

**AD: ADMINISTRATION  
AND MANAGEMENT**

**AD101T Introduction to Business 3**

Focuses on American and global business and introduces the student to each primary facet of operating a business. This course will help the student understand economic, social and political influences that affect business success. (3/0)

**AD101U Materials Management and Warehousing 2**

Provides warehouse personnel with knowledge about the uniform commercial codes, title transfers, interstate transfer of goods, purchase order as a contract, parts identification and warehouse space management. (2/0)

**AD102T Introduction to Management 3**

Applies current techniques and methods to the management functions of planning, organizing, leading and controlling. Focuses on critical analysis, development and effectiveness of organizational processes. (3/0)

**AD102U Production and Inventory Control 2**

Designed to present the basic concepts and techniques of production planning and inventory control. The course stresses the influence that all usual departments within an industrial organization have upon the production planning and control function. (2/0)

**AD104T Office Supervision and Management 3**

Develops knowledge and competencies in several functions of office administration including supervision; file automations; the organization, structure and planning of office work; controlling office work activities; office forms, procedures and policies; and maintenance of a conducive working environment. (3/0)

**AD104U Principles of Supervision 3**

Introduces the management functions of planning, organizing, leading and controlling. Focuses on technical supervision skills and human relations skills needed to develop a productive work team, and conceptual skills to group interdependent organizational processes. (3/0)

**AD107U Managerial Leadership 3**

Compares several leadership philosophies regarding motivation and behavior and helps students develop a strategy for productive work teams. This course includes several self-assessment instruments for the leader to enhance personal perspective and methods. (3/0)

**AD108T Statistical Quality Control 2**

Covers the current transformation methods of business and industry toward a complete quality control system. Included are management theory on quality and productivity and control charting techniques. (2/0)

**AD108U Decision Making 2**

Students examine their own role in the decision-making processes of society, government, working life and personal life. Decision-making techniques are discussed including break-even analysis, statistics, PERT, participative problem solving and the synergetic approach to problem solving. (2/0)

**AD109T Statistical Process Control 2**

Continues AD108T, focusing on statistical process control. Focuses on implementation of statistical quality control techniques within industrial manufacturing processes. (2/0)

**AD109U Management Information Systems 2**

Covers nature of systems, parameters for the business system, measurement problems, information theory, models for management, decision-making and control of systems, and the utilization of the computer in all of these areas. (2/0)

**AD110T Production Management 3**

Outlines management operations in production and inventory control as well as J-I-T (Just-In-Time) Management concepts as they relate to MRP-MRP II and total quality control. Prereq: AD102T, AO101T. (3/0)

**AD110U Principles of Safety 1**

Students will learn to identify key terms related to occupational health and safety; will gain understanding of the legal and regulatory issues affecting occupational health and safety in the workplace, particularly the requirements under OSHA; will study safety-related programs and policies, and employers' related liabilities; and will evaluate effective safety management techniques and employee safety training programs. (1/0)

**AD111T Inventory Management 1**

Studies the function and costs of inventories. Included will be study on warehouse layout, EOQ (Economic Order Quantity) calculations, vendor analysis and various accounting methods for inventory evaluation. (1/0)

**AD112T Total Quality Management 1**

Discusses the philosophy and methods of continuous improvement discussing both the theory and practice. Topics such as causes and trends of this philosophy as well as implementation methods will be surveyed in the course. (1/0)

**AD113U Buying and Merchandising Strategies 3**

Studies merchandising principles as they apply to management. Decision-making skills are developed in buying, inventory control and pricing. A simulation project is utilized to develop management merchandising competencies. (3/0)

**AD114T Human Resource Management 3**

Includes managerial philosophy of human resource administration emphasizing study of the personnel functions of recruiting, interviewing, selecting, placement, training and evaluating. Also addresses the issues of diversity in a very dynamic environment. (3/0)

**AD115T Organizational Behavior 3**

Explores problems and solutions of human behavior in organizations by studying the work of behavioral scientists and other experts. Actual case studies provide the transition from theory to practicality. Students develop skills to diagnose and improve group functioning and organizational effectiveness. (3/0)

**AD115U Employee Training and Development 3**

Studies various approaches to organizational and departmental human resources development functions. Students design a departmental training plan. Employee orientation and on-the-job training techniques are developed. (3/0)

**AD116T Small Business Entrepreneurship 3**

Examines the fundamentals of organizing a small business. Covers such topics as finance, demographics, promotion, market competition, site location and analysis. (3/0)

**AD116U Introduction to Labor Relations 3**

Reviews the history of current labor and management positions. The role of the supervisor in solving labor disputes and grievances is examined. Students participate in mock bargaining negotiations, observing and critiquing conduct. Issues in the maintenance of union-free working environments are also discussed. (3/0)

**AD117U Wage and Salary Administration 1**

Designed to provide a rational approach to the various elements of a compensation program: job descriptions, job evaluations, salary surveys and administration policies. (1/0)

## Course Descriptions

- AD118U Collective Bargaining 3**  
Describes the historical aspect of collective bargaining and orients the student to current trends. Cases of actual companies are presented to allow observing and critiquing of the collective bargaining process. (3/0)
- AD119U Labor Negotiations 1**  
This one-day seminar focuses on contract negotiations and day-to-day contract administration including arbitration. Students participate in simulated negotiation and contract administration exercises. (1/0)
- AD120U Grievance and Arbitration Settlements 1**  
Designed to broaden the knowledge of students in negotiations and to develop their negotiation skills to deal with an increasingly competitive and often volatile economic environment. (1/0)
- AD121U Time Management 1**  
Normally taught as a one- or two-day workshop. The student learns to select and prioritize goals in personal and professional life, then plot a time strategy to achieve those goals. Time wasters are identified, and tips and techniques for maximum time utilization are developed. (1/0)
- AD122U Conducting a Business Meeting 0.5**  
Designed as a one-day seminar, this course will cover such topics as writing agendas, encouraging group participation and directing goal-oriented discussions. (.5/0)
- AD126U Employee Benefit Programs 1**  
Participants receive an understanding of the importance of an effective employee benefit program within organizations. Students will analyze various programs' strengths and weaknesses to adapt the elements of a successful system to their own organization. (1/0)
- AD129U Work Habits and Absenteeism 1**  
Normally taught as a one- or two-day workshop. Students are trained to develop a working atmosphere conducive to high productivity. Problem employees and their habits are identified. Students learn employee coaching techniques and policies that can be used to solve poor work habits and high absenteeism. (1/0)
- AD130U Performance Appraisal 1**  
Normally taught as a one- or two-day workshop. Students learn to help employees set performance standards and objectives and how to achieve them. Students learn employee appraisal and evaluation policies, programs, processes and forms, and to conduct the appraisal interview. (1/0)
- AD133U Current Topics in Management 0.5-2**  
Designed for discussion and review of contemporary issues in the changing field of management. Course may be repeated for a maximum of four credit hours. (.5-2/0)
- AD142U Planning Strategies for Small Business 1**  
A workshop format offering methods of planning for both the short and long term. How to determine business needs; how to implement decisions. (1/0)
- AD143U Business Internship Seminar 1**  
Offers arranged seminars for business students concurrently enrolled in Business Internship. Includes goal setting and learning objectives for internship period; discussion and evaluation of internship experiences and work problems encountered. (1/0)
- AD144U Employment Seminar 1**  
Provides students with an understanding of the job seeking process including resumes and interviews. (1/0)
- AD145U Management Seminar 1**  
Independent analysis of those facets of the business industry that would enable students to become better acquainted with the business environment to which their career goals are directed. Students develop a project that will entail extensive interaction with the business community. (Open only to Retail Management majors.) (1/0)
- AD146U Leadership Styles 1**  
Students discuss leadership styles of contemporary and historic foreign and American leaders (reading list). Characteristics of positive and negative leadership are examined. Students are encouraged to participate in a leadership role in a voluntary organization or personal undertaking. (1/0)
- AD147U Introduction to Insurance 1**  
A one-day seminar introducing students to risk management, health insurance, liability insurance and malpractice insurance. (1/0)
- AD148U Computer Applications for Managers 3**  
Introduces the manager to computer hardware and software utilized in business applications. Prepares the student to select appropriate equipment for installation and to relate several software packages to appropriate business applications. (1/4)
- AD149U Effective Team Building for Managers 1**  
Participants will learn the basics of team management, how to motivate team members, how to improve the communication process and understand the principles of leadership. (1/0)
- AD150U How to Deliver Winning Presentations 1**  
How to organize and present public speaking topics. Participants will learn to use visual aids, outlines and agendas to complement their presentations. (1/0)
- AD151U Developing Leadership Skills 1**  
Designed to give valuable suggestions on communicating effectively using coaching, counseling, delegating and performance reviews to develop subordinates. (1/0)
- AD152U Customer Services Strategies 1**  
Designed to help students target their customers and develop appropriate services. Discusses the use of effective customer services as a competition tool. (1/0)
- AD153U Introduction to Voice Telecommunications 3**  
Serves to introduce students to phone system management techniques. The course includes an overview of call management, cost management, and equipment management, and looks at the past, present and future of the telecommunications industry. (3/0)
- AD156U Interior Design Internship Seminar 1**  
Provides a concurrent seminar for students enrolled in AD802T, Interior Design Internship. The seminar includes goal setting and learning objectives for the internship period. There is also discussion and evaluation of the internship experience. (1/0)
- AD157U Training the Trainer 1**  
Introduces students to effective training techniques and strategies. Role-playing and case studies will be integral parts of the course. (1/0)
- AD158U Contemporary Legal Issues in Business 1**  
Provides students with information on issues affecting staffing, marketing, benefits, training, out-placement, etc., using a seminar format. (1/0)

**AD159U Managing Diversity** 1  
Incorporates current management information regarding how to manage employees of different cultural, ethnic and age groups. This course will address affirmative action policies and recruiting policies, as well as develop communication and interpersonal skills. (1/0)

**AD160U Employment Practices** 1  
Develops an understanding of governmental laws and regulations, and human resource policies and practices that should be considered in establishing a sound system for the recruitment, selection, training and promotion of employees within any organization. The legal and regulatory factors that affect employee recruitment and selection practices will be emphasized. Nondiscrimination and equal employment opportunity compliance issues will be analyzed. (1/0)

**AD161U Performance Management, Planning and Review** 1  
Introduces students to the tools and procedures for linking individual employee job responsibilities and functions with measurable performance goals and expectations. Methods for establishing measurable, written performance goals that are mutually understood by both the employee and supervisor will be explored along with methods for measuring performance results. (1/0)

**AD162U Business Plan Development** 1  
Business plans, including marketing plans and financial statements, are developed and presented following specified guidelines. (1/0)

**AD163U Business Leadership Development** 1  
Provides hands-on approach to solving business problems and teaching business ideas and concepts to the community at large. Students will learn to develop marketing plan and other projects to help people achieve their dream through free enterprise education. (1/0)

**AD164U START (Supervisor Training and Retention Tools)** 1  
Develops your communication skills and applying to the basic concepts of supervision. Introduces practical supervision and human relations skills to develop a more productive working relationship with co-workers and employees. Students will participate in self-assessment instruments to enhance personal perspective and supervisory methods. (1/0)

**AD801T Business Internship** 0.5-4  
Provides an opportunity to receive experience through on-the-job training in an approved business establishment. Valuable learning experiences are structured by the program coordinator and the training sponsor. (0/0/2-16)

**AD802T Interior Design Internship** 0.5-4  
Provides an opportunity to receive interior design work experience through on-the-job training in an approved work setting. This internship will be approved by the Interior Design coordinator and will be evaluated with a letter grade. (0/0/2-16)

**AD900T Honors Project: Business** 1  
Allows a qualified honor student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. Requires approval of supervising professor and Dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

**AD999T Independent Study in Business** 1-4  
Taken concurrently with a standard course in the student's area of specialty. Special projects and/or individual readings are assigned by the program coordinator or an individual staff member. Projects must be approved before the beginning of the semester in which the work is to be done. Prereq: Consent of instructor/department head. (1-4/0)

## AE: Agriculture

**AE101T Feeds and Feeding** 3  
Designed for students not majoring in animal or dairy science. Nutritional principles; digestive systems; composition and nutritional characteristics of common feedstuffs; ration formulation; and recommended feeding programs for farm animals. (3/0)

**AE101U Introduction to Agribusiness** 3  
Focuses on entrepreneurship in agribusiness. Includes the study of marketing, budgeting, financial statements, purchasing, business structure, customer relations and inventory control. (3/0)

**AE102T Agricultural Accounting** 3  
Provides knowledge of methods of keeping farm records and accounts for farm and tax management uses. Students will complete a record keeping project and prepare a cash flow budget, income statement and balance sheet. Uses double-entry procedures along with a farm accounting computer program. (2/2)

**AE102U Principles of Agribusiness** 3  
Emphasis on markets, marketing institutions, marketing functions and problems in moving goods or services from the agricultural producer to the consumer. (3/0)

**AE103T Elements of Farm Management** 3  
Applies farm accounting, economic principles and budgeting to the organization and management of a farm business. Includes risk and uncertainty, precautions and adjustments, size of business, capital acquisition and control, as well as crop, livestock, machinery and labor management considerations. (2/2)

**AE103U Agricultural Economics** 3  
Principles of production, supply and demand applied to economic problems of agriculture and agricultural-related industries, and to decisions in farm management, marketing, foreign trade and agricultural policy. Reviews the principles of diminishing returns, marginal costs, opportunity cost, substitution, and the concept of risk and uncertainty. (3/0)

**AE104T Principles of Crop Production** 3  
Presents instruction in crop plant classification, use and identification. Also covers cropping systems, tillage methods, planting and harvesting methods, and crop growth patterns. A balance of theoretical and practical crop science. (3/0)

**AE105T Fundamentals of Soil Science** 3  
Studies physical and chemical properties of soil, soil formation and classification. Also studies the essential plant nutrients and their availability in soil. Balances theoretical and practical aspects of soil fertility and includes soil testing and fertilizer products. (2/2)

**AE105U Ag Mechanics: Agribusiness** 2  
Prepares agribusiness students to master mechanical skills for their employment internship in the agribusiness industry. Students will learn how to work on fertilizer, chemical and feed equipment. Students will be assisted in identifying and obtaining required licenses and permits for internship. (0/4)

**AE107T Survey of the Animal Industry** 3  
Breeds, basic management and marketing of farm animals. Composition, evaluation and marketing of animal products. Includes live animal demonstrations with cattle for meat and milk, horses, poultry, sheep and swine. (3/0)

## Course Descriptions

### **AE107U Agricultural Salesmanship 3**

Covers the fundamentals and techniques of successful selling, developing sales personality and the selling cycle. Practical application through sales presentation of the principles of selling using videotape as a self-evaluation device. (2/2)

### **AE108T Agricultural Finance 3**

Emphasizes general principles associated with the evaluation of management and the use of capital in agricultural business. Application of effective use of credit and credit instruments, and description and analysis of agricultural credit institutions and agencies will be taught. (2/2)

### **AE108U Agricultural Advertising/ Merchandising 3**

Covers planning, creation and use of advertising related to agricultural economy and marketing of agricultural products. Purposes of advertising and displaying of merchandise, methods of appeal, copy problems, layout, design problems and selection of media. Practical applications will be demonstrated. (2/2)

### **AE109U Computer Applications Ag 3**

Studies the use of personal microcomputers for processing agribusiness firm records, farm records, financial records, crop production records and animal production records. Utilizes microcomputer programs in specialized microcomputer systems. (2/2)

