico Ariosto, Torquato Tasso, Niccolò Machiavelli, and others. Students will read from these author's works and engage in historical, literary, and rhetorical analysis of texts while determining techniques of composition. Students will also learn about the lives and historical context of the authors; they will critically determine how the author's lives influenced the masterpieces that they created. 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.

ITAL - 6303 Italian VI, 3.00 Credits

Prerequisite(s): ITAL 5303 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.

JAPANESE**JAPN - 1203 Japanese I, 3.00 Credits**

Level: Lower

Gen Ed - Foreign Languages, Liberal Arts and Science

This course is an introduction to the spoken and written Japanese language and focuses on developing 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.

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 Film, 3.00 Credits

Prerequisite(s): COMP 1503 with D or better

Level: Lower

Gen Ed - Humanities, Liberal Arts and Science

This course focuses on film, thought, and language through the viewing and analysis of representative fiction films. Writing is continued in assignments related to film viewing, class discussions, and lectures. From readings and lectures, the student will become acquainted with basic technical terms and film theory, thus facilitating analysis of the more complex aspects of film history and production. Permission of the instructor may supersede prerequisite. Writing is continued in assignments related to readings, class discussions, and lectures.

LITR - 2900 Directed Study, 1.00 TO 4.00 Credits

Level: Lower

Gen Ed - Humanities, Liberal Arts and Science

The 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 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.

LITR - 2913 Introduction to Poetry, 3.00 Credits

Prerequisite(s): COMP 1503 with C 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 introduction to literature are reinforced.

LITR - 3133 Creative Writing:Travel & Expr, 3.00 Credits

Prerequisite(s): COMP 1503 with D or better

Level: Lower

Gen Ed - The Arts, Gen Ed - Humanities, Liberal Arts and Science

This course 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 - 3233 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 psychoanalytic 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 explores the relationship between humans and the natural world expressed in the literary form of nature writing. The thematic movement from discovery and description to environment, ecology, ecocriticism, and sustainability will be emphasized. Readings will be concentrated in American Literature, but works from other countries and cultures will be included. A variety of literary genres, including poems, journals, nonfiction essays, short stories, travel narratives, and excerpts from novels and nonfiction books will be examined. The purpose of this course is to introduce students to the canon of nature writing and to track this literary movement into emerging texts that examine the political, environmental, and technological themes of ecology and sustainability in contemporary culture. Students will be required to write a substantial research paper that analyzes an issue directly related to their major, and they will present their research at the end of the semester. Short writing exercises and exams will also be required. Class sessions will center on student participation and debate, and discussions and writing strategies will employ principles of sound reasoning, critical thinking, and Information Literacy skills.

LITR - 7013 Native American Literature, 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 2703 with D or better or LITR 2813 with D or better or LITR 2903 with D or better or LITR 2913 with D or better or LITR 3133 with D or better or LITR 3233 with D or better or LITR 3333 with D or better or LITR 4333 with D or better or LITR 5133 with D or better or LITR 7003 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.

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

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.

MATT - 3005 Intro to CNC Machine Program, 5.00 Credits

Level: Lower

Course Fee \$106.00

As the most fundamental part of the CNC lathe and its operation, the coordinate grid is covered in detail in this module. Three levels of program preparation are discussed: EIA, APT, and Conversational. Since APT and Conversational languages are normally translated into EIA codes before execution on the machine, a more detailed look at the elements of the EIA coding system is then provided.

MATT - 3015 CNC Industrial Machining I, 5.00 Credits

Level: Lower

Applied Learning-Practicum

The student will use the horizontal and vertical mill in a safe manner, and will perform various external and internal operations including drilling, power tapping, milling of slots, keyways, boring, laying out bolt circles using x and y coordinates. Students will write step-by-step procedures and will use math formulas to calculate machine time and will draw basic prints for machining purposes.

MATT - 3025 CNC Industrial Machining II, 5.00 Credits

Level: Lower

Applied Learning-Practicum

The mechanical components of the lathe are explained in this module. The terminology established here is used throughout the balance of the instruction. Because of the variety of turret styles and automatic tool handling mechanisms found on CNC lathes, several configurations are shown along with an explanation of how each operates.

MATT - 4003 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 machining. 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, which 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.

MATT - 4005 CNC Industrial Machining III, 5.00 Credits

Level: Lower

Applied Learning-Practicum, Course Fee \$106.00

An industrially accepted CAD/CAM system to generate CNC programs will be used throughout this module. The students will be able to produce full programs and download these in the CNC lathe and mill producing a part. Trouble shooting and correction of program errors will be stressed. Proper fixturing and setup of rough material will be presented.