### **AE110T Agricultural Commodities Marketing 3**

Studies the concepts, institutions, procedures, methods and problems in moving goods or services from the producer to the consumer. Cash marketing, forward contracting, futures marketing and options marketing will be taught. (2/2)

### **AE111U Agricultural Fertilizers and Chemicals 3**

Reviews fertility concepts and relates them to fertilizers and fertilizer application methods. Includes soil sampling methods, analyzing a soil test report, choosing application methods and calculating fertilizer costs. Studies herbicides and insecticides used on Midwestern farms. Topics include chemical safety, selection and application methods. (2/2)

### **AE116U Farm and Family Financial Management 2**

Designed to instruct producers in financial and production management. Deals with goal setting, balance sheets, cash flow, enterprise analysis and risk level. (2/0)

### **AE117U Applications of Global Positioning Systems 3**

Studies fundamental processes of Global Positioning Systems with emphasis on agriculture applications. General technical aspects of GPS satellites, differential correction and hardware will be covered. Agricultural mapping, navigation, VRT and yield monitoring will be discussed. (3/0)

### **AE118U Introduction to Precision Farming 3**

Provides a background in the tools of precision farming, GPS, GIS and VRT. Introductory use of each of these tools in a precision farming system and how they are applied on the farm are covered. Hands-on activities with local data will provide a practical experience in the use of these tools. (2/2)

### **AE119U Introduction to ArcView 3**

Provides an overview of the various applications of geographic information systems (GIS). ArcView software is used to cover basic interface, views, themes, tables and layouts. Basic functions such as query and editing layers will be previewed. Hands-on computer exercises will provide a practical experience in the use in several disciplines including agriculture, city/government planning or transportation. (2/2)

### **AE120U Geospatial Data Collection 3**

Provides detailed instruction and hands-on use of GPS receivers and dataloggers to collect field data. The process for creating spatial data structure, maintenance of equipment and use of datalogging software will be the main focus. Data management and evaluation will be covered. (2/2)

### **AE121U Physical Geography 3**

Studies how and why physical earth attributes vary spatially. Will emphasize describing the spatial distribution of the earth's natural geological and soil features, and climatic and weather patterns. Datums, projections and coordinate systems will be discussed. Geographic Information Systems will be used to provide students with hands-on experience in mapping. (2/2)

### **AE122U Agricultural Spatial Analysis 4**

Provides a background in the analysis of spatial data. Specific topics include transformation and retrieval of data, analytical techniques and spatial modeling. Concepts of multivariate and multitemporal analysis will also be discussed. Prereq: AE119U. (3/2)

### **AE123U Agricultural Applications of Digital Imagery 3**

Provides background in the use of remotely sensed digital imagery for agricultural decision making. Specific topics include types of images, methods of collecting imagery, verification, interpretation and analysis of data. Use of data for decision making will also be discussed. (2/2)

### **AE124U ArcInfo in Agriculture 4**

Covers the basic use of ArcInfo and its specific application to agriculture. ArcMap, ArcCatalog and ArcToolbox will be used to accomplish specific agricultural tasks. Though focused toward agriculture, other disciplines will also be discussed and concepts can be applied. (2/4)

### **AE125U Visual Basic Programming 3**

Provides an introduction to programming using Visual Basic. Scripts and requests used by many software programs can be edited using Visual Basic. Fundamentals of programming and common specific commands will be covered. (2/2)

### **AE126U Advanced Database 3**

Details analysis and management techniques, as well as import and export functions. Oracle will be introduced. Databases have become important tools in business and industry with the use of MIS and GIS. These programs use advanced databases, which can be very powerful tools. (2/2)

### **AE127U Integrated Pest Management 3**

Focuses on identification of pest problems in crops and on developing an integrated pest management program. Students will learn to utilize economic thresholds in recommending control methods. They will also learn to prevent potential fertility, pest and environmental problems with crop production practices. (2/2)

### **AE201U Animal Behavior/ Kennel Management 5**

Studies basic animal behavior and the influences that modify behavior, and kennel management including laws, records and daily operation of kennels. Practical experience is included. (3/4)

### **AE202U Animal Anatomy and Physiology 13**

Beginning anatomy and physiology with veterinary clinical emphasis. Provides the basis for study of conformation, production and pathological processes of diseases of dogs, cats, horses, sheep, goats, cattle, swine and laboratory animals. (2/2)

- AE203U Animal Anatomy and Physiology II** 4  
Studies anatomy and physiologic principles of domestic animals. Continuation of physiological principles in Animal Anatomy and Physiology I course. Prereq: AE202U (4/0)
- AE204U Veterinarian Pharmacology** 3  
Studies medications and products commonly used in veterinary medicine. Prereq: AE203U (3/0)
- AE205U Introduction to Technical Chemistry** 4  
Provides a background in general chemistry that will enable the student to succeed in clinical chemistry. The hands-on laboratory exercises will allow students to learn physical chemical properties and work more efficiently in the laboratory experience in industry. (3/2)
- AE206U Ag Career Orientation** 1  
Provides students with an overview of their chosen career field. Students identify areas of interest within the industry and make an educational plan to attain their career goals. Includes activities to assist students in adjusting to college life and exploring Kirkwood opportunities. (1/0)
- AE208U Fundamentals of Small Animal Nutrition** 3  
Covers essential nutrients and the roles of each in an animal's metabolism, with emphasis on nutritional management of dogs and cats. Basic clinical and therapeutic nutrition are covered in depth. Includes analysis of many commercial pet foods. (3/0)
- AE209U Animal Nursing I** 3  
Introduces the fundamentals of animal nursing. Includes animal handling and restraint, patient history and admissions, preparation and administration of vaccines, and medication care of hospitalized animals. Surgical nursing, introduction to radiology, practice management and sanitation. Limited to Veterinary Technician students. Prereq: AE201U and AE202U. (1/4)
- AE210U Animal Nursing II** 3  
Continuation of Animal Nursing I with emphasis on radiology and anesthesiology. Limited to Veterinary Technician students. Prereq: AE209U. (0/6)
- AE211U Animal Nursing III** 3  
Continuation of Animal Nursing I and II. Topics stressed include electrocardiography, fluid therapy, first aid and emergency care, splinting and casting, and ethics. Limited to Veterinary Technician students. Prereq: AE210U. (0/6)
- AE212U Veterinary Clinic Pathology I** 3  
Introduces basic laboratory procedures including specimen collection and preservation, hematology, urinalysis and fecal exam preparation. Hematology will include preparation and performance of PCV, Hgb, WBC and RBC counts, preparation and staining blood smears, and performance of differential white blood cell count. Urinalysis will include physical and chemical tests and an introduction to microscopic evaluation of urine. (2/2)
- AE213U Veterinary Clinic Pathology II** 3  
Continues Veterinary Clinic Pathology I with emphasis on coagulation studies and clinical chemistry. Selected serological tests will also be covered. Prereq: AE212U. (2/2)
- AE214U Veterinary Clinic Pathology III** 3  
Clinical microbiology and mycology, necropsy techniques and continued practice of hematology, urinalysis clinical chemistries and fecal exams. Limited to Veterinary Technician students. Prereq: AE213U. (1/4)
- AE215U Large Animal and Poultry Medicine** 4  
Common and significant disease and health problems of livestock and poultry. Emphasis on herd/flock health, etiology, clinical symptoms, treatment and prevention. Prereq: AE204U. (3/2)
- AE216U Small Animal and Cage Bird Medicine** 4  
Common and significant diseases of companion and laboratory animals. Diseases affecting birds and small animals with emphasis on etiology, clinical symptoms, treatment and prevention. Prereq: AE204U. (3/2)
- AE218U Lab Animal Medicine** 1  
Introduces students to laboratory animals used in research. Practical care with selected animals. Prereq: AE210U and AE213U. (0/2)
- AE221U Animal Husbandry - Vet Tech** 3  
Provides general livestock husbandry, handling and restraint involving horses, cattle, sheep and swine. Includes major breed identification, characteristics, behavior traits, latest humane handling techniques and physical restraint. (1/4)
- AE222U Pharmaceutical Calculations for Veterinary Technicians** 3  
Covers pharmaceutical mathematics with an emphasis on dosage calculations and fluid therapy as related to veterinary medicine. Course is open to Vet Tech students only. (3/0)
- AE302U Veterinary Law and Ethics** 3  
Discusses moral, ethical and legal principles applicable to veterinarians and their employees, breeders, kennel operators, pet groomers and others allied to the small animal industry. Considers state, local and federal regulations relating to the industry. Effective client relations and telephone courtesy skills are also stressed. (3/0)
- AE303U Agribusiness Procedures** 3  
Reviews terminology used in agribusiness, the handling of money from sales, inventory control, customer credit control, business money management and basic double-entry bookkeeping. (2/2)
- AE305U Pharmacy Skills** 3  
An introductory course in small animal health products. Special emphasis on safe handling, storage, dispensing and use of common veterinary drugs and products. (Will not meet Veterinary Technician Pharmacology requirement.) (2/2)
- AE306U Veterinary Reception Skills** 3  
Gives the student the skills necessary to function as a receptionist in a veterinary hospital. Focuses on telephone techniques, medical records, legal aspects of veterinary medical records, vaccination protocols, client communication, dealing with death and euthanasia, the admittance and discharge of patients, financial aspects of veterinary practice and basic practice management principles. (3/0)
- AE307U Veterinary Assisting** 3  
Allows students to develop basic clinical skills expected of a veterinary assistant. Topics include basic restraint techniques, bandaging, basic laboratory procedures, basic radiology including safety and animal anatomy as related to patient positioning recognition, aseptic technique, surgical preparation of patients, anesthetic monitoring, post surgical recovery, and client communication. (1/4)
- AE308U Veterinary Computer Applications 2**  
Introduces the student to computer software commonly used in veterinary practice. Students will become proficient in the use of Microsoft Office software and software used in the routine management of veterinary records. (1/2)
- AE309U Veterinary Medical Terminology 1**  
Focuses on reading and interpreting medical charts and records, and conversing with veterinary professionals. Designed for students to develop a working understanding of the language of veterinary medicine. (1/0)

## Course Descriptions

- AE310U Canine and Feline Nutrition 3**  
Studies the nutritional requirements of dogs and cats with an emphasis on client education and customer service. Students analyze pet foods, identify strengths and weaknesses of commercial diets and gain the basics of therapeutic nutrition. (3/0)
- AE311U Pet Grooming I 1.5**  
Emphasis on health care and basics of cats and dogs, introduction to grooming equipment and handling. (.5/2)
- AE312U Pet Grooming II 1.5**  
Covers knowing terriers, terrier patterns and terminology. Perfecting basics and feline grooming. Building confidence. Prereq: AE311U.(.5/2)
- AE313U Pet Grooming III 1.5**  
Introduces the student to poodle patterns, mixed breeds. Perfect the use of clippers, teach scissoring and finishing the groom. Prereq: AE312U.(.5/2)
- AE314U Pet Grooming IV 1.5**  
Develops basic skills for entry level employment. All breed grooming. Covers various business aspects of the grooming industry. Reviews Level I through III and finishing techniques. Prereq: AE313U (.5/2)
- AE402U Livestock Physiology 4**  
Studies the comparative anatomy and physiology of the major body systems of cattle, sheep, swine and horses. Includes laboratory exercises involving physiology and anatomy of animals in healthy and diseased states. (3/2)
- AE407T Swine Reproduction and Management 5**  
Recognizes swine reproductive characteristics and reproductive functions of swine breeding stock, and identifies type and confirmation necessary for economic production. Also deals with breeds, breeding programs, breeding systems including A.I., and appropriate management techniques. (3/4)
- AE408U Beef Industry and Feedlot Management 5**  
Presents an overview and introduction to the entire beef industry. Relates and applies methods of starting cattle on feed and fall management of weaned calves. Deals with feedlot budgeting, determination of 205-day weights, ratios and fall management of the beef cow herd. (3/4)
- AE409U Sheep Production 2.5**  
Teaches students the fundamentals of sheep production. Explores acquisition of flock, building facilities, genetics, reproduction, health, nutrition and basic management. Kirkwood sheep flock and farm laboratory will provide students with hands-on experience. (1.5/2)
- AE410U Sheep Breeding and Reproduction 2.5**  
Discusses reproductive systems and factors affecting reproduction in sheep. Includes topics on reproduction with hormones, out-of-season and accelerated lambing, estrus synchronization, fertility and pregnancy testing, and artificial insemination. (1.5/2)
- AE411U Beef/Cow Calf Production 3**  
Includes participation in calving of the Kirkwood Community College herd. Deals with proper nutrition, health, solving O.B. problems and preparation of cow's return to estrus. Also includes records, identification and pasture management. (1.5/3)
- AE412T Livestock Management/Swine 3**  
Presents current practices and strategies needed to profitably produce food animals. Lab exercises provide hands-on exposure to management of animals in all stages of production. (1.5/3)
- AE413U Sheep Feeding and Nutrition 3**  
Includes sheep nutritional requirements and ration formulation. Details different feeding systems including forages, pasture rotation and alternative grazing crops. Identifies feed rations to meet the needs of specific stages of growth and production. (1.5/3)
- AE414T Swine Enterprise Management 3**  
Identifies records needed in swine production and record keeping techniques. Students will prepare budgets and cash flows as they relate to swine production. Also various marketing opportunities and practices will be examined and analyzed. (1.5/3)
- AE415U Beef Breeding/Reproduction/Nutrition 5**  
Studies the anatomy and physiology of the female and male reproductive systems. Develops an understanding of proper use of heat synchronization, A.I., super ovulation, embryo transplants and new developments in biotechnology. Also deals with health, heritability and nutritional problems. (3/4)
- AE418T Livestock Behavior and Welfare-Swine 3**  
Studies applications of basic animal behavior principles to insure optimum performance and well-being. The course examines the effects of environment, stress, disease and nutrition on animal physiology and performance. Prereq: AE107T, AE402U. (3/0)
- AE419U Beef Science Management 1-3**  
Works with evaluation management by identifying, measuring and selecting commercially important traits of beef cattle. Provides the basic information needed to understand terminology and predict performance through the use of sire summaries. Allows students to improve average performance of offspring by matching genetic potential to feed resources through multiple trait selection. (1-2/0-3)
- AE420U Ewe and Lamb Management 3**  
Provides concentrated instruction on the care of the ewe flock from breeding to weaning. Course is designed to provide students with experience in gestation management with application of approved practices from lambing to weaning. (1.5/3)
- AE421U Beef and Dairy Artificial Insemination 1**  
Develops skills of artificial insemination, heat detection and supportive background knowledge of beef and dairy herds, and discusses recommended nutrition, management and genetics. (.5/1)
- AE422U Livestock Evaluation and Selection 3**  
Examines the selection of breeding and meat animals based upon performance and/or visual appraisal. Students will use Kirkwood farm laboratory livestock and may include off-campus assignments. (2/2)
- AE423U Advanced Livestock Judging/Selection 2**  
Develops student's potential in evaluation of beef, swine and sheep through oral reasons. Farm laboratory animals, livestock operations and various field trips to livestock judging events will provide experience for students. The course may be repeated for credit with instructor's consent. (0/4)
- AE425U Row Crop Production 3**  
Studies and compares different types of tillage methods, seed varieties, fertilizer programs, diseases and chemical application, as well as weed control and new harvest methods used in modern row crop production. (2/2)

**AE428T Livestock Housing and Equipment** 2

Studies the design and management of livestock facilities to limit stress and optimize performance. Student will learn methods to minimize the environmental impact of livestock operations. Prereq: AE402U, AE701U (0/4)

**AE501U Genetics and Horse Breeding** 3

Covers the physiology of breeding, brood mare selection and care, and stallion management. Also breeding techniques, including artificial insemination. The course deals with hereditary facets with emphasis on economic production. (2/2)

**AE502U Horse Nutrition** 3

Discusses essential nutrients and their role in an animal's metabolism. Covers unique digestive physiology and anatomy, nutrient excess and deficiency symptoms, and includes lab exercises. (3/0)

**AE503U Training I** 1

Provides basic instruction in principles and techniques of initial training. Emphasis is on theory and practice of training principles, practice of riding and training of the young horse. Prereq: AE511U or AE513U or AE514U or instructor permission. (.5/1)

**AE504U Legs, Hoof and Farrier Science** 2

Provides instruction on the care and condition of horses' legs and feet, and covers basic concepts of correct preparation and shoeing of a horse, foot unsoundness, leg problems, and methods of correction by proper trimming and/or shoeing. Includes the examination of stance, gaits, unsoundness, breed requirements, methods of restraint, and types of corrective shoes and how they function. (1/2)

**AE505U Horse Judging** 2

Provides instruction in judging at intercollegiate horse judging contests. Students can apply knowledge and develop their potential in judging horses by competing in available intercollegiate horse judging contests. Students are required to give oral reasons to justify their live placing decisions. (1/2)

**AE506U Training II** 3

Provides instruction in the principles, theory and practical experience of basic training techniques. Covers handling, breaking, haltering, leading, lunging, and early training and horsemanship skills. Equine psychology is stressed. Proper methodology for various types of bits and equipment is also presented. Prereq: AE503U and/or instructor approval. (1/4)

**AE507U Training III** 2

Provides instruction in management of specialized training of various types of horses. Emphasis is on the theory and practice of training principles, horsemanship skills and methods, and how they are executed. Prereq: AE503U and AE506U and/or instructor approval. (1/2)

**AE508U Horse Breeds Selection** 2

Recognizes the major and minor horse breeds and their uses. Students identify the different breeds as to their breed characteristics, origin, capabilities, type, conformation and history of the breed from the beginning to the present. (1/2)

**AE509U Horse Production Proficiency** 3

Applies actual feeding and care of the college's horses under a practical management situation. Certain competency tests must be performed related to an efficient stable master schedule and the implementation of a schedule and the tasks related to such. (2/2)

**AE510U Health and Performance Management of the Horse** 3

Discusses and identifies the conformation of the horse, the respiratory, digestive, nervous and circulatory systems, plus skeletal and muscle structure. Relates causes and prevention of economically important horse diseases. Current state and federal regulations are also described. This course is generally taught by a veterinarian. (3/0)

**AE511U Beginning Western Balanced Seat** 2

Provides applied instruction in developing the western rider and horse. Balanced-seat approach stressed; covers horse handling, grooming, haltering, leading, saddling, bridling and fundamentals of walk, jog and beginning lope. (1/2)

**AE512U Long Lining and Driving Techniques** 3

Improves on the basic techniques of long reining and driving a horse. Includes familiarization with the harness, use of the reins, long reining, preliminaries to hooking up the horse and driving. (2/2)

**AE513U Advanced Western Horsemanship** 2

Instruction in developing western rider and horse. Balanced seat approach is stressed with rider's role in controlling action and movement in stock horse application. Prereq: AE511U and instructor approval. (0-1/2-4)

**AE514U Introduction to Horsemanship-Balanced Seat** 3

Introduction to the principles of horsemanship stressing horse care before and after riding, the initial seat position, elements of the seat, posting trot, coordination of the aids, turns and leads of the canter, as well as anatomical, physiological and psychological implications involved in riding. (1/4)

**AE515U Agricultural Mechanics - Horse Science** 3

Designed to familiarize students with horse farm lab equipment. Requires the student to demonstrate a working proficiency with tractor and spreader, skid steer loader, horse truck and trailer, and other equipment. (1/4)

**AE516U Facilities Maintenance** 2

Establish basic understanding and manipulative skills related to facility maintenance. Deals with the fundamentals of farm carpentry, fences, concrete, buildings, stalls, plumbing, electricity and general upkeep. Competency base is stressed. (1/2)

**AE518U Horse Shows** 4

Identifies and applies necessary requirements to prepare and show a horse, and includes instruction and participation in setting up and conducting a horse show. Students may actually show in available horse shows. (1/6)

**AE520U Management of the Racing Thoroughbred** 1-3

Identifies the techniques of managing the thoroughbred racehorse. Describes the basic care of the thoroughbred including feeding, veterinary, farrier and conditioning practices. Identifies special techniques, which include taking temperature, pulse, respiration, X-rays, blood counts and pre-race preparation. Interpretation and analysis of thoroughbred pedigrees and racetrack operations are taught. Some course time may be spent at a racetrack. (.5-2/1-2)

**AE523U Trimming the Horse's Hoof** 1

Provides instruction in basic concepts of correct hoof trimming and preparation. The current status of trimming (before and after) is applied, as well as foot and leg problems and methods of correction. Applied lab technique is stressed. (.5/1)

**AE524U Trail Riding** 1

Introduces factors that affect a horse on the trail such as laws, ride preparation, equipment, trail etiquette, application of reins, seat and anticipation. Prereq: AE511U and instructor approval. (.5/1)

## Course Descriptions

- AE525U Horse Business Practices 3**  
Applies the necessary steps in becoming a horse business owner from investing, licenses and tax benefits. Other areas covered include marketing; insurance; buying and selling; employees and independent contractors; pedigree or performance records; and IRS information. (3/0)
- AE526U Horsemanship-Balanced Seat 1**  
Further development of the balanced seat, good hands and correct form at the natural gaits of the horse. Includes application of the principles of basic ground work. (.5/1)
- AE527U Advanced Horsemanship Techniques 2**  
Provides basic fundamental points of riding by the execution of a horse of complex maneuvers in response to barely perceptible movements of a rider's hands, legs and weight. Prereq: Previous riding class or permission of instructor. (1/2)
- AE528U Fundamentals of Training 1**  
Deals in basic training fundamentals on an individual basis. This is an open lab type of course. (.5/1)
- AE529U Colt Starting 2-3**  
Designed to teach students the fundamental principles of training the young horse through practical application. Prereq: AE503U or AE506U or AE507U or instructor permission. (1/2-4)
- AE601U Turfgrass Management 3**  
Examines the culture of turf with emphasis placed on establishments, turf varieties, and pest identification and control. (2/2)
- AE602U Plant Materials I 3**  
Develops skills in the identification, landscape use and cultural requirements of 80 varieties of deciduous trees and shrubs native to Iowa, as well as conifers used in windbreak and wildlife plantings. (2/2)
- AE603U Horticulture Equipment Operation 3**  
Introduces the student to basic equipment maintenance, operation and troubleshooting. Provides a working knowledge of equipment used in the horticulture industry. (1.5/3)
- AE604U Plant Material Maintenance 3**  
Studies pruning, fertilizing, staking and other maintenance practices utilized in tree and shrub care. Emphasis is placed on proper planting and transplanting procedures. (1.5/3)
- AE605U Plant Materials II 3**  
Studies the identification, landscape use and cultural requirements of 80 ornamental trees, shrubs and vines. Prereq: AE602U. (2/2)
- AE606U Pest Management 4**  
Identifies common insect and diseases of horticulture crops and plant material. Control measures are discussed including chemical controls and integrated pest management. (4/0)
- AE607U Horticulture Construction I 3**  
Involves the construction of landscape paving, concrete, retaining walls, basic wood construction, basic electrical and plumbing. Also covered are calculations necessary to order materials and bid procedures. (1.5/3)
- AE609U Drawing/Design I 3**  
Provides information and practice in basic graphic communication and introductory landscape design. Topics covered include use of scales, basic drafting, landscape symbols, design process, master planning, design with plant material and cost estimating. (1.5/3)
- AE610U Drawing/Design II 3**  
Expands graphic communication and landscape design skills. Topics include freehand plan graphics, quick sketching, perspective and color drawing, landscape master planning, advanced plant design, amenity design, commercial layout. Prereq: AE609U and second-year student. (1.5/3)
- AE611U Soil and Water Conservation 3**  
Studies the different components of soil, soil forming factors, soil erosion and soil conservation. Introduces the student to surveying techniques and use of soil survey reports. (2/2)
- AE612U Plant Propagation 3**  
Introduces students to techniques used in reproducing plants through sexual and asexual methods. Seedlings, vegetative cuttings, grafts and buddings are practiced in the laboratory. (1.5/3)
- AE613U Horticulture Math 2**  
Reviews basic math calculations including math operations, fractions, decimal, introductory algebra and geometry. Relates math problems to horticulture applications. (2/0)
- AE614U Horticulture Merchandising 2**  
Introduces the student to basic sales procedures and stresses product knowledge of horticulture products and services. Students concentrate on relating product information to customers. Prereq: Second-year student. (2/0)
- AE615U Herbaceous Plant Material 3**  
Studies the identification and cultural requirements of 25 annuals, 30 perennials and 20 bulbous plants. Includes production and marketing practices and principles of design. (2/2)
- AE616U Landscape Business Operations 2**  
Introduces marketing, merchandising, advertising and business analysis as it relates to landscape business. Specialty management techniques and systematic business approaches are explored. Prereq: Second-year student. (2/0)
- AE617U Plants of the Wilds 3**  
Identifies plant materials existing in natural woodlands, roadsides and prairies. Special emphasis is placed on prairie forbs. (2/2)
- AE618U Mammalian Wildlife 3**  
Provides training in identification and management of upper Midwest mammals. Environmental requirements and relationships are stressed. (3/0)
- AE620U Park Maintenance Programs 3**  
Includes development and analysis of maintenance programs for buildings, campgrounds, lake areas and related recreational facilities. (3/0)
- AE621U Avian Wildlife 3**  
Includes training in identification and management of nesting and game birds of the upper Midwest. Environmental requirements and relationships are included. (3/0)
- AE622U Aquatic Wildlife 3**  
Studies the identification of fish, amphibians and reptiles native to Iowa. Emphasis is placed on habitat requirements and management concerns. (3/0)
- AE623U Park and Recreation Administration 3**  
Examines the organization and administration of park systems and recreational programs. Current issues in park management are covered. Prereq: Second-year student. (3/0)



- AE624U Greenhouse Management 3**  
Studies growing techniques used in commercial greenhouse plant production. Involves the design of greenhouses, their environmental control systems and cultural practices. Prereq: Second-year student. (2/2)
- AE625U Commercial Plant Production 3**  
Covers production of greenhouse plants, nursery plants and nursery operations. Involves design, management, and harvesting for field and container growing operations. Also surveys related growing operations. Prereq: Second-year student. (3/0)
- AE626U Interior Plantscape 3**  
This course surveys the 60 to 70 tropical green plants used in the interior plant industry. Interior design, installation and maintenance are also taught. (2/2)
- AE627U Horticulture Construction II 3**  
Involves the construction of specialty landscape paving, walls, structures, fence installation and construction of landscape amenities. Details of landscape construction process are examined. Prereq: AE607U. (1.5/3)
- AE628U Grounds Management Problems 3**  
Covers topics dealing with plant, site and management of personnel, staff training, scheduling, contracts, budgeting, finance and legal issues facing horticulture businesses. Upon completion the student will identify and address various grounds management problems. (3/0)
- AE629U Grounds Maintenance 3**  
Introduces maintenance practices used in sports complexes, parks and recreation areas, and commercial and industrial grounds. Pesticide certification requirements are also covered. (2/2)
- AE630U Fruit and Vegetable Production 3**  
Introduces the student to the production of Midwestern fruit and vegetables with emphasis on cultural practices, variety selections and storage. (3/0)
- AE631U Horticulture Pesticide Application 1**  
Reviews materials and testing procedures used to certify pesticide applicators. Concentration is provided on core testing. (1/0)
- AE633U Golf Course Maintenance 3**  
Involves the theory of design, installation and maintenance of specialized turf and other areas commonly found on golf courses. Student is provided with experience maintaining an on-campus golf green, fairway and tee. Course includes field trips to local golf courses. (2/2)
- AE634U Advanced Turfgrass Management 3**  
Presents management techniques used in high-maintenance turf areas. Students receive advanced instruction in fertilization, pesticides, etc. Prereq: AE601U. (3/0)
- AE635U Natural Resources Interpretation 3**  
This course develops skills in all facets of interpretation. Nature walks, public presentations, displays, news releases and photography are incorporated into interpretive exercises. Prereq: AE637U. (3/0)
- AE636U Wildlife Management 3**  
Concentrates on proper wildlife management through carefully planned and maintained reserves, preserves and refuges. Management techniques presented include those for game, non-game and aquatic animals. (2/2)
- AE637U Natural Resources Appreciation 3**  
Surveys the nonliving natural resources of Iowa. Examines how park and recreation agencies integrate these resources into their overall programs. (3/0)
- AE638U Plant Materials III 2**  
Develops skills in identification and landscape use of 60 varieties of plants used in landscaping. Included are cultivars of commonly used plants and some that are marginally hardy. (2/0)
- AE640U Athletic Field Maintenance 3**  
Involves the design, preparation, and maintenance of athletic fields for various sports. Includes the study of various playing surfaces, drainage systems and specialized equipment used on athletic fields. Course includes field trips to local athletic complexes. Prereq: AE601U. (2/2)
- AE641U Irrigation Design 2**  
Covers water basics, pressure considerations, design and layout of irrigation systems for home and commercial use. Prereq: AE645U. (1/2)
- AE643U Introduction to Horticulture 3**  
Introduces students to basic horticulture. Includes plant anatomy and physiology, plant classification and identification, and basic plant care. (2/2)
- AE645U Irrigation Installation and Repair 2**  
Develops skills in the areas of irrigation system installation and repair. Topics covered include trenching and installation of irrigation pipe, heads, valves, and controls, system troubleshooting, and minor system repair. Prereq: Second-year student. (1/2)
- AE646U Horticulture Botany 2**  
Examines basic plant material anatomy, physiology and taxonomy. Emphasis is placed on plant material used in landscape and turf fields. (2/0)
- AE649U Horticulture Computer Literacy 1**  
Introduces student to computer operation, terminology and word processing. Topics covered include operating systems (DOS and windows), use of Microsoft Word, hardware and software availability for horticulture fields. Self-directed lab accompanies lecture. (5/1)
- AE650U Grounds Computer Applications 2**  
Covers uses of computers in the grounds and golf course fields. Emphasis is on introductory irrigation design/management, business management and grounds course management software. Prereq: AE649U or DG101U and second-year student. (1/2)
- AE651U Computer Applications for the Landscape Industry 2**  
Introduces student to software used in the landscape, nursery, garden center fields. Students will learn new applications of Microsoft Office programs with an emphasis on marketing, inventory control, and customer relations. Some design software will also be used including both Two Dimensional (plan view) designing and photoimager. Prereq: AE609U and demonstrated computer competence (1/2)
- AE652U Park Computer Applications 2**  
Explores use of software typically used in parks and natural resource fields. Emphasis is on introductory desktop publishing, inventory control and business management software. Prereq: AE649U. (1/2)
- AE653U Warm Season/Transitional Grasses 1**  
Surveys warm season and transitional grasses, their culture, maintenance and establishment requirements. Prereq: AE601U. (1/0)
- AE660U Floral Design I 3**  
Introduces basic geometric design of fresh arrangements, corsages, Christmas arrangements, funeral flowers, potted plants and green planters. Includes use of tools and supplies. (1/4)
- AE661U Floral Design II 3**  
Studies advanced floral design of fresh flowers, funeral, memorial and wedding arrangements. Prereq: AE660U. (1/4)
- AE662U Floral Design III A 2**  
Involves advanced all-occasion and wedding designing including table setting and copy work. Prereq: AE661U. (0/4)