MATT - 4015 CNC Industrial Machining IV, 5.00 Credits

Level: Lower

Applied Learning-Practicum

CNC programs may be refined regardless of mode of generation. Through this module the students will learn to correct flaws and will produce a finished part within the tolerance of the print and be geometrically correct. The concepts of fixturing and manufacturing will be related using geometric dimensioning and tolerancing.

MATT - 4025 CNC Industrial Machining V, 5.00 Credits

Level: Lower

Applied Learning-Practicum

The student will be required to set up many various complex parts. Students will use all of their recently acquired knowledge for previous courses to complete set-ups in conjunction with programming using canned cycles on the turning and machining centers. The student will be expected to develop the programming for the desired part, download to the proper machine, and produce the desired part. All of these tasks will be performed with minimum supervision.

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. Using 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

Principles of Sales examines the principles and methods of sales with respect to the salesperson, his/her 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

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.

MKTG - 3153 Web Design & Marketing, 3.00 Credits

Prerequisite(s): MKTG 2073 with D or better

Level: Lower

This course will examine the uses and power of the Internet, web pages, and e-commerce and how to apply these concepts to daily business. Integration of marketing and web design techniques will be utilized in the creation of effective web pages.

MKTG - 6003 Strategic Marketing, 3.00 Credits

Level: Upper

Strategic Marketing provides students with an overview of the marketing discipline and a framework that presents marketing as a value creation process. Participants learn how to evaluate marketplace potential and risk from the perspective of the entity's unique ability to develop and deliver goods and services of meaningful customer value. Students participate in classroom presentations, discussions, team problem solving, and in-depth analysis of a series of real-life marketing situations with a diverse range of entities and industries. The course explores the principal 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.

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

Level: Upper

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. Students cannot receive credit for MATH 1033 if they have credit for MATH 1054. Students cannot receive credit for MATH 1033 if they have credit for MATH 1063, MATH 1084, 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 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 1033 or for MATH 1054. Students cannot receive credit for MATH 1034 if they have credit for MATH 1063, MATH 1084, 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 - 1054 Precalculus, 4.00 Credits

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 1,2,3), plus a 4th year Math, or equivalent.

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

Designed for the student intending to continue his/her education in mathematics, science or engineering. The course will include a review of functions, an introduction to the concept of limits, and a study of the derivatives and integrals of algebraic and transcendental functions and their applications. 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 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 calculations are necessary. Emphasis 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 - 1123 Statistics I, 3.00 Credits

Prerequisite(s): MATH 1003 with C or better or MATH 1004 with C* or better or MATH 1024 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, normal and binomial distributions, correlation and regression. Requires a C or better in 1003 or 1004 or 1024 or an appropriate placement score.

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 is a one semester course whose basic objective is to develop an interest and appreciation for Mathematics in students with little background in the subject. Included in the course are topics from the following areas: Problem Solving, Inductive Reasoning, Logic, Sets, Probability, Statistics, Consumer Math, and Geometry. It may also include topics from the following areas: History of Math, Number Systems, Metric, Algebra, Linear Programming, Finite Math, Matrices, Computer Applications.

MATH - 1204 Statway I*, 4.00 Credits

Level: Lower

Statway I is the first course in the two-semester Statway course sequence. The Statway course sequence is recommended for students enrolled in degree programs that require no math beyond college level statistics. Both courses in the sequence, Statway I and Statway II, must be taken to receive credit for college level statistics. Students will use mathematical and statistical tools to explore real-life data in a participatory learning environment. Statway I topics include an introduction to data analysis, statistical studies, sampling, experimental design, descriptive statistics techniques, scatterplots, correlation and regression, modeling data with functions, linear and exponential functions, and probability. This course requires the use of statistical technology. 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. After completing this course, students will be able to take Statway II or MATH 1143. Students are not allowed to take MATH 1113 or MATH 1123 after successful completion of Statway I.

MATH - 1323 Quantitative Reasoning, 3.00 Credits

Prerequisite(s): MATH 2003 with C or better or MATH 1014 with D or better or MATH 1143 with C or better

Level: Lower

Gen Ed - Math, Liberal Arts and Science

This course is designed for curricula where quantitative reasoning is required. The course content includes critical thinking skills, arithmetic and algebra concepts, statistical concepts, financial concepts, as well as numerical systems and applications. A graphing calculator is required. This is an entry level course and requires three years of high school math equivalent to NYS Course 1, 2, and 3; or Math A and B.

MATH - 1423 Explorations in Geometry, 3.00 Credits

Prerequisite(s): MATH 2003 with C or better or MATH 1014 with D or better

Level: Lower

Applied Learning-Creative Work, Gen Ed - Math, Liberal Arts and Science

The content of 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 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 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. 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

A continuation of MATH 1084 with a concentrated study of integration techniques along with applications. Applications include but are not limited to areas, volumes, arc length, and work problems to name a few. The course involves the methods of integration and applications as they apply to both the algebraic and transcendental functions. Infinite Series will be included. Graphing Calculator required. Student cannot receive credit for both MATH 2094 and MATH 2074.

MATH - 2124 Statistical Methods & Analysis, 4.00 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 is a one-semester (non-calculus based) course which covers descriptive as well as inferential statistics. Included are topics on collecting, organizing, and summarizing data. Other topics include correlation and regression, probability, normal and binomial probability distributions, normal approximation to the binomial, central limit theorem, confidence intervals, hypothesis testing, and nonparametric statistics.

MATH - 2133 Statistics II, 3.00 Credits

Prerequisite(s): MATH 1123 with C or better

Level: Lower

Gen Ed - Math, Liberal Arts and Science

A continuation of MATH 1123 emphasizing probability distributions with predictive and inferential aspects of statistics: the normal distribution with applications, central limit theorem, hypothesis testing and estimation as applied to the mean, standard deviation, and proportions. Other topics include normal approximation to binomial, Chi-Square applications, linear regression, correlation, and nonparametric statistics. Use of calculators for analysis and computer statistical packages are utilized.

MATH - 2900 Directed Study, 1.00 TO 4.00 Credits

Level: Lower

Liberal Arts and Science

A student may contract for from one to four credit hours of independent study in mathematics through an arrangement with an instructor of mathematics. The student and instructor will develop a course of study which must be approved by the department chairperson and the school dean. The instructor and the student will confer regularly regarding the student's progress.

MATH - 3003 Linear Algebra, 3.00 Credits

Prerequisite(s): MATH 1084 with C or better or MATH 1063 with C or better

Level: Lower

Liberal Arts and Science

This course is an introduction to linear algebra. Topics covered include solution of systems of linear equations, linear independence, matrix algebra, vector spaces, eigenvalues and eigenvectors, orthogonality, and least squares problems.

MATH - 4900 Directed Study, 1.00 TO 6.00 Credits

Level: Lower

Liberal Arts and Science

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 chair. The instructor and student will confer regularly regarding the process of the study.

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 or MATH 6114 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 Gauss' 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 Analy 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 is designed for the engineering technology student. It covers techniques for comparing alternative projects based on economic considerations; time value of money; present worth; equivalent uniform annual cost; rate of return on investment; minimum cost life; expected value; decisions under risk; effects of income tax and inflation.

MATH - 7123 Statistics for Engr Technology, 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 calculus-based course offers the theoretical basis for probability and statistics related to engineering applications. Topics include data analysis techniques, random variables, expectation, important probability distributions and densities, inferences concerning one or more means and standard deviations. Reliability, correlation and regression, curve fitting, and quality control charts are introduced. Graphing calculators are required. Computer applications may be included.

MECHANICAL ENGR TECH

MECH - 1203 Materials Science, 3.00 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 relationships of structure, material properties, and material selection to the design/ manufacturing process will be emphasized. The study will be enhanced by laboratory experience where the student 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 such areas as corrosion, strength, rigidity, wear resistance, thermal expansion, elasticity and plasticity principles of the common engineering materials. The course 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 - 1603 Graphics/CAD, 3.00 Credits

Level: Lower

Applied Learning-Practicum

Graphics/CAD involves the visualization, sketching, and geometric construction of mechanical components. Students will layout and create 2D working industrial drawings that adhere to industry standards. This course will illustrate CAD drawing construction techniques that implement graphical communication through the use of the alphabet of lines, orthographic projection, section views, auxiliary views and the creation of assembly and detail mechanical components. This course will also use the ASME Standard Y14.5M-1994 for Geometric Dimensioning & Tolerancing to facilitate the communication of geometry requirements for associated features on detail components and assemblies.

MECH - 1663 Manufacturing Processes, 3.00 Credits

Level: Lower

Applied Learning-Practicum

The basic equipment, processes and services required to produce a product are studied. This course is designed to give the student the knowledge and vocabulary to generally comprehend the complex and inter-related design and manufacturing functions that must be accomplished to produce the end product. The processes covered include the making of iron and steel, casting, plastics production, hot and cold forming, machining, fastening, non-traditional machining, grinding, etc. Equipment covered in the lab include: lathes, grinders, milling machines, band saws, drill presses, precision measurement devices etc. As time or student experience permit, the topic of basic C.N.C. machine operations and programs may be introduced. Safety and proper manufacturing procedures will be emphasized.