## Course Descriptions

### AE663U Floral Design III B 1

Promotes student's individual style through introduction of current design trends and floral industry influences. Prereq: AE662U. (0/2)

### AE664U Design Show Seminar 2

Introduces students to current technical information used for problem solving in the floral industry. Special emphasis is devoted to planning and conducting the annual floral design show. Prereq: AE662U. (2/0)

### AE665U Plant Identification and Care I 2

Introduces green, common, blooming plants and their care. Studies identification, care and handling requirements of cut flowers and foliages commonly sold in retail flower shops. (1/2)

### AE666U Plant Identification and Care II 4

Studies environmental factors needed to produce optimum growth requirements of green and bedding plants. Introduces plant disorders caused by environmental, soil, nutrient, disease and insect problems. Use of chemicals is presented as well as relevant safety factors involved. (2/4)

### AE667U Retail Flower Shop Operation I 3

Introduces the florist business, floral product sales, general selling and efficient shop layout. Studies the processing of floral orders, terminology and telephone procedures. (3/0)

### AE668U Retail Flower Shop Operation II 4

Studies the aspects of the floral business involving funeral and wedding arrangements. Sales and etiquette of these floral products is included. Prereq: AE667U. (4/0)

### AE669U Retail Flower Shop Operation III 2

Analyzes the floral business as a center of employment, personnel policies, shop management and operations. Prereq: AE667U and AE668U. (2/0)

### AE673U Floral Careers Computer Literacy 2

Introduces student to applications for computers in the floral industry and computer use for assignments in the Floral Careers program. Topics covered will include operating systems, MS Word, hardware and software, terminology, functions, applications, Windows, spreadsheets and Internet. Designed for the student with little or no computer experience. Self-paced. (1/2)

### AE701U Mathematics I - Agriculture 3

Provides the student with math skills relating to agricultural economics, agribusiness, animal science, agronomy and agricultural mechanics. Applies the basic math functions and basic algebra to practical agricultural situations. (3/0)

### AE702U Ag Leadership 1

Develops skills in using parliamentary procedure, business meeting agendas, techniques of delegation, applied communication skills, organization structure and job-seeking skills. Includes determining cooperative activities, organization funding, committee functions and leading discussion groups. (1/0)

### AE710U Field Crop Harvesting and Drying 3

Introduces the basics, theory and operation of combines and choppers with actual in-the-field adjustment and operation of machines. (1/4)

### AE728U Agricultural Construction and Repair 3

Deals with knowledge and skill development in general repair and construction with regard to a general stable, farm or livestock production system. Deals with practical aspects of concrete, carpentry, plumbing and electricity. When possible, real laboratory situations will be used to present this information. (1/4)

### AE730U Composting 101 1

Provides an understanding of the principles of composting and practical management of a compost pile. Addresses the microbial system functions that allow farm feedstocks to be used to obtain desired results. Involves hands-on experience in how to solve problems and maintain an environmentally and economically sound compost system. (1/0)

### AE801U Employment Internship 2-6

Provides on-the-job training in an approved business establishment. Valuable learning experiences are structured by the program coordinator and the training sponsor. Coordinator approval. (0/0/0/8-24)

### AE802U Employment Seminar - Ag 1

Assists the student in planning and knowing the rules in employment internship. Includes current topics on resume writing, interviewing techniques and other job-hunting skills. (1/0)

### AE951U Special Projects: Animal Health 1-3

Includes an agreed-to development plan for an applied problem solution. Student and instructor meet on a weekly basis to review progress. (1-3/0)

### AE952U Special Projects: Animal Science 2

Includes an agreed-to development plan for an applied problem solution. Allows student to pursue exploration and fact gathering of special interest projects. Students and instructor meet weekly for discussion, observation and evaluation of the project development. (2/0)

### AE953U Special Projects: Agronomy 2

Includes an agreed-to development plan for an applied problem solution. Students and instructor meet regularly for discussion, observation and evaluation of the project development. (2/0)

### AE954U Horse Projects 1-3

A preplanned schedule for discussion, observation and evaluation of the horse project is developed. Covers athletic performance of the horse, training and environmental effects, and use of records. Management of facilities and other horse projects are stressed. Includes an agreed-to development plan for an applied problem solution. Prereq: AE503U and instructor approval. (0-2/2-6)

### AE955U Special Projects: Horticulture 2

Involves individualized study programs or projects supervised by instructional staff. Students resolve special interests/needs through research, experimentation or other related methods. (0/4)

## AO: Accounting

### AO101T Principles of Accounting I 4

Introduces the basic concepts and procedures of accounting including the accounting cycle, merchandise accounting, internal control, corporation accounting and the collection of data for external reporting. (4/0)

### AO102T Principles of Accounting II 4

Surveys the basic concepts and procedures of accounting to include bonds, financial statement analysis, the funds statement, manufacturing accounting and other managerial accounting topics for decision making. Prereq: AO101T. (4/0)

### AO102U Accounting Concepts 3

Provides an understanding of basic accounting concepts and procedures. Includes the recording of transactions, preparation of financial statements, and payroll problems for professional and merchandising businesses. A computerized general ledger system is included. (3/0)

### AO103T Cost Accounting 4

Relates the principles and methods of analyzing accounting data for planning and control, product costing and decision making. Emphasis on job orders, process and standard cost accounting systems, budgeting and cost-volume-profit analysis. Prereq: AO102T. (4/0)

**AO104T Intermediate Accounting I** 4  
Includes a review of accounting procedures and the reporting process. Provides an in-depth analysis of the asset and liability sections of the balance sheet. Prereq: AO102T. (4/0)

**AO105T Intermediate Accounting II** 4  
Emphasizes corporate accounting, incomplete records, price level accounting, the funds statement, pension accounting, leases and financial statement analysis. Prereq: AO104T. (4/0)

**AO106T Analyzing Financial Statements** 3  
Provides basic techniques for analyzing the flow of a business' funds and methods for selecting and interpreting financial ratios. Prereq: AO101T. (3/0)

**AO107T Income Tax** 4  
Introduces the federal income tax law, its purpose and development and its significance for tax planning. Emphasis is placed on individual and business with an introduction to corporations. Prereq: AO101T or test. (4/0)

**AO109U Payroll Accounting** 2  
Introduces concepts and procedures used in determining payroll and payroll taxes. Laws and regulations affecting payroll are presented. Taxes and current rates are reviewed so the student will understand withholding from the employee and the employer's taxes. Manual practical problems are solved by the student. Prereq: Concurrent with AO101T, or instructor's approval. (2/0)

**AO111T Financial Accounting for Decision Makers** 4  
Views accounting information from the "users" perspective rather than the accountant's perspective. This course focuses on the impact that each event has upon the formal financial statements and gives students a thorough understanding of both the overall nature and of specific details found in the financial statements. This first in a two-course sequence was developed with the assistance of a grant from the Accounting Education Change Commission. (4/0)

**AO112T Managerial Accounting for Decision Makers** 4  
Examines management decision making with the use of accounting information. Designed to meet the needs of non-accountants, specifically those not at all involved in the processing of the raw data into useful information. This second in a two-course sequence was developed with the assistance of a grant from the Accounting Education Change Commission. Prereq: AO111T. (4/0)

**AO113T Accounting Spreadsheets** 4  
Addresses the use of spreadsheet software as a problem-solving tool for the accountant. This tool is used to develop models that can be used to analyze data, create what-if scenarios, and automate computations, sort and group data, and view data graphically. The topics include, but are not limited to, planning, building, testing and documenting worksheets. Special topics include, but are not limited to, functions, charts, solver, data management, multiple worksheets, data tables, integration with other applications and macros. Prereq: DG102T, AO101T. (4/0)

**AO114T Accounting Database** 2  
Introduces various issues related to managing accounting data. Recent technological developments have changed the medium used for data storage and the processes used to collect, store and retrieve data needed for financial reporting. The topics include, but are not limited to, defining the structure of a database, data entry, data retrieval, queries and report generation, and transporting data from databases to and from other software data files. Prereq: AO101T and DG102T. (2/0)

**AO115T Technical Environment in Accounting** 3  
Introduces various issues related to managing the accounting processes in small- and medium-sized firms. These topics are oriented to computer and other recent technological developments that have changed many of the accounting processes in companies. The topics include, but are not limited to, the following: LAN administration; EDI; purchasing and installing computer hardware and software; back-up of data and systems; using the Internet to provide and obtain information; e-mail; ethical considerations for personal use of computers and the Internet; development of an Intranet; security; and data integrity. Prereq: DG102T. (3/0)

**AO116T Integrated Accounting Systems** 4  
Addresses the use of a computerized integrated general ledger software package to efficiently capture and process the data about the financial transactions of an entity. A capstone course that brings together and develops further the various accounting concepts introduced in earlier course work and demonstrates how the various components of an accounting system work together. Prereq: AO109U, AO102T, AO114T, AO113T. (4/0)

## AP: Apparel Merchandising

**AP120T Apparel Textiles** 3  
Studies basic fiber properties yarn processing, fabric construction and fabric finishes. Fabric qualities are analyzed in relation to factors of design, strength, durability and serviceability. Directed laboratory activities provided. (3/0)

**AP124U Fashion Design** 3  
Provides information to implement methods for making fashion sketches to communicate various styles. Historical review and the study of contemporary designs and trends are also presented. Students will have opportunity to develop beginning sketches. (3/0)

**AP121U Fashion History** 3  
Covers the development of costume and accessories as a part of a socioeconomic and cultural force from ancient times to the present and its relationship to fashion design trends of today. (3/0)

**AP103U Visual Merchandising** 3  
Offers basic instruction in display construction, the relationship of display to the total promotional program, the role of the display manager, elements of display design, construction materials and merchandise selection. In addition, students will work with retailers in building actual displays. (2/2)

**AP104U Principles of Fashion Merchandising** 3  
Provides a historical and evolutionary introduction to the field of fashion merchandising: sociological, psychological and economic aspects of fashion; fashion terminology; fashion cycles; and current practices in fashion retailing. (3/0)

**AP105U Fashion Show Procedures** 3  
Includes the principles of fashion show production: planning, coordinating and directing the fashion show. Prereq: Permission of instructor. (1/4)

**AP121T Apparel Manufacturing 3**  
Studies the integrated apparel manufacturing processes. Emphasis is on garment analysis, product development, sourcing and production. (3/0)

## AR: Art

**AR100T Art Appreciation 3**  
Provides an overview of art from a historical, contemporary and aesthetic frame of reference. Recommended for non-Art majors. (3/0)

**AR102T Arts Attendance 1**  
Introduces students to a variety of arts experiences through attendance at art, music, and/or theatre events. Provides basic principles of arts etiquette and requires completion of attendance/feedback forms. (TBA/0)

**AR105T Art History: Ancient to 1400 3**  
Studies architecture, sculpture and painting from prehistoric through pre-Renaissance. (3/0)

**AR106T Art History: 1400 to Modern 3**  
Studies painting, sculpture and architecture from Renaissance through present. (3/0)

**AR110T Ceramics I 3**  
Introduces wheel-thrown forms and hand-building forms. Students examine methods of working with clay. (1/4)

**AR111T Ceramics II 3**  
Continues the development of wheel-throwing and hand-building skills. Assignments are geared for progressive development of the individual's ability. Prereq: AR110T. (1/4)

**AR120T Design I 3**  
Introduces problems in two-dimensional design, color theory and application. Includes surface, pattern, composition, line, stylization. (1/4)

**AR130T Drawing I 3**  
Introduces analysis of visual form and principles of responsive drawing. Includes perspective, chiaroscuro, figure drawing. (1/4)

**AR131T Drawing II 3**  
Continues skills begun in Drawing I. Emphasis on figure drawing from model, various media. Emphasizes development of personal expression, portfolio. Prereq: AR130T or permission of instructor. (1/4)

**AR140T Painting I 3**  
Introduces oil or acrylic painting. Emphasizes canvas preparation, composition and craftsmanship. (1/4)

**AR141T Painting II 3**  
Continues Painting I. Builds on skills learned in Painting I with emphasis on development of independent aesthetic judgments. Prereq: AR140T or permission of instructor. (1/4)

**AR142T Watercolor 3**  
Introduces and explores watercolor medium and related water-base media. (1/4)

**AR150T Printmaking I 3**  
Introduces intaglio, relief and stencil printmaking processes, composition. (1/4)

**AR151T Printmaking II 3**  
Continues technical development in relief and intaglio techniques; aesthetics stressed. Prereq: AR150T. (1/4)

**AR160T Sculpture I 3**  
Introduces the techniques and concepts of sculptural form, primarily in clay, but also includes materials such as plaster, wood and paper. (1/4)

**AR161T Sculpture II 3**  
Continues the exploration of techniques and concepts of sculptural form. Assignments are geared for progressive development in the individual's ability. Prereq: AR160T. (1/4)

**AR210T Ceramics III 3**  
Continues the development of wheel-throwing and hand-building skills gained in Ceramics II. Assignments are geared for progressive development of the individual's ability. May be repeated once for credit. Prereq: AR111T. (1/4)

**AR260T Sculpture III 3**  
Continues the exploration and development of techniques and concepts of sculptural form. Assignments are geared for progressive development of the individual's ability. May be repeated once for credit. Prereq: AR161T. (1/4)

**AR900T Honors Project: Art 1**  
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

**AR996T Independent Study: Art 1-3**  
Allows the student to do readings, papers, research and/or production work under the guidance of an art faculty member. Independent study contract required. Prereq: Permission of instructor. (0-2/6)

**AR997T Independent Study in Sculpture 1-3**  
Continues to develop sculpturing skill and techniques. Prereq: AR260T. (0/2-6)

**AR998T Independent Study: Ceramics 1-4**  
Teaches advanced methods and techniques of the process of working with clay. Prereq: AR210T. (0/2-8)

**AR999T Independent Study: Studio Art 1-4**  
Allows students to work under instructor's supervision to develop advanced skills in studio area. Prereq: Permission of instructor. (0/2-8)

## BI: Biology

**BI100T College Biology for Non-Majors 3**  
Intended as a beginning level course for liberal arts students who are not planning to major in the sciences. The course includes genetics, evolution, ecology, plant and animal reproduction, and biodiversity. Current topics in life science are covered throughout the course. Students are offered a variety of opportunities in laboratory through investigations, discussion, written expression and readings. (2/2)

**BI105U Basic Biological Concepts 3**  
Designed for the student with little or no background in biology or chemistry, or as a refresher for the student who has not taken either for many years. It will provide a basic foundation for further course work in the biological sciences. (3/0)

**BI110T College Biology I for Majors 4**  
Serves as an introductory course for biology, science and health science majors. Principles of cellular biology and elementary biochemistry and energy functions are covered; cell division, DNA/RNA and genetics will follow. Evolution theory will complete the work of the semester. Prereq: One year of high school biology and high school chemistry or departmental approval. (3/2)

**BI111T College Biology II for Majors 4**

Continues the study of College Biology I concentrating on organismal biology and ecology. The evolution and diversity of the Monera, Protista, Fungi, Plantae and Animalia are covered, followed by a comprehensive study of ecology. Additional topics include plant anatomy and physiology, and animal systems including, but not limited to, nervous, circulatory, reproductive and immune systems. Prereq: BI110T

**BI120T General Botany 4**

Surveys the plant kingdom from bacteria to seed-bearing plants, and studies general anatomy and physiological processes of plants. Initial studies are of plant cells followed by that of vegetative and reproductive organs. Physiological processes of photosynthesis, transpiration, absorption, conduction, respiration, pollination and fertilization are included. (3/2)

**BI125T Human Biology 3**

Examines human form and function and the relationship of humans to other living things. Fundamental biological principles as they apply to the human are explored. This course is intended for liberal arts students who do not currently plan to major in the biological or health sciences. (3/0)

**BI130T Microbiology 4**

Surveys bacteria, viruses and fungi: their growth characteristics, morphology and pathogenicity. The epidemiology and diagnosis of pathogenic bacteria and an introduction to immunology are also included. Laboratory emphasis is on culturing, identification, aseptic technique and basic immunological assays. Prereq: One year of recent high school biology/chemistry with a grade of "B" or higher is strongly recommended, or completion of Basic Biological Concepts or other college-level biology course. (3/2)

**BI131T Microbiology/Biotechnology Laboratory 3**

Focuses on mastering fundamental laboratory skills. We will focus on the application of the scientific method and the relevance of laboratory work in understanding the theories of science. Special consideration of current molecular technology will be included. Prereq: BI130T completed with C- or better or permission of instructor.