MECH - 2543 Advanced CAD Applications, 3.00 Credits

Prerequisite(s): MECH 1603 with D or better

Level: Lower

Advanced CAD is a continuation of the basic drafting standards and techniques facilitated through the course pre-requisite, MECH 1603. Delving into other mechanical drafting disciplines, this course will help students develop additional skill sets required in a variety of other mechanical fields. This course will cover, but not be limited to, machine design, weldments, structural steel, process piping, and pressure vessels. The major emphasis of this course will be the creation of working industrial drawings for fabrication and or successful integration into a mechanical assembly. The following standards will be used: ASME Sec. VIII, Div. 2, Pressure Vessel Code, ASME Y14.5M-Geometric Dimensioning & Tolerancing, ASME B31: Standards of Pressure Piping, ANSI B4.1: Limits and Fits, AISC: Standard Structural Steel Construction.

MECH - 3124 HVAC Systems, 4.00 Credits

Level: Lower

Applied Learning-Other

This course introduces the student to the fundamental principles of heating, ventilation and air conditioning systems. Topics include psychrometric principles and processes, equipment selection, heating and cooling load calculations and heating system principles including forced warm air, hot water, electric and steam systems and geothermal heating and cooling systems.

MECH - 3203 Computer Aided Manufacturing, 3.00 Credits

Prerequisite(s): MECH 1603 with D or better

Level: Lower

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

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 management 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)

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

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. This course will include the study of linear motion devices, fluid power, rigid coupling design and flywheels. Also covered in this class is 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.

MECH - 4333 CAM II, 3.00 Credits

Prerequisite(s): MECH 3203 with D or better

Level: Lower

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 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.

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, singularity 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 5.00 Credits

Level: Upper

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.

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, Reynolds Transport Theorem, and momentum and energy equations. Navier-Stokes Equations are developed. Dimensional analysis, Buckingham Pi Theorem and modeling are covered. 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 experiences address most of the above topics.

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 - 7223 Energy Systems, 3.00 Credits

Prerequisite(s): MATH 7113 with D or better and (MECH 7334 with D or better or MECH 7603 with D or better)

Level: Upper

Applied Learning-Other

This course evaluates the concepts of energy and identifies how it relates to current and future technology. Topics include the data analysis of various types of energy systems, conversion among the several forms of energy, environmental impacts, and cost analyses. Lecture is supported by laboratory activities that may include: experiments, data collection and analysis, field trips to energy production facilities, design activities, and a final group project emphasizing principles discussed and experienced throughout the lecture and laboratory portions of the course.

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 course is designed to provide a valuable experience in the areas 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 standard 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 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.

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 students to electrical fundamentals including circuit designs and circuit calculations. Common electrical components, operation, and testing will also be included.

MOTO - 1015 Welding & Fabrication, 5.00 Credits

Level: Lower

Applied Learning-Practicum

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, magnetos, 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 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 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.

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, 3.00 Credits

Level: Lower

Gen Ed - Natural Sciences, Liberal Arts and Science

This course is designed to introduce the principles of astronomy. Emphasis will be placed on scientific process, critical thinking, and modeling. This course is suitable for science majors or as a science elective. Topics to be covered are: light spectroscopy, solar system evolution, planetology, comets and asteroids. An optional laboratory course will be offered.

NASC - 1043 Physical Science Survey, 3.00 Credits

Level: Lower

Gen Ed - Natural Sciences, Liberal Arts and Science

Course surveys principles and applications of physical and earth science. Half of course is devoted to physical phenomena relating to life on earth, including: gravitation, energy, thermal and electrical phenomena, etc. Other half is concerned with earth and its surroundings including: geologic history and structure of earth, tides, atmosphere and solar radiation, meteorology, climate phenomena, astronomy, etc.

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.

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 life style 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 \$37.00

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 life style and reduce stress while participating in the Nursing Program.

NURS - 2201 Trans to Assoc Degree Nursing, 1.00 Credit

Level: Lower

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 \$46.00

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.

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, 10.00 Credits

Prerequisite(s): (NURS 3311 with C+ or better or NURS 3310 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 \$24.00

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 will develop their 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. A pediatric experience 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 issues and trends in nursing and healthcare delivery to achieve a broad professional perspective for the expanded role of the baccalaureate prepared nurse. Selected issues and concepts will also be analyzed with depth to determine the impact on rural healthcare delivery. The course also focuses on principles related to critical reasoning and decision-making processes to help the student to better understand the challenges and opportunities in the political, social, and healthcare environment. In addition, issues related to workforce and workplace, policy development, advancement of the profession, and advocacy will be addressed. Lastly, concepts of service learning and social justice will be explored relative to undeserved and/or vulnerable populations.

NURS - 6003 Nursing Leadership/Management, 3.00 Credits

Prerequisite(s): NURS 2209 with C or better or NURS 2208 with C or better

Level: Upper

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, service learning will be further explored with an in-depth focus on concepts of social justice and the nursing leadership role.

NURS - 6413 Health Assmt & Promotion Across, 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 - 7004 Population Focused Care in Com, 4.00 Credits

Level: Upper

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. The student will also participate in a 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 Informatics & 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 personal digital assistant (PDA), smart phones, IPOD, IPAD, portable computer, 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 related 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 and NURS 7004 with C or better * and NURS 6003 with C or better *

Level: Upper

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.

NURS - 8043 Politics & Economics in Nursin, 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 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.

PHILOSOPHY**PHIL - 1073 Problems of Philosophy, 3.00 Credits**

Level: Lower

Gen Ed - Humanities, Liberal Arts and Science

Problems in Philosophy examines some of the fundamental questions, controversial issues, and major problems faced by people in relationship to the world. It also focuses on some of the methods for inquiry and problem-solving that people have devised to make their world more comprehensible. The course is designed, through readings and class discussions, to promote critical thinking and to develop effective techniques of systematic inquiry.

PHIL - 2013 Critical Thinking, 3.00 Credits

Level: Lower

Gen Ed - Humanities, Liberal Arts and Science

This course has a three part structure: 1. Logic. At root, critical thinking is the ability to reason; to think logically. Students will learn core concepts such as validity, soundness, logical form, and informal fallacies. 2. Applied Argument Construction. Students will learn to construct and critique ordinary and scientific arguments, both in written and oral form, using the logical principles learned in the Logic component of the course. 3. Alternative Reasoning Methods. Students will be encouraged to identify and examine arguments based on cultural background, gender, religious convictions, requirements of classical logic. Students will be encouraged to identify and examine such arguments. The purpose of this examination is not to validate or endorse alternative reasoning methods, but to encourage students to talk with each other about the difference and similarities in the ways they make judgments and other factors. Writing is continued in assignments related to readings, class discussions, and lectures.

PHIL - 2173 Ethics, 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.

PHYSICS**PHYS - 1014 Introductory Physics, 4.00 Credits**

Level: Lower

This course is appropriate for students lacking a strong math and science background and is designed to develop physical concepts in the classroom in a highly interactive laboratory. The laboratory portion of the course will include traditional and conceptual physics experiments, computer work and time devoted to physics problem solving. Considerable attention is paid to problem solving and the development of problem analysis skills.

PHYS - 1024 General Physics I, 4.00 Credits

Level: Lower

Gen Ed - Natural Sciences, Liberal Arts and Science

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 - 1044 College Physics I, 4.00 Credits

Level: Lower

Gen Ed - Natural Sciences, Liberal Arts and Science

This is the first semester of a two semester sequence, which is appropriate for a Liberal Arts or technical student who plans to complete a four year degree. The course describes the fundamental laws of natural environment and provides the student with an appreciation of how physics impacts nature and society. Problem solving is stressed. The course studies motion, force, energy, collision, rotational motion, heat, and fluids. This course includes a laboratory each week covering the topics listed for this course.

PHYS - 1064 Physics for Engr & Science I, 4.00 Credits

Prerequisite(s): MATH 1084 with D or better

Level: Lower

Gen Ed - Natural Sciences, Liberal Arts and Science

This course is the first of a sequence of three semesters 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, momentum and collision, equilibrium or rigid bodies, and gravitation. This course includes a lab each week covering the topics listed for this course.

PHYS - 2023 General Physics II, 3.00 Credits

Prerequisite(s): PHYS 1024 with D or better

Level: Lower

Gen Ed - Natural Sciences, Liberal Arts and Science

This course is a continuation of PHYS 1024. Topics covered include: wave motion, sound, electrostatics, current, electricity, electric circuits, magnetic effects, light and illumination, reflection, refraction, mirrors, thin lenses, dispersion, interference, and diffraction. Laboratory work is also included covering most of these topics.

PHYS - 2044 College Physics II, 4.00 Credits

Prerequisite(s): PHYS 1044 with D or better

Level: Lower

Gen Ed - Natural Sciences, Liberal Arts and Science

This course is a continuation of PHYS 1044. It is appropriate for a Liberal Arts or technical student who plans to complete a four-year degree. The topics covered include: simple harmonic motion, waves, light, electricity and magnetism. Problem solving is stressed. The course includes a lab each week covering the topics listed for this course.

PHYS - 2064 Physics for Engr & Sci II, 4.00 Credits

Prerequisite(s): PHYS 1064 with D or better

Level: Lower

Gen Ed - Natural Sciences, Liberal Arts and Science

This course is a continuation of PHYS 1064. Topics include: wave motion, simple harmonic motion, electricity, and circuit analysis. The course includes a lab each week covering the topics listed for this course.