**BI135T Microbes and Society 3**

Will explore microorganisms and how they have influenced human affairs and the environment. Through lectures, assigned readings, educational films, slides, tapes and discussions we will explore the power of selected microorganisms, how they influenced history, demography, fashion, the arts, the economy and, of course, individual lives. (3/0)

**BI150T Human Anatomy and Physiology I 4**

Introduces the structure and function of the human body. Organization at the cellular and tissue level and selected organ systems are emphasized. Laboratory activities (which include computer simulations, dissection, and/or human specimens) reinforce current concepts. One year of recent high school biology/chemistry with a grade of "B" or higher strongly recommended, or completion of Basic Biological Concepts or other college-level biology course. (3/2)

**BI151T Human Anatomy and Physiology II 4**

Continues the study of human organ systems. Laboratory activities and dissection, which includes computer simulations and human specimens, correspond to structures and functions investigated. Prereq: BI150T.

**BI200T Vertebrate Zoology 4**

Provides students with an introduction to vertebrate zoology, emphasizing taxonomy and systematics, morphology, vertebrate history and evolution and ecological diversity. Laboratory work and field trips emphasize the identification and observation of Iowa species. Prereq: BI110T

**BI210T Invertebrate Zoology 4**

Surveys the classification, diversity, morphology, physiology, development, behavior, ecology and evolutionary relationships of the major invertebrate phyla. Emphasis will be on living forms - terrestrial, fresh-water and marine. Laboratory work will stress morphology and adaptation, as well as ecological relationships and distribution. Prereq: BI110T. (3/2)

**BI215T Genetics 4**

Introduces students to the fundamental concepts of genetics. The first half of the course will focus on the basic principles of classical (Mendelian) genetics, while the second half of the course will deal with the modern discoveries of molecular biology and their applications in today's world. Lab experiences include advanced experiments with *Drosophila*, DNA extraction, restriction enzyme analysis, gel electrophoresis and bacterial transformation. Prereq: BI110T, CN110T, as well as concurrent enrollment in CN111T is highly recommended. (3/2)

**BI220T Internship in Biotechnology 1-3**

Will provide practical experiences in the field of biotechnology. Students who have completed most or all of their course work in the biotechnology program will be given the opportunity to acquire work-related skills through a cooperative effort with local biotechnology companies. Prereq: BI215T and CN111T and department approval. (0/0/4-12)

**BI900T Honors Project: Biology 1**

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. Course may be taken more than once. Prereq: Permission of instructor. (2/0)

**BI999T Independent Study in Biology 0.5**

Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: College course work in biology. (.5/0)

**CC: Communication****CC102T Effective Reading and Study 3**

Provides instruction in study skills and reading improvement for college readers. Develops flexibility in students' reading rates and strategies for improving comprehension of standard college texts. Provides practice with library, test taking, time management and vocabulary skills. Recommended to be taken in conjunction with another college-level course. Also recommend: a compass score 71 or above or ACT score of 16 or above. (3/0)

# Course Descriptions

## CC110T Elements of Writing 3

Develops students' fluency in communication and clarity in thinking through writers' notebooks, expository writing, analytical reading and listening. Students use structured assignments to explore personal goals and values, exercising skills needed for reasoning and writing across the curriculum. Prereq: Qualifying placement score. (3/0)

## CC110U Workplace Communications 2

Emphasizes communication skills related to the workplace. The course includes the application of the principles of written communication to business letters and reports, job search skills, and on-the-job instructions. Offered for students enrolled in applied science and technology. (2/0)

## CC112T College Writing 5

Develops expository writing with emphasis on substance, organization, supporting details, style and vocabulary. Teaches precise and responsible use of research tools. Requires critical analysis of reading materials in curriculum content areas, current issues and literature. Develops students' ability to use ethical and logical argument. Prereq: Qualifying placement score or CC110T. (5/0)

## CC113T Composition I 3

Develops expository writing with emphasis on organization, supporting details, style, vocabulary and library research skills. Prereq: Qualifying placement score or CC110T. (3/0)

## CC114T Composition II 3

Teaches precise and responsible use of research tools. Requires critical analysis of reading materials, audience and self when communicating content material. Develops students' ability to use effective and ethical arguments. Prereq: CC113T.

## CC115T Composition II: Technical Writing 3

Provides concepts, principles and practice of writing and analyzing documents in business, science (including health occupations) and industry. Research emphasized. Prereq: CC112T or CC113T. (3/0)

## CC116T Professional Communication 5

Provides individual and collaborative practice in business correspondence, description, instructions, proposals and reports. Emphasizes audience, format, visuals and editing. Prereq: CC113T and admission to the Technical Communications program. (5/0)

## CC120U Advanced Workplace Communications 2

Explores types of effective writing, interpersonal and group skills needed to be a competent employee. An emphasis on the practical application of theories and principles to the development of those writing and oral communication skills essential to communication encounters in the business world. Offered for students enrolled in applied science and technology.

## CC130T Fundamentals of Communication 3

Studies basic communication theory and practice including communication process, interpersonal relationships, small group interaction and public speaking (formerly Speech Communication). (3/0)

## CC132T Public Speaking 3

Studies the fundamentals of public speaking, emphasizing the process of speech preparation and delivery (formerly Public Communication). (3/0)

## CC140U Oral Communication in the Workplace 2

Provides a general understanding of the dynamic system of human communication in the workplace. Stresses the importance of applying oral communication in the workplace for applied science and technology students. Demonstrates and practices numerous workplace communication skills through class discussion and participation. Prereq: CC110U and CC120U. (2/0)

## CC213T Creative Writing: Short Fiction 3

Offers a writing workshop focused on students' attempts and successes in writing 500- to 3,500-word short stories. Seventy-five percent of class time devoted to drafting, reading and responding to peers' drafts; 25 percent devoted to reading and discussing published short stories and the elements of fiction as they apply to crafting stories. Prereq: CC112T, CC113T or permission of instructor. (3/0)

## CC214T Creative Writing: Poetry 3

Offers a writing workshop devoted to students' poetry. Class time devoted to responding to and revising work, reading and discussing published poetry, and exploring various forms of the poem. Prereq: CC112T, CC113T or permission of instructor. (3/0)

## CC215T Creative Writing 3

Offers students an opportunity to do advanced work in writing short story, poetry, literary nonfiction and play writing. Emphasizes regular workshops with attention to content issues, structures, forms and styles of particular genres. Students will read and comment on other students' works as well as published material. Prereq: CC112T, CC113T or permission of instructor. (3/0)

## CC216T Editing a Literary Magazine 3

Provides practical experience in reading and editing literary manuscripts (nonfiction, fiction and poetry). Students will design and edit hypothetical magazines using actual student manuscripts and will work on preparing an issue of *Cedar Valley Divide*, Kirkwood's student art and literary magazine. Prereq: CC112T or CC113T or permission of instructor. (3/0)

## CC217T Editing and Proofreading Writing 3

Reviews parts of speech; functions of sentence parts; types of sentences; standard English usage; and rules for punctuation, spelling and mechanics. Provides practice in revising sentences and editing documents for accuracy, clarity and variety. (3/0)

## CC219T Advanced Short Fiction Writing 3

Provides a writing workshop approach to working on students' short fiction. Seventy-five percent of class time is devoted to reading and responding to other students' work and discussing the responses; 25 percent of class time is devoted to discussing already published work. All critiquing based in either New Critical/Elements of Fiction discourse or Reader Response. Prereq: CC213T, CC215T, or permission of instructor. (3/0)

## CC220T Advanced Creative Writing 3

Offers students an opportunity to do advanced work in fiction, poetry and literary nonfiction, with an eye toward getting something published. Students will respond to each other's writing and enlarge their knowledge of the publishing industry. Prereq: One of the following: CC213T, CC214T, CC215T, or CC216T. (3/0)

## CC221T Presenting Information on the World Wide Web: Module One 1

Explore creating a simple web page, transferring the page to a host site, visual and verbal rhetoric, and basic principles of design. Prereq: CC112T or CC113T. (1/0)

**CC222T Presenting Information on the World Wide Web: Module Two** 1

Explore advanced web page and web site design, the history of the web, and copyright on the web. Prereq: CC112T or CC113T. (1/0)

**CC223T Presenting Information on the World Wide Web: Module Three** 1

Explore advanced web page and web site design, hypertext theory, publications on the web, and the future of the web. Prereq: CC112T or CC113T. (1/0)

**CC230T Group Communication** 3

Examines the theory and techniques used in discussion and group processes. Develops leadership and group skills through frequent practical application in varying group sizes and opportunities. (3/0)

**CC234T Communication Studies: Selected Topics** 1-3

Topic selection will include; e.g., communication apprehension, video performance practice, gender communication, family communication, creative problem-solving, nonverbal communication, persuasion and propaganda, intercultural communication, listening skills, dysfunctional communication patterns and rhetorical analysis. (1-3/0)

**CC250T Collaborative Projects in the Workplace Environment** 1-3

Students will be responsible for completing a project for a client from the world of business. Students will be responsible for managing their team and their workload. Students will work in conjunction with a faculty mentor. The amount of work put into the project over the course of the semester will determine the credit hours of the assignment. Prereq: CC251T. (1-3/0)

**CC251T Reporting and Researching in the Workplace** 3

Focuses on producing longer technical communications, documents and reports. Actual projects will be used, when possible, from college resources. Students will learn to interview, to gather information and consolidate information into longer business writing projects. Current software and technology will be used. Prereq: CC116T. (3/0)

**CC252T Internship for Technical Communications Major** 1-3

Provides students with on-site experience in producing technical communication for a professional organization. Students will work in conjunction with an on-site mentor and a faculty mentor. (1-3 credits to be determined by faculty mentor, on-site mentor and student, based on hours working for company.) Prereq: CC251T. (1-3/0)

**CC900T Honors Project: Communication** 1

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract, and requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

**CC996T Independent Study: Technical Communications** 3

Provides opportunity for independent technical communications projects under the guidance of a faculty member. Prereq: CC112T or CC114T or CC115T or CC216T or permission of instructor. (3/0)

**CC998T Independent Study: Writing** 1-3

Provides opportunity for independent writing projects under the guidance of a faculty member. Prereq: CC113T, CC215T or permission of instructor. (1-3/0)

**CC999T Independent Study: Speech** 1-3

Provides readings and research opportunities under the guidance of a staff member. Prereq: Permission of instructor. (1-3/0)

## **CJ: Criminal Justice**

**CJ100T Introduction to Criminal Justice** 3

Provides an overview of the American criminal justice system and will examine the process of justice administration through the agencies of law enforcement, courts and corrections. (3/0)

**CJ110T Criminal Law** 3

Reviews the historical development of criminal law and the resulting philosophy of law that has developed. The law making process, with the societal and political influences, is examined and discussed. Comparisons of common law with contemporary law are analyzed in an attempt to determine what impact historical events and societal changes have had in bringing about change. (3/0)

**CJ120T Patrol Procedures** 3

Studies the basic methods used by a police officer. Subjects covered will include planning the patrol, methods of patrol, problems faced by the officer, relations with the public, specialized patrol activities, response for various types of emergency calls, and dealing with persons presenting such special problems as illness, intoxication, amnesia and mental illness. (3/0)

**CJ125T Community Oriented Policing** 3

Examines the philosophy of community-oriented policing including specific programs and principles. This course explores the police departments' interaction with various segments of the community. (3/0)

**CJ130T Investigations** 3

Presents the basic principles of investigation, both public and private, including: examination of the scene, collecting physical evidence, interrogations and interviews, sketching a scene, report writing, and basic photography. Special methods of investigating certain crimes will be explored, and the function of the crime laboratory will be discussed. (3/0)

**CJ140T Traffic Safety and Accident Investigation** 3

Examines the development, purpose and organization of the vehicle code, supervision and control of traffic, selective enforcement procedures, and accident prevention and investigation. Also examines the purposes and analysis of accident statistics, report writing, and courtroom presentations for prosecution of violators. (3/0)

**CJ150T History of Police in America** 3

Traces the development of the police officer and the police organization from the colonial period to modern times. Investigates problems encountered during various periods of development of American police agencies. (3/0)

**CJ160T Applications of Criminal Law** 3

Examines the Iowa Code as it relates to both the criminal code and the vehicle code. (3/0)

**CJ210T Community Corrections** 3

Studies the principles and practice of corrections as applied in the community setting. Includes examination of theories of corrections that apply to the correctional practices of parole and probation. Also explores alternative treatment programs utilized in community halfway houses, alternative jails and outpatient facilities. Prereq: CJ100T. (3/0)

**CJ215T Police Culture and Ethics** 3

Examines the culture and ethics of the police service. Presents various themes of the police culture as well as a variety of ethical dilemmas and multiple ways of examining issues and problems unique to the police service. The goals of this course are to expose the student to police culture and to orient the student towards thinking and functioning as an ethical person, especially as ethics relates to a career in policing. Prereq: CJ100T or permission of instructor. (3/0)

**CJ220T Penology 3**  
Examines the history, theories and practices of penal institutions, both adult and juvenile. Additionally, it will explore penal reform in relation to various objectives of modern penology. Prereq: CJ100T or permission of instructor. (3/0)

**CJ230T Constitutional Law 3**  
Studies the development of fundamental principles in constitutional law, integrating a case-by-case study of United States Supreme Court decisions and a broad examination of the judicial legal processes. Coverage includes the nature of judicial review, powers of the Supreme Court, President, Congress and Federalism. Prereq: CJ110T or permission of instructor. (3/0)

**CJ240T Juvenile Delinquency 3**  
Analyzes the various components of delinquency, home, school, peer group and community structure. Explores the role of therapeutic and detention centers and the juvenile court, as well as approaches to prevention and treatment. Recommend CJ100T be taken first. (3/0)

**CJ250T Criminology 3**  
Surveys the nature, causes and extent of crime and delinquency; major consideration is given to various "explanations" from numerous disciplines. Recommend CJ100T be taken first. (3/0)

**CJ260T Criminal Evidence 3**  
Studies the kinds and degrees of evidence and the rules governing the admissibility of evidence in court. Prereq: CJ110T or permission of instructor. (3/0)

**CJ270T Race Relations and the Criminal Justice System 3**  
Examines race relations in the various segments of the criminal justice system. Explores social values and standards of minorities as they relate to the larger society. Looks at selected problems and possible solutions to conflict between races in the criminal justice setting. Prereq: CJ230T or permission of instructor. (3/0)

**CJ800T Criminal Justice Seminar 1**  
Provides an opportunity to discuss internship projects and share the knowledge gained from the experience with others. This is done through written and oral communication and includes journals, diaries and project reports. Prereq: CJ100T and permission of coordinator. (1/0)

**CJ810T Criminal Justice Internship 1-6**  
Provides placement in a criminal justice agency in a student capacity. Work experience in an agency under supervision of professionals in the field permits students to learn what career opportunities are offered. Prereq: CJ100T and permission of coordinator. (0/4-0/24)

**CJ900T Honor's Project: Criminal Justice 1**  
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. Prereq: Permission of instructor. (1/0)

**CJ999T Independent Study: Criminal Justice 1-3**  
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Permission of instructor. (Hours arranged.)

## CN: Chemistry

**CN100T Introduction to Chemistry 3**  
Introduces chemistry to those with little or no previous background in chemistry and is preparatory for further course work in chemistry including Bio-Organic Chemistry for Nursing students. The course includes a study of chemical structure and bonding, measurements, periodic table, nuclear chemistry weight/volume relationships in chemical reactions, and solution chemistry. (3/0) Lab is optional.

**CN101T Introduction to Chemistry Laboratory 1**  
Laboratory to accompany CN100T. (0/2)

**CN102T Bio-Organic Chemistry 4**  
Introduces structure, nomenclature and reactions in organic chemistry as well as the study of life processes including carbohydrate, protein, lipid, nucleic acid metabolism and the interrelationships involved. Prereq: CN100T or one year high school chemistry. (3/2)

**CN110T General Chemistry I 4**  
Studies the basic principles of inorganic chemistry with emphasis on such concepts as measurements and problem solving, chemical reactions and equations, stoichiometry, atomic structure and nuclear chemistry, periodicity, chemical bonding, kinetic molecular theory and gas laws, and the structure and properties of matter. Prereq: CN100T or equivalent, and MT105U or MT150T or equivalent. (3/2)

**CN111T General Chemistry II 4**  
Studies colligative properties along with thermodynamics and kinetics, chemical equilibrium, electrochemistry, acids, bases and complex ions, and an introduction to organic chemistry. Prereq: CN110T or equivalent. (3/2)

**CN120T Nutrition 3**  
Designed to show the relationship between sound nutrition and good health. Topics studied are: energy requirements, carbohydrates, lipids, proteins, vitamins, minerals, metabolism, physical exercise, dieting, weight problems, evaluation of nutritional claims, vegetarianism, and proper nutrition during pregnancy and lactation. (3/0)

**CN200T Quantitative Analysis 4**  
Introduces methods of chemical analysis stressing gravimetric, volumetric, spectrophotometric and selected electroanalytical methods. Emphasis is placed on fundamentals of measurement, treatment of data and error analysis. Prereq: CN111T. (2/4)

**CN210T Organic Chemistry I 4.5**  
Introduces the theory and practice of organic chemistry with emphasis on the chemistry of functional groups. Areas stressed are nomenclature, stereoisomerism, chemical bonding, reaction mechanisms, the characterization of hydrocarbons, alkyl halides and alcohols. The laboratory stresses development of appropriate organic chemistry separation, isolation and synthetic techniques. Prereq: CN111T or equivalent. (3/3)

**CN211T Organic Chemistry II 4.5**  
Continues the study of ethers, aldehydes, ketones, carboxylic acids and their derivatives, amines and biologically important fats, proteins and carbohydrates. Stresses qualitative organic analysis and spectroscopic methods. Prereq: CN210T. (3/3)

**CN900T Honor's Project: Chemistry 1**  
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

**CN999T Independent Study in Chemistry 1**  
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Department approval. (0/2)



## CR: Computer Science

**CR110T Computer Science I** 4  
Introduces computer programming including data types, expressions, input/output, control structures, functional and object-oriented programming, and simple data structures. The course emphasizes problem solving skills through program refinement, documentation and programming style. Prereq: MT106U or permission of instructor. (4/0)

**CR111T Computer Science II** 4  
Continues the study of program design and construction begun in CR110T. The course emphasizes topics in data structures and practice in their specification, design, implementation and use. Topics include container classes, arrays, lists, stacks, queues, trees, graphs, algorithm analysis, object-oriented programming, data abstraction, and searching and sorting techniques. Prereq: CR110T or permission of instructor. (4/0)

**CR112T Software Design and Development** 4  
Building on the foundation of basic programming skills acquired in CR110T, this course emphasizes the design and development of software systems. Topics include user interface programming, graphics and multimedia, networking and concurrency. Long term projects will provide students with experience developing software over an extended time period. Students will also gain a general understanding of computer and system organization. Prereq: CR110T. (4/0)

**CR120T Discrete Computational Structures** 3  
Concepts in discrete mathematics as applied to computer science. Includes logic, methods of proof, sets, functions, relations, counting techniques, discrete probability, permutations and combinations, graphs and trees. Emphasizes connections between discrete math and programming concepts. Prereq: CR110T, MT160T or permission of instructor. (3/0)

**CR220T Computer Organization and Assembly Language Programming** 4  
Emphasizes the organization and operation of computer systems at the assembly language level. The mapping of statements and constructs in a high-level language onto sequences of machine instructions is studied, as well as the internal representation of simple data types and structures. Programming practice with an assembly language provides practical application of concepts presented in class. Prereq: CR110T or permission of instructor. (4/0)

## CT: Construction

**CT104U Construction Practices I** 2  
Provides introductory laboratory experience in the use of tools and equipment and basic construction procedures. Includes activities in wood, electrical plumbing, HVAC and construction safety. Number of lab modules varies with credit hours. (0/4)

**CT109U Building Construction Systems I** 3  
Introduces the materials, methods and terminology used in the construction of modern buildings. Students will learn to attain a general knowledge of a broad range of systems and the coordination requirements between those systems. This is a classroom based discussion course also that includes field trips to construction sites. (3/0)

**CT111U Surveying and Site Layout** 2  
Provides class and laboratory activities to gain knowledge in the use of conventional and laser instruments, building site layout, site investigation, leveling, topographic maps and route surveying. (1/2)

**CT113U Construction Safety** 1  
Provides instruction on construction industry safety and health topics for entry-level workers. (1/0)

**CT114U Workplace Skills** 1  
Provides introduction and practice in workplace skills including roles and relationships at work, negotiation and mediation skills, teamwork skills, and personnel and time management. (2/0)

**CT115U Masonry Tools and Equipment I** 1  
Provides knowledge and use skills of basic manual masonry tools and equipment covering selection, use, maintenance and repair. Includes measuring devices, builders' levels and transits, trowels and other mortar tools, basic masonry cutting and shaping tools, levels, squares, mortar mixing, and material handling equipment. (0/2)

**CT116U Basic Plan Reading** 1  
Provides introduction and practice in reading plans related to masonry construction. Includes dimensions, specifications, interpretation and work planning based on actual plans. (0/2)

**CT117U Masonry Lab I** 5  
Provides introductory, intensive hands-on skills in construction of masonry structures including handling and identification of materials. Develops skills in handling and laying masonry units, mixing mortar, finishing joints. Includes introduction and practice in basic masonry walls and the activities required to construct them. (2/6)

**CT118U Masonry Tools and Equipment II** 1  
Extends knowledge and use skills of masonry tools and equipment covering selection, use, maintenance and repair. Includes power tools and equipment such as masonry drilling tools and equipment, masonry fastening devices, power fasteners, masonry and concrete cutting devices and equipment, scaffolding and ladders. Prereq: CT115U. (0/2)

**CT119U Advanced Plan Reading** 1  
Provides additional application in masonry plan reading. Includes work with more complex structures, interfacing with other subcontractors, estimating materials for work in progress, interpreting specifications and details. Prereq: CT116U. (0/2)

**CT122U Masonry Lab II** 9  
Provides advanced, intensive hands-on skills in construction of masonry structures. Improves skills in handling and laying masonry units, mixing mortar, finishing joints. Includes introduction and practice in complex masonry walls, flashings, reinforcement, finishing and cleaning. Prereq: CT117U. (3/12)

**CT123U Masonry Field Experience** 3  
Provides capstone masonry construction experience. Includes final evaluation covering masonry skills, work habits, skills in working with others and ability to contribute to success of the project. Prereq: CT114U, CT115U, CT116U, CT117U, CT118U, CT119U, CT122U, CT123U. (0/0/0/12)

**CT124U Building Construction Systems II** 2  
Continues the study of materials, methods and terminology used in the construction of modern buildings. Students will learn to coordinate systems, review shop drawings, and perform quality control inspections. This is a classroom based discussion course that also includes field trips to construction sites. (2/0)

## Course Descriptions

**CT126U Carpentry Lab I** 4  
Introduces students to tools and terminology used in basic framing and gives students hands-on instruction in basic framing. Learning activities will concentrate on frame walls, windows, doors and other standard structures. Correct choice of materials and methods will be emphasized. (2/4)

**CT127U Carpentry Lab II** 4  
Continues the hands-on practical instruction of Carpentry Lab I. Students will continue to learn how to build walls, rafters, joints, etc. Instruction will emphasize correct methods and preferred techniques. Prereq: CT127U. (0/8)

**CT201U Construction Practices II** 3  
Provides intermediate-level lab experiences in structural, finishing and mechanical systems with an emphasis on skill development, problem solving and team activities for building trades personnel. Prereq: CT104U. (1/4)

**CT205U Construction Project** 3  
Provides advanced level lab and/or field experiences in structural, finishing and mechanical systems with an emphasis on planning, executing and completing a construction project. Prereq: CT201U. (0/6)

**CT217T Construction Planning and Scheduling** 2  
Covers class and laboratory activities to gain knowledge of controlling the flow of materials, manpower and equipment on a construction project with a major emphasis on CPM schedule preparation and monitoring. Prereq: All first-year courses/permission of instructor. (2/0)

**CT218T Construction Management** 3  
Introduces the functions of construction management related to financial management, labor relations, material and equipment control, business methods, and risk management. (3/0)

**CT220T Construction Computer Applications** 2  
Provides an overview of hardware and software used in construction, particularly software used for estimating, scheduling and job costing. Opportunities for using software packages, developing spreadsheet templates and using database programs will be available. (1/2)

**CT227T Construction Estimating I** 2  
Introduces the basic principles and skills necessary to interpret construction drawing and specifications. Learning activities develop material and labor takeoffs. (1/2)

**CT228T Construction Estimating II** 3  
Introduces the basic principles and skills needed to develop an estimate for a residential construction project including preliminary estimates, material and labor takeoffs and summary sheets. Prereq: CT227T. (3/0)

**CT229T Construction Law** 3  
Introduces construction law and construction contract documents and their legal consequences on the owner, contractor, A/E and subcontractor with an emphasis on the AIA documents. (3/0)

**CT230T Construction Estimating III** 3  
Introduces the basic principles and skills needed to develop an estimate for a commercial construction project including material and labor takeoffs, labor reference materials and computerized estimating practices. Prereq: CT227T. (3/0)

**CT236U Architectural Plans and Specs** 2  
Introduces the skills and methods for understanding and interpreting construction drawings and technical specifications for residential and commercial buildings. (1/2)

**CT245U Construction Materials Science** 2  
Provides class and laboratory activities to gain an understanding of the forces and stresses acting on materials, and methods for determining the proper sizing for wood, steel and concrete components in a structure. Prereq: All first-year courses or permission of instructor. (2/0)

**CT805U Construction Internship** 1-6  
Provides full-time work in an approved, construction-related position that includes instructor visitations/evaluations and employer evaluations of performance. Prereq: All first-year courses or permission of instructor. (0/0/4-24)

## CV: Cooperative Education

**CV800T Cooperative Education Experience** 1-6  
For arts and sciences students: Offers a learning experience in a structured work situation related to a student's major academic interest. Prereq: Instructor approval. May be repeated for credit. (0/0/4-24)

**CV802T Cooperative Education Special Topics** 1-3  
Offers a learning experience in conjunction with a structured work situation. Instruction and readings will relate to and supplement the particular job experience. Prereq: Instructor approval. Must be taken with CV800T. (0/4-12)

## DD: Drafting and Design

**DD103U Architectural CAD III** 6  
Explores further the processes involved in generating a complete set of commercial working drawings using computer-aided design. Students will learn correct computer usage, code research, blueprint redline and revision, and appropriate graphic representation. Teamwork is also emphasized. Prereq: DD128U. (2/8)

**DD104U Architectural CAD IV** 6  
Enables the student to develop a set of working drawings on CAD for a commercial project located on the Kirkwood campus. Student will learn correct computer usage, code research, blueprint redline and revision, and appropriate graphic representation. Teamwork is also emphasized. Prereq: DD103U. (2/8)

**DD108T Architectural Profession** 1  
Provides an overview of professional ethics and contract procedures for architectural technology students. Personal appearance and human relations are stressed. Prereq: PCT05U. (1/0)

**DD110U Computer Aided Design (CAD) I** 2  
Provides instruction in entry-level CAD (computer-aided design) skills. Students learn basic commands, CAD hardware and applications, and complete 2-D drawings with AutoCAD on IBM computers. Students should be familiar with keyboards. Prereq: Drafting and mathematics or practical blueprint reading experience. Prereq: DG102T or IT145U. (1/2)

**DD111U Computer Aided Design (CAD) II** 3  
Provides advanced instruction in CAD (computer-aided design). Students learn to use complex commands, animation, 3-D drawing, interface CAD with other programs, modify menus, write simple programs, and set up CAD stations with AutoCAD on IBM computers. Prereq: DD110U or previous AutoCAD experience. (1/4)

**DD118T American Architecture 1**

Introduces American architecture and its architects. An emphasis will be placed on construction of the 20th century as well as Iowa architecture. Both residential and commercial structures will be presented. (1/0)

**DD119U Architectural Drafting II 3-6**

Introduces the fundamentals of sketching through simulated projects encountered in the profession. Students will learn to translate three-dimensional constructions to two dimensional orthographic sketches, as-builds, and details. Emphasis will be on further developing skills explored in Architectural Drafting I. Prereq: DD123U, CT236U. (2/2)

**DD120U Engineering Design I 3**

Allows students to gain an understanding of drawing mechanical parts used in design. Problem solving approach is used to work out problems on the drafting board, resulting in a final drawing. Topics selected are: instrument instruction, lettering, geometric construction, sketching, multiview projection, sectional views, calculating weight of a mechanical part, auxiliary views, isometrics, obliques, weld symbols, threads and fasteners, dimensioning, and tolerancing. (1/4)

**DD121U Architectural Presentations 2**

Introduces the types of presentation work encountered in an architectural office. Assignments include orthographic rendering, shadow castings, material delineation, color study, massing model and structural finishing model. Prereq: DD119U. (1/2)

**DD122U Engineering Drawings 3**

Introduces the fundamentals of drafting such as lettering, line quality, orthographic projection, isometric drawing, detail drawing, basic plan drawing, dimensioning and scale reading. The student will also be familiarized with the tools and techniques of the trade. Emphasis is on developing accuracy, line quality, graphic ability and lettering control. The different assignments focus on skills required in the profession. (2/2)

**DD123U Architectural Drafting I 3**

Introduces the fundamentals of drafting through the development of a complete set of residential working drawings. Student will learn to develop accuracy, line quality, construction vocabulary, building code awareness and understanding basic design processes. Lettering, line quality, architectural dimensioning and scale will be explored. The student will also be familiarized with the tools and techniques of the trade. (2/2)

**DD124U CAD Projects 1-3**

Provides for individualized learning under guidance of an appropriate instructor. Application of advanced CAD techniques to a project relative to the student's specific career or field of study. Prereq: DD110U and DD111U. (0/2-6).