PHYS - 2900 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.

PHYS - 8013 Modern Physics, 3.00 Credits

Prerequisite(s): (PHYS 2023 with D or better or PHYS 2044 with D or better or PHYS 2064 with D or better) and (MATH 2094 with D or better or MATH 2074 with D or better)

Level: Upper

Gen Ed - Natural Sciences, Liberal Arts and Science

This is a one-semester course designed primarily for BT/BS students, but can be taken by any students who meet the pre-requisites. This course is designed to provide students with information about the discoveries made, ideas and concepts advanced, and the knowledge gained in physics during the past hundred years. Topics include: relativity, corpuscular nature, matter waves, atomic physics, quantum mechanics, quantum theory or hydrogen, many-electron atoms, molecular structure, statistical mechanics, and properties of solids. Lecture/Laboratory. This course includes lab work covering the topics listed for this course.

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.

PSYCHOLOGY

PSYC - 1013 General Psychology, 3.00 Credits

Level: Lower

Gen Ed - Social Sciences, Liberal Arts and Science

The major emphasis of this course is on the scientific study of the behavioral and mental processes of human beings. Both the biological structure of the human organism and the effect of the environment upon behavior are studied. The major areas of psychological study, including research methods, sensation and perception, learning theories, and cognitive processes are surveyed.

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 basic concepts and principles of physical, cognitive, and psychosocial development at each major stage of life - from conception until old age. Major theories are explained and fully integrated throughout the human life span

PSYC - 1033 Human Relations, 3.00 Credits

Level: Lower

Gen Ed - Social Sciences, Liberal Arts and Science

This course covers the problems of human adjustment using the psychoanalytic, social-learning, and humanistic perspectives. The course also focuses on stress, its effects and its management. The third area of study concerns interpersonal and social aspects of adjustment.

PSYC - 1053 Intro to Social Psychology, 3.00 Credits

Level: Lower

Gen Ed - Social Sciences, Liberal Arts and Science

The course is an introduction to social psychology - the scientific discipline which studies the psychology of the individual in society. It focuses on the individual during social interaction and societal influences. Among topics considered are attitude change, person perception, attribution theory, verbal and nonverbal communication, conformity and nonconformity, aggression and affiliation, power, social justice, and interpersonal attraction.

PSYC - 1063 Basic Helping Skills, 3.00 Credits

Prerequisite(s): PSYC 1013 with D or better

Level: Lower

Applied Learning-Practicum, Gen Ed - Social Sciences, Liberal Arts and Science

This course is designed to assist the student in developing the helping skills necessary to conduct a productive, helping session. Helping models, ethical considerations, and interview methods will be examined, particularly as they apply to the human services field.

PSYC - 2033 Adolescent Development, 3.00 Credits

Prerequisite(s): PSYC 1013 with D or better

Level: Lower

Liberal Arts and Science

Adolescent Development is an introduction to the physical, cognitive, and social changes which occur between puberty and young adulthood. Contemporary issues of gender, sexuality, morality, and education are discussed. Psychological theories and developmental stages of life will be explored by the student and applied to adolescent behavior.

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

The major emphasis of this course is the understanding of the symptoms, etiology, diagnostic classification, and theories pertaining to psychopathology. Special attention is paid to the medical model, the psychological model, and the behaviorist model as they apply to the causes and treatment of the behavioral disorders. Newer developments in therapy which treat mental disorders as problems of living rather than specific diseases are analyzed.

PSYC - 5013 Counseling Theory, 3.00 Credits

Prerequisite(s): PSYC 1063 with D or better

Level: Upper

Liberal Arts and Science

This course provides students with an overview of historical and contemporary psychological approaches to helping. Topics will include theories of counseling, cultural issues, professional concerns and ethical standards of the field. The course will also address issues related to the historical and theoretical bases of crisis intervention.

PSYC - 5093 Health Psychology, 3.00 Credits

Prerequisite(s): PSYC 1013 with D or better

Level: Upper

Liberal Arts and Science

In this course, students will study various health determinants, the impact of socio-economic and cultural influences on health-related behaviors, the physiology of stress and effective ways to manage or reduce its negative consequences and how to evaluate research in health related fields. In addition, students will critically examine global health concerns from a health systems and health policy perspective. Topics such as the global impact of disease, theories of health-related behavior change, stress, coping, communicable and chronic diseases including cancer, cardiovascular disease, HIV, chronic pain management and the placebo effect will be covered. Strategies for individual and community health advocacy will also be discussed.