**DD125U Engineering Design II 3**

Introduces the student to special topics in drafting: gears, structural drawing, pipe drawing. A major portion of the semester will involve doing an engineering project. The project requires assembly drawings, weld complete, details, bill of materials and weight calculations. This project requires a comprehensive review of the drafting course. Students are also required to do work on the computer. Prereq: DD120U. (1/4)

**DD127U Parametric Solid Modeling I 3**

Provides students with parametric 3-D solid modeling experience using industry standard software. Students will learn modeling operations including creating extrusions, cuts, holes, sweeps, blends and revolutions. Basic operations for creating drawings and assemblies shall also be covered. The software platform utilized shall be Pro E. Prereq: DG102T. (2/2)

**DD128U Architectural CAD II 3**

Provides guided step-by-step instruction of how to incorporate CAD in the process involved in generating a complete set of commercial working drawings. Student will learn the proper use of basic and advanced CAD skills, organization of information to generate CAD drawings, and to interpret hand drawings to CAD. Whole class participation in working through a final product will also be a large factor. Prereq: DD110U, DD131U. (3/0)

**DD129U Parametric Solid Modeling II 3**

Improves skills learned in Parametric Solid Modeling I. Student learning activities include hands on application in the following areas: interface customization, advanced feature creation, patterns and family tables, user-defined features, advanced drawing functions and assemblies. The software platform utilized shall be ProEngineer. Prereq: DG127U. (2/2)

**DD131U Architectural CAD I 3**

Applies the basic skills learned in CAD I to applied architectural projects. Students will learn to set up the drawing, use file management, to organize architectural information, pay attention to detail, convert sketches to CAD drawings and apply problem solving skills. Emphasis will be on proper use of basic CAD skills. Prereq: DD119U, DD110U. (2/2)

**DD135U Hydraulics 3**

Hydraulics is a basic course in the use of hydraulic pumps and systems. Special emphasis is given to pumping, controlling, measuring flows, and design and analysis. Special emphasis is placed on distinguishing between types of valves, pumps, hose and connection arrangements, and flow patterns. Students will learn basic graphical symbols for making schematic drawings as well as the terminology for all hydraulics. (3/0)

**DD152U Survey of Graphic Communications 3**

Introduces the student to the graphic communication industry. Provides an overview of all aspects of the industry including traditional layout techniques, electronic publishing, offset press operation and bindery operations. Students will be introduced to the fundamental processes used in the printing industry. Topics covered include two-dimensional design concepts and preparation of design for production, darkroom techniques, layout and stripping fundamentals, offset press operation, and bindery techniques. (1/4)

**DD154U Intro to Macintosh 1**

Introduces business and industrial use of the Macintosh workstation, which is the most common platform used in the printing industry. Topics covered include file organization, document storage and retrieval, loading software and other related operating programs, file transfer through a network, printing to various output devices, troubleshooting system problems, and what to look for when purchasing a Macintosh OS computer system. (0/2)

**DD169U Photoshop I 3**

Introduces students to electronic image editing software, Photoshop. Concepts covered include basic scanning techniques for greyscale and line art images and proper manipulation procedures required for various output sources. Will include input and output resolutions, file size, multiple file saving formats, simple image enhancements, and creating duo-tones. Prereq: DD154U. (2/2)

**DD174U Photoshop II 3**

Designed to introduce color scanning theory and practices to the student. Image enhancements using third party plug-ins will be introduced as well as effective usage of layers, paths, adding type to your image and color correction controls to create visually effective images. Strong emphasis is made toward properly preparing images for imagesetter output and eventual press production. Prereq: DD169U. (2/2)

## Course Descriptions

### **DD179U Internet Web Page Design I 3**

Provides the student with practical applications and the theory of web page construction using Adobe PageMill Software. Topics include Internet basics (what it is, terms and terminology, getting around), basic HTML language, planning your web page and constructing your web page. Prereq: DD152U, DD154U, DD181U, DD183U (2/2)

### **DD180U Advanced Internet Web Page Design 3**

Provides students with the knowledge to design a web page using DHTML and other resources to incorporate animation and interactivity on their web pages. Also covered will be building forms and utilizing Java script on their web pages. Students will be responsible for designing all elements of their own web page. Prereq: DD154U, DD169U, DD179U (2/2)

### **DD181U Page Layout I 3**

Provides students a working knowledge of the page layout program Pagemaker, and how you can use it to communicate more effectively through eye-catching page layouts combining graphics and type. Learning activities include learning the toolbox and tool usage, importing and editing text and graphics as they create various single and spot-color documents including flyers, newsletters, and other printed material. This course will introduce students to master pages, use of styles, text and paragraph formatting, and the effective use of type and graphics. Students will be able to import graphics and set up text styles, columns and grids. Printing operations using this program will be discussed and implemented. General layout and design concepts using PageMaker will also be included. Prereq: DD152U, DD154U. (1/4) Credit Hours: 3

### **DD182U Page Layout II 3**

Expands students' knowledge of page layout programs using Quark Express. Learning activities include learning basic Quark features in page setup, working with text and graphic frames, links management, how to use spot and process colors within your publications, and how to color separate files. This course will introduce master pages, use of styles, text and paragraph formatting, and the effective use of type and graphics. Printing operations using this program will be discussed and implemented. General layout and design concepts using Quark Express will also be included. Prereq: DD152U, DD154U, DD181U, DD183U.

### **DD183U Digital Drawing I 3**

Introduces Macromedia Freehand and its application in graphic communication. Learning activities will include Freehand tools as they apply to object (vector) based files as well as Freehand filters and layers. The student will learn basic drawing and tracing techniques, creating line art, logos and learning how to simplify art work through stylizing. Creative use of type will also be explored. The student will learn how to set up color for reproduction. They will also learn how to save and manage files created using these programs, as well as how these files interact with page layout and paint (raster) programs. Prereq: DD152U, DD154U (2/2)

### **DD184U Digital Drawing II 3**

Continues to explore vector drawing tools as they apply to object based files using the program illustrator. Learning activities will include more advanced drawing techniques, creating art of medium to high quality, and will continue learning how to simplify artwork through stylizing. The student will learn how to set up color for reproduction. They will also learn how to save and manage files created using these programs, as well as how these files interact with page layout and paint (raster) programs. This is an intermediate course using the drawing program Adobe illustrator. Prereq: DD152U, DD154U, DD181U, DD183U (2/2)

### **DD188U Production Techniques 3**

Provides students with hands-on experience, both real and realistic, to further develop and use their graphic art production skills. Learning activities bring several graphic arts projects together, using the computer programs they have been using, what questions should be asked about the project for both pre and post production, and do this in part through a store front scenario. These scenarios will be played out through discussion on troubleshooting their layouts, computer desktop and the graphic documents they are creating. Prereq: DD152U, DD154U, DD181U, DD183U(2/2)

### **DD189U Production Techniques II 4.5**

Provides students more hands on experience both real and realistic to build upon the graphic arts skills learned in Production Techniques I. Learning activities will bring several graphic arts projects together, using the computer programs they have been using, what questions should be asked about the project for both pre and post production, and do this in part through a store front scenario. Students will also have an opportunity to work with real clients in fulfilling a graphic arts need. The students will do this in a team based (company) operation. Different output and proofing options and getting documents ready for service bureaus work will be part of student training. Prereq: DD182U, DD183U, DD188U. (1/7)

### **DD225U Design Problems 4**

Offers students the opportunity to use their creativity in designing a specific product from "scratch". The process will start with a basic concept as a solution to a problem and progress through an analytical stage involving calculations and layout drawings. The project will include final assembly and detail drawings, and a bill of materials. Prereq: Concurrent with DD226U. (1/6)

### **DD226U Machine Design 5**

Focuses on problems involving the size, shape and material requirements of machine parts. Various loading conditions are applied to the machine components. Students will analyze plates, shafts, weldments, fasteners, springs, wire rope and bearings. Prereq: EN105U, EN110U, EN115U. (3/4)

### **DD236U Manufacturing Processes/ Geometric Dimensioning Tolerancing 3**

Introduces students to modern manufacturing processes. Learning activities will introduce special symbols used on mechanical drawings. Geometric dimensioning and tolerancing is a means of specifying engineering design and drawing requirements with respect to actual function and relationship of part functions. This technique ensures production of these features for fabrication and inspection. Prereq: DD120U, DD125U.(1/4)

### **DD801U Graphic Communication Job Shadow 1**

Serves to introduce students to the graphic communication workplace by providing a job shadow experience in an approved workplace setting. Prereq: All first year courses and permission of instructor. (.5/1)

**DD900T Honors Project:****Graphic Communication**

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

**DE: Dance****DE110T Fundamentals of Modern Dance 1.5**

Introduces basic modern dance technique and choreography. Students practice standard movements, and locomotor patterns are introduced to creative concepts. May be repeated for credit. (0/3)

**DE120T Fundamentals of Jazz Dance 1.5**

Develops modern jazz dance technique and choreography. Students are introduced to the history and concepts of the jazz idiom and practice standard and creative jazz movements and locomotor patterns.

**DE999T Independent Study in Dance 1.5**

Allows students to continue to develop abilities in modern and/or jazz dance technique. May be taken more than once. Prereq: DE110T and/or DE120T. (0/3)

**DG: Data Processing****DG101T Intro to Computer Concepts 4**

Introduces computers and data processing concepts with practical training on microcomputers. (3/2)

**DG102T Introduction to Microcomputers and Data Processing Concepts 3**

Familiarizes the student with business, personal and industrial uses of microcomputers. Broad-based overview of microcomputer topics is presented; concepts of storage media, file organization and data representation are presented also. The fundamentals of computer problem solving and programming are discussed.

**DG104U MVS Concepts and JCL 3**

Introduces operating system architecture and services such as hardware, I/O, communications processors, memory management and file management. Projects will be done using MVS/ESA JCL. Coreq: DG102U (3/0)

**DG106U Assigned Operations Projects 3**

Assigns projects simulating actual operation of a data center. Provides hands-on experience with I/O devices, console operations and output handling. (1/4)

**DG111U Microcomputer Databases 3**

Covers the design of tables and forms for data entry in a relational database management system. Students maintain the data, design complex queries to produce information for decision making, integrate data with other software programs and the Internet, create macros for automating tasks, design reports, and create custom toolbars and menus. Visual Basic is introduced. Prereq: DG101T or DG102T (2/2)

**DG112U Microcomputer Spreadsheets 3**

Covers basic and advanced formulas and spreadsheet design. Students study database functions, pivot tables and analysis tools to assist in decision making. Includes macros, toolbars and an introduction to Visual Basic. Prereq: DG101T or DG102T. (2/2)

**DG113U Microcomputer Word Processing 3**

Covers basic and advanced word processing features including document creation and editing, formatting principles, merge applications, database functions, styles, tables, online form design, desktop publishing, graphics, managing long documents, templates and macros, and final management. Prereq: DG101T or DG102T (2/2)

**DG114U Microcomputer Operating Systems 3**

Introduces and familiarizes students with a variety of PC-based operating systems. The systems include DOS, Windows, UNIX and LINUX. The respective strengths of the operating environments will be investigated along with the approaches used in providing systems management and software development support capabilities. (3/0)

**DG116U Program Design and Documentation 4**

Presents the techniques to analyze a problem for solution by computer, and designing and documenting the solution. Includes step-by-step documentation of solution algorithm. Techniques presented include flowcharts, decision tables, Warnier Charts and structured design. A high level programming language will be used to implement design algorithms. (3/2)

**DG118U Business Applications 2**

Presents a general exposure to batch and online financial and nonfinancial systems. Topic areas include general ledger, receivables, payables, payroll, inventory, etc. (2/0)

**DG119U Structured Systems Analysis 3**

Includes systems, procedures, systems analysis and design, purposes, responsibilities, applications, and techniques of the systems activity as found in a business organization. Prereq: DG101T. (3/0)

**DG120U COBOL I 4**

Presents ANSI COBOL programming language fundamentals and coding techniques. This course includes the writing of COBOL programs using structured techniques. Prereq: DG116U. (3/2)

**DG121U COBOL II 4**

Presents ANSI COBOL programming language fundamentals and coding techniques. Includes writing structured COBOL, file editing, control breaks and sorting. Prereq: DG120U. (3/2)

**DG132U Data Base Management Using DB2 (mainframe) 4**

Covers all aspects of Database Management, utilizing IBMs Data Base 2 including Physical and Logical Database Components, Physical and Logical Database Design, Structured Query Language for Data Definition, Data Security, and Database Manipulation. Most aspects of Database Administration, including Database Design, Database Definition, DB2 Utilities, and Performance Tuning, will be discussed. Also, DB2 Application Development will be covered, using COBOL, CICS, DB2 and SQL. Prereq: DG120U, DG121U, DG141U, DG131U. (3/2)

**DG133U Data Communications Concepts 3**

Presents the concepts of voice and data communications, transmission media, signal encoding, link control, error handling, multiplexing, networks, topologies, protocols, OSC model, and ISDN. Prereq: DG101T or DG102T. (3/0)

**DG134U CICS Coding 4**

Covers data communication facilities under CICS. Students write and test online programs. Prereq: DG121U. (3/2)

**DG135U Application Programming Projects-Mainframe 4**

Offers supervised work experience at various data processing tasks that serve as learning tools as the tasks are completed. These tasks may be done within a real or simulated business organization. The student will write a complete system that utilizes all the resources of the mainframe and draws upon the knowledge gained in all previous classes. Prereq: DG134U. (1/6)