PSYC - 5103 Industrial/Orgnznl Psychology, 3.00 Credits

Prerequisite(s): PSYC 1013 with D or better

Level: Upper

Gen Ed - Social Sciences, Liberal Arts and Science

Industrial/Organizational Psychology is an advanced course which applies the principles of psychology to the workplace. The focus of the course is on such topics as scientific management, human relations, motivation, group dynamics, and personnel selection. Students will learn about performance appraisal, leadership skills, labor-management relations, and organizational communication. Other topics for discussion include employment discrimination, sexual harassment, and the abuse of drugs.

RADIOLOGIC TECHNOLOGY**RADT - 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 types/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.

RADT - 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.

RADT - 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 radiation 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.

RADT - 2013 Radiographic Exposure & Quality, 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.

RADT - 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 introduced. 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.

RADT - 2041 Radiology Clinical I, 1.00 Credit

Prerequisite(s): RADT 1003 with C or better and RADT 2014 with C or better * and RADT 2003 with C or better * and RADT 2013 with C or better *

Level: Lower

Applied Learning-Clinical Plcm, Clinical Liability Insurance

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.

RADT - 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-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 radiography is the focus of this clinical experience. Continued assessment of learning and proficiency is conducted using summative competencies 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.

RADT - 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.

RADT - 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.

RADT - 3043 Radiology Clinical III, 3.00 Credits

Prerequisite(s): RADT 2044 with C or better and RADT 3014 with C or better *
Level: Lower

Applied Learning-Clinical Plcm, Clinical Liability Insurance
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.

RADT - 4003 Intro to Adv Diagnostic Imagin, 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.

RADT - 4013 Prof Development in Imaging Sc, 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.

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 Plcm, 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 final 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.

SOCIOLOGY

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 the course is to acquaint the student with a broad spectrum of social problems within the contemporary United States. The factors causing social and cultural problems will be emphasized. Each student will be required to use sociological principles to analyze one selected problem.

SOCI - 1193 Marriage & Family Acrs Wrld 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 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 a survey of the growth of science and technology and their impact upon society as a whole with primary emphasis upon the United States. Major concentration is on the period since the mid-nineteenth century emphasizing the intellectual climate leading to and resulting from scientific and technological changes and the influence of these developments upon industry, government, education, agriculture, ecology and other areas.

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.

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

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

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 - 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 advanced and mastery 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 is the focus of this clinical experience. Continued assessment of learning and proficiency is conducted using summative competencies and advanced and mastery 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; Musculoskeletal; 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.

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.

SPAN - 2203 Spanish II, 3.00 Credits

Prerequisite(s): SPAN 1203 with D or better

Level: Lower

Gen Ed - Foreign Languages, Liberal Arts and Science

This second semester course is designed to suit the needs of persons who wish to learn to communicate orally in the Spanish language for purposes of travel, business, personal pleasure, and academia environment. The student's listening, speaking, reading and writing skills in Spanish will be further developed.

SPAN - 4900 Directed Study, 1.00 TO 6.00 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.

SPEECH**SPCH - 1083 Effective Speaking, 3.00 Credits**

Prerequisite(s): COMP 1503 with D or better

Level: Lower

Gen Ed - BC-COMP1503/SPCH1083, Gen Ed - BC-COMP3503/SPCH1083, Liberal Arts and Science

This course deals with preparing, presenting, and critiquing the basic speech types: reporting, demonstration, and argumentation. Special attention is given to collecting, selecting, and arranging of material; to presenting and delivering; and to active listening and critical evaluating. The course stresses principles of intrapersonal and interpersonal communication and provides a basis for the understanding of speech through utilizing various media. The 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.

SPCH - 5083 Communication in the Workplace, 3.00 Credits

Prerequisite(s): COMP 1503 with D or better and SPCH 1083 with D or better

Level: Upper

Gen Ed - BC-COMP1503/SPCH5083, Gen Ed - BC-COMP3503/SPCH5083, Liberal Arts and Science

The class is designed to give students the opportunity to obtain the communications skills encountered throughout college and his or her personal and professional life. Special attention is given to the theory of organizational communication, basic communication skills, interpersonal communication, employer-employee relations, group communication, and presentational speaking.

SPCH - 6083 Interpersonal Communication, 3.00 Credits

Prerequisite(s): SPCH 1083 with D or better

Level: Upper

Liberal Arts and Science

This course will cover the study and application of the techniques involved in effective interpersonal communication. Text, lecture, and outside reading will cover the theories and concepts of verbal, vocal, nonverbal, and listening as they relate to communicating in interpersonal contexts. Specifically, the course will address such topics as validation, listening, self-disclosure, conflict resolution, problem solving strategies, and electronic communication. Class participation, group participation, public speaking, and scholarly writing are required of all students.

SPORT MANAGEMENT**SPMG - 1123 Intro to Sports Management, 3.00 Credits**

Level: Lower

This course is an investigation of the scope of the sport industry, which is a growing major business enterprise in the United States and in much of the world. The various functions of effective management, and the skills, attributes and roles required of the sport manager are discussed. Attention will be focused on how the managerial process relates to sport organizations and the products they provide. Students become acquainted with career opportunities in the sport management field. The course is designed to provide an overview of sports administration with an emphasis on management principles and career opportunities. Course content will include lectures, guest speakers, and group discussions.

SPMG - 2003 Sport in Society, 3.00 Credits

Prerequisite(s): SPMG 1123 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 - 2013 Sport in Europe Soc Study Abrd, 3.00 Credits

Level: Lower

This course provides an in-depth examination of sport in society, globalization of sporting culture, and an understanding of the European model of sport. A review of the role of sport participants, spectators, and 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. Within this course, students may partake in a study abroad opportunity in Europe.

SPMG - 3001 Field Experience I, 1.00 Credit

Prerequisite(s): SPMG 1123 with D or better

Level: Lower

Pass/Fail

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 - 3013 Sport Communication, 3.00 Credits

Prerequisite(s): COMP 1503 with D or better and BUAD 2033 with D or better and SPMG 1123 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 - 4001 Field Experience II, 1.00 Credit

Prerequisite(s): SPMG 1123 with D or better and SPMG 3001 with D or better

Level: Lower

Pass/Fail

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. At the end of this internship the student will produce a four-page paper outlining their evaluation of their career future.

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.

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 from 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

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 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 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.

TECHNOLOGY MANAGEMENT**TMGT - 5001 Professional Business Seminar, 1.00 Credit**

Level: Upper

This course helps students transition from college to their professional career. General topics such as managing self (including time and stress), professional communications, effective meeting management, and internship preparation will be presented to aid the students' success in their professional career. Specific discipline-focused sessions will also be included. Students will prepare a professional portfolio throughout the course.

TMGT - 5900 Directed Study, 1.00 TO 9.00 Credits

Level: Upper

Pass/Fail

A student may contract for one to nine 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 Technology Innovation, 3.00 Credits

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

Level: Upper

This course is an application of theoretical approaches to technology management and innovation. 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.

TMGT - 8006 Technology Management Internsh, 6.00 Credits

Level: Upper

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 Internsh, 3.00 Credits

Level: Upper

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 Internsh, 6.00 Credits

Level: Upper

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 Internsh, 9.00 Credits

Level: Upper

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

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 education 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 Internship Coordinator. Written and oral reports, along with a journal of work activities and experiences, will be required. Evaluation will be based on the quality of experiences gained from the internship and student work performance.

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-Practicum, Course Fee \$33.00

The 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 & Physlgy 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, kodachromes 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 Anatmy & Physlgy of Animals II, 4.00 Credits

Prerequisite(s): VETS 1214 with D or better and VETS 1203 with C or better

Level: Lower

Applied Learning-Other, Liberal Arts and Science

Anatomy and Physiology of Animals II is a continuation of the study of anatomy and physiology which began using the organ system in VETS 1214 - Anatomy and Physiology of Animals I. This course uses 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. Histological slides, kodachromes, and radiographs will also 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 organ system 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. Utilizing 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 the diagnosis, management, and prevention of disease in domestic animals.

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 students' understanding of how to appropriately provide both verbal and written communications for the client concerning management, prevention and potential zoonosis 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

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, prepping surgical patients, learning and practicing aseptic 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 2014 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 exposures, and film developing 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 ultrasound 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 \$33.00

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 serve 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

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 wellness, 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

This course will review and consolidate information on 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.

WELDING**WELD - 1104 Intro Shielded Metal Arc Weldg, 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 & Goug, 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 unilaterally 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/Cutng & Plasma Cutng, 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 Ctng Gaugng, 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 Mtrrgy,Blpnt 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 Mtl Arc & Flx 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 Metlgy, 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 SMAW 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.

WOMEN AND GENDER STUDIES

WGST - 1003 Intro to Women/Gender Studies, 3.00 Credits

Level: Lower

Liberal Arts and Science

This course is an introduction to the interdisciplinary subjects of Women and Gender Studies. It exposes students to diverse values, perspectives and backgrounds, and it provides a basic knowledge of topics, persons, debates and key concepts within these two fields. Students will explore how gender has been, and continues to be, shaped by cultural and societal constructs. They will also examine factors that influence women's and men's lives, and in turn how those influences not only affect individuals, but society as a whole. Attention will be on how gender, sex, race, sexual orientation, class and age influence, not only our individual opinions and attitudes, but on how these factors shape society's views on both women and gender.