# Course Descriptions

<p><b>DG136U Advanced "C" with Data Structures</b> 4</p> <p>Continuation of Intro to "C" Language Programming. Utilizes structs and arrays to create data types with model problem to be solved. Includes use of utilities such as make and codeview to improve development efficiency. Prereq: DG129U or instructor approval. (3/2)</p>	<p><b>DG142U iSeries Data Management</b> 4</p> <p>Provides in-depth experience with AS/400 DBMS using utilities including SEU, DFU, SDA and Query as well as SQL to design, code and test database applications. Focuses on coding, creating and using logical files. Will include exercises in CL programming and DDS syntax and coding pertaining to data management.</p>	<p><b>DG149U Introduction to iSeries CL Programming</b> 3</p> <p>Covers command syntax and control language program structure. Variables, logic control, parameter passing, message handling and error handling will be demonstrated in assigned projects. Students will also write programs to process display files and data files, and to support system operations. Prereq: DG138U or experience. (2/2)</p>
<p><b>DG137U Introduction to RPG400</b> 4</p> <p>Presents the RPG III language and coding techniques. The student will code both batch and interactive programs. Topic areas include input/output operations, editing, arithmetic operations, comparing, control breaks, multiple record types, exception output, array processing, table lookups, disk file concepts and interactive screen processing. Prereq: DG138U. (3/2)</p>	<p><b>DG143U Introduction to Local Area Networks</b> 3</p> <p>Covers the basics of Local Area Network (LAN) technology, how various hardware and software work together. Will cover issues facing local area network users today including network security, compatibility between a network operating system and application software. (3/0)</p>	<p><b>DG151U Integrated Systems Using Microsoft Office</b> 3</p> <p>Allows the students to use advanced features and functions of Microsoft Office's word processing, data base and spreadsheet applications. Prereq: DG102T or permission of instructor. (1/4)</p>
<p><b>DG138U Intro to iSeries eServer</b> 2</p> <p>An overview of IBM application system/400 architecture and facilities. Topics include operating system concepts and introduction to control language, menu structure, system displays, creation and maintenance of logical and physical files, and data base organization and access. Pre or Coreq: DG116U. (2/2)</p>	<p><b>DG144U C++ Programming</b> 4</p> <p>Presents inheritance and access controls, overloading of functions and operators. Also includes enhancements to C language and fundamentals of object-oriented programming using C++. Prereq: DG129U. (3/2)</p>	<p><b>DG152U LAN Configuration</b> 3</p> <p>Covers hardware and software requirements, the installation process, workstation configuration and configuring the user environment. Additional topics will cover tools, techniques and network interface card configuration. Prereq: DG143U. (2/2)</p>
<p><b>DG139U Advanced Interactive COBOL/400</b> 4</p> <p>Presents ANSI COBOL programming on the AS/400. Includes writing programs that utilize display files, subfile processing and access the integrated data base using both externally described files and host-embedded SQL. Prereq: DG120U, DG121U, DG138U. (3/2)</p>	<p><b>DG145U Microcomputer Literacy</b> 1</p> <p>Introduces the students to the personal computer concepts and basic computer applications. Students will gain knowledge and skills in the basic concepts of Microsoft Windows and Word. They will also gain experience in using the Internet and email. The course will introduce students to spreadsheet and presentation software. This introductory course is intended for students with no knowledge or experience using personal computers. (5/1)</p>	<p><b>DG153U LAN Administration</b> 3</p> <p>Introduces the student to managing a network. Topics covered include workstation configuration, shared printing, security features and configuring a user's network environment. Additional topics include user account management, electronic mail and disk storage structure organization. This course will use NetWare 3.12 to introduce the student to network administration. Prereq: DG143U, DG152U (or co-req). (2/2)</p>
<p><b>DG140U Application Programming Projects-iSeries</b> 4</p> <p>Supervised work experience at various data processing tasks on the AS/400. These tasks may be done within a real or simulated business organization. The student will write a complete system that utilizes all the resources of the AS/400 and draws on the knowledge gained in all previous classes. Prereq: DG139U. (1/6)</p>	<p><b>DG146U Microcomputer Applications</b> 2</p> <p>Provides an introduction to microcomputer hardware, software and computer terminology. Students learn word processing, spreadsheet, database and DOS fundamentals. Students reinforce these fundamentals through computer application projects. Prereq: OF113T. (1/2)</p>	<p><b>DG154U Microcomputer Presentations</b> 2</p> <p>Allows students to create a variety of presentation materials using Microsoft PowerPoint presentations software. Topics included are appropriate font sizes, color impact, spacing guidelines, drawing, moving text and art, importing text from other software applications, and creating charts and graphs. Class presentations and group work will be an integral part of this course. Prereq: DG101T or DG102T. (1/2)</p>
<p><b>DG141U Operating Systems Coding (MVS/JCL)</b> 3</p> <p>Provides exposure to and hands-on experience using MVS/ESA JCL (Job Control Language) for mainframe programmers. This course includes using MVS/JCL to manage datasets, compile programs including linkage editor functions, utilize VSAM files, write and utilize catalogued procedures, and use IBM utilities. COBOL compiler options will be covered. Prereq: DG120U, DG104U. (3/0)</p>	<p><b>DG147U Windows Operating System</b> 2</p> <p>Prepares individuals to effectively and efficiently use Windows. Topics covered will include set-up, configuration and application programs. Prereq: DG101T or DG102T. (1/2)</p>	<p><b>DG155U iSeries Operations Management</b> 3</p> <p>Covers topics required to effectively manage an AS/400 system such as work management; job scheduling and runtime priorities; spool control; and subsystem definition and adjustment. Consideration of performance tools and tuning as well as system security measures, including save/restore strategies, will be discussed. Prereq: DG138U. (2/2)</p>
	<p><b>DG148U Interactive RPG IV</b> 4</p> <p>Continues introduction to RPG III/400. Will teach interactive structured programming using ILE RPG/400 (RPGIV). Topics covered will include subfile, data structures, file handling and screen design. Use of host-embedded SQL with multi-row results in cursor will be stressed. Prereq: DG137U. (3/2)</p>	

- DG157U Java I** 4  
Introduces basic Java language concepts by building applications and applets. Students will build graphical user interfaces using the AWT (Abstract Windowing Toolkit). Advanced Java concepts will be discussed. Prereq: DG129U. (3/2)
- DG158U Integrated Microcomputer Applications** 3  
Provides experience in selecting appropriate software to complete a computer application. Students will learn efficiency techniques such as how to convert files into the correct format for integration. Emphasis is placed on preparing the student to troubleshoot existing document integration problems that include graphics, links, tables, frames, styles, and forms. Prereq: DG111U, DG112U, DG113U. (2/2)
- DG159U Introduction to HTML/WEB Page Design** 3  
Presents hypertext markup language principles used in creating well-designed web pages that include graphics, links, tables, frames, styles and forms. Also covered are JavaScript and DHTML on an introductory level. Prereq: DG102T. (2/2)
- DG160U Visual Basic** 4  
Introduces the student to visual development tools, within the Windows Integrated Development Environment (IDE), using Microsoft Visual Basic 6.0. The student builds standalone VB projects, and then builds front-end interfaces to ODBC databases using VB tools. Prereq: DG208U (3/2)
- DG161U C++ With Algorithms and Data Structures** 4  
Extends skills and competencies acquired in Into to C Programming language. The C++ language is introduced as an enhanced and extended version of C. Structures and arrays will be utilized to implement abstract data types in conjunction with a variety of model problems. This will be used as a basis for introducing classes, class construction and object-oriented programming. Prereq: DG129U. (3/2)
- DG162U Visual C++ Programming** 4  
Introduces the student who is familiar with the C++ programming language to programming in the Windows environment using the graphically oriented development tools of Visual C++ together with the Microsoft Foundation Classes (MFC). Prereq: DG129U, DG161U. (3/2)
- DG163U Internet Programming I** 4  
Introduces the student to webpage development tools, including HTML markup language and JavaScript scripting language. The student uses text editors to build webpages that include tables, forms, frames, and lists. The student uses scripting language to add dynamic functionality and user interaction to a webpage. Prereq: DG208U. (3/2)
- DG164U Internet Programming II** 4  
Introduces the student to server-side webpage development skills. The course includes an introduction to Perl, VBScript, and JavaScript programming languages. The student will gain understanding of CGI processes and active server pages technologies. This course builds upon the skills acquired from Internet Programming I. Prereq: DG163U. (3/2)
- DG165U PC Programming Projects** 4  
Allows the students to apply the knowledge learned in a number of programming courses, including C, Visual Basic, C++ and Java. This course also requires application of knowledge gained from Programming Design and Systems Analysis classes in the analysis, design, scheduling and implementation of a complete Systems Development effort. This course should be taken in the student's final semester. (3/2)
- DG166U SQL Server Programming** 4  
Covers programming for the SQL server relational database environment. Some of the topics covered will be T-SQL, joining tables, creating and altering SQL server tables, replication, OLAP, security, and tuning. Prereq: DG116U. (3/2)
- DG167U JavaBeans** 3  
Exposes the student to programming with JavaBeans. The student will learn to develop projects to extend Java's power and interoperability, build portable and reusable web components, build custom beans from scratch, and put existing beans to use. Prereq: DG157U. (2/2)
- DG168U VBA with WORD, EXCEL, ACCESS** 2  
Introduces the student to Visual Basic for Applications (VBA) within the Microsoft Office environment. The student will learn to utilize the Visual Basic Editor; write and run a command macro; create user-defined functions; program in VBA and call VBA procedures. (1/2)
- DG169U WEB Page Design Using FrontPage** 3  
Learn to use Microsoft FrontPage to create and manage professional quality web sites without programming. (2/2)
- DG172U Introduction to Unix Systems** 3  
Introduces and familiarizes students with the Unix operating systems and the standard facilities available in the Unix environment. The standard shell and common GUI interfaces will be introduced. Students will be acquainted with the software tools and philosophical characteristics of the operating system, and will be provided the opportunity to utilize a variety of the software tools and perform basic system management tasks. Prereq: DG170U or DG208U. (2/2)
- DG173U Intro to COBOL/400** 4  
Introduces COBOL programming for the AS/400 platform. Students will be able to code, test and debug the four COBOL division entries for a simple report, file maintenance and control break programs using sequential and indexed externally described AS/400 database files. Single and multi-level table processing concepts will be covered. (3/2)
- DG174U OO Programming with Java** 4  
Provides an introduction to object-oriented program and design concepts using the Java programming language. Intended for students without previous object-oriented programming experience. The course covers methods, classes and objects with emphasis on modularity and code reusability. Students will code, test, and debug simple applets and applications illustrating understanding of conditionals, iteration, array handling, event processing, recursion, string handling, and input-output. Prereq: DG116U. (3/2)
- DG175U Data Base Management Using DB2/400** 4  
Continues AS/400 Data Management. Stresses relational database design, creation and management with emphasis on SQL Data Definition and Manipulation language. Projects require interactive and host-embedded SQL coding. Prereq: DG142U.
- DG176U Critical Problem Solving** 1  
Assigns everyday opportunities to the student to research, hypothesize several solutions and use one of the solutions to solve the problem effectively and efficiently. (1/0)

## Course Descriptions

- DG177U NetWare NDS Concepts** 2  
Introduces the concepts of NetWare Directory Services. Learn how to design a directory tree. Utilize the NDS replication model. Plan hard drive partitions and volumes for data migration and online storage and network security. Prereq: DG143U. (2/0)
- DG178U Windows NT Concepts** 2  
Introduces the concepts of Windows NT networking. Emphasizes the terms associated with Windows NT networking. Prereq: DG143U. (2/0)
- DG179U Windows Networking** 3  
Allows students to design and build LANs with Windows 95/98. Will learn resource sharing, user maintenance and security, and software installation. Prereq: DG102T, DG143U. (2/2)
- DG180U NetWare NDS Administration** 3  
Continues the concepts of network management using Novell Directory Services. Topics covered include workstation configuration, network printing, server and network security, user account management, and disk storage structure within the NDS structure. This course will use Novell's NetWare 4.2 to enhance the student's knowledge of network management. Prereq: DG153U, DG177U. (2/2)
- DG181U Wide Area Network (WAN) Basics** 2  
Introduces the student to concepts used to connect multiple local area networks to form a wide area network. Topics include routing, hardware used to connect networks segments, leased telephone lines, and dial-up telephone lines and other transmission media. Prereq: DG143U. (2/0)
- DG182U Advanced PC Concepts** 3  
Follows and builds on the prerequisite, Intro to PC Hardware. The first half of the course is spent reviewing, but also going into more depth on the topics covered in the beginning hardware course. The second half of the course deals primarily with software considerations (such as BIOS, drives, and operating systems) necessary to understanding how modern PCs work. Throughout the course, tie-in to A+ certification topics is done for the benefit of those who plan to take the Comp-TIA exam. Prereq: DG211U. (2/2)
- DG183U Local Area Network Design and Protocols: Cisco I** 3  
Provides the student with a basic understanding of networking. Topics include OSI model and industry standards, network topologies, IP addressing with subnet mask, networking components, and basic network design. This course is the prerequisite to Cisco NetWare Routing, Cisco Router Basics and Cisco Telecommunications. Prereq: DG143U. (2/2)
- DG184U Windows NT Server 4.0** 3  
Provides the student with a lecture/lab environment to design, create and manage an NT Server client/server network. Topics include hardware requirements, software installation, fault tolerance setup, user management, network printing setup and network monitoring. Prereq: DG178U, DG179U. (2/2)
- DG185U NetWare NDS Configuration** 3  
Allows the student to design and create a server-based network. Topics include understanding hardware requirements, NDS concepts, hardware configuration and setup, network operating system software installation, workstation configuration and setup, and testing workstation to server connections. Prereq: DG177U, DG180U (2/2)
- DG186U TCP/IP for Networking** 3  
Introduces the student to the concepts of the TCP/IP suite of protocol. The student will learn IP addressing, Dynamic Host Configuration Protocol, Domain Name Services, Universal Naming Conventions and how this protocol is used to connect to the Internet. Co-req: DG184U (2/2)
- DG187U Network Cabling** 2  
Introduces the student to the infrastructure of networks. The student will learn what types of media are used in the infrastructure of a network and will work with the Twisted Pair to construct cables to be used on a network. Prereq: DG143U. (1/2)
- DG189U Network Routing: Cisco 3** 3  
Allows the student to work with network routing in a server-based network environment using the NetWare network operating system. Topics include router configuration, routed and routing protocols. Prereq: DG183U, DG190U. (2/2)
- DG189U Windows NT Workstation** 3  
Continues Windows Networking by introducing the student to NT Workstation 4.0 operating system. Topics will include domains, hardware requirements, peer-to-peer networking setup and configuration, NT Workstation user and resource management, and NTFS design and structure. Prereq: DG179U or permission of instructor. (2/2)
- DG190U Router Basics: Cisco 2** 3  
Introduces students to the Cisco family of routers, setup, configuration and management of using routers in a network environment. Prerequisites: DG188U or permission of instructor. Prereq: DG183U. (2/2)
- DG191U Wide Area Telecommunications and Networking: Cisco 4** 3  
Provides the student with a basic understanding of how Cisco routers are integrated with PBX interfaces. Topics will include hardware used to connect networks using leased and dial-up telephone lines. Prereq: DG190U or permission of instructor. Prereq: DG188U. (2/2)
- DG192U A+ Certification Workshop** 1  
Provides the student, whose wish is to get the A+ Certification, with a better understanding of what to expect on the certification test. Topics will include customer service, hardware troubleshooting, software installation and troubleshooting. Prereq: IT144U or instructor's permission. (1/0)
- DG200U JAVA II** 4  
Continues JAVA I. This course will cover such topics as advanced GUI, exception handling, multithreading, multimedia, files and streams, networking, and data structures. Prereq: JAVA I. (3/2)
- DG201U Building Client/Server Applications with Java** 4  
Focuses on programming methods to access host databases using the Java language. Programs will be run on both the Host and on the workstation client. Visual age for Java will be introduced and used to create client applications accessing VDB DB2/400. Prereq: DG174U or DG157U. (3/2)
- DG203U Database Programming with Visual Basic 6** 4  
Extends the student's knowledge of Visual Basic and use of Visual Basic to work relational databases such as ACCESS and SQL Server. Topics include ActiveX Data Objects (ADO) and other data designers. Creation of ActiveX controls and ADO use with Active Server Pages is also covered. Prereq: DG160U. (3/2)
- DG204U Fundamentals of Desktop Support** 3  
Introduces the concepts of supporting personal computers as a career. Students will improve their proficiency in providing personal computer support by troubleshooting real-life scenarios including specifications/management considerations, and customer service skills. Lab may include students volunteering at not-for-profit organizations upgrading computer and computer peripherals. Co-req: DG211U. (2/2)



**DG206U Peripheral Maintenance** 3

Extends the student's knowledge of personal computer hardware and software to the peripherals that make modern PC's useful. Students will learn the theory of operations and maintenance strategies for printers, scanners, drives and other devices. During lab, students will become skilled by applying their knowledge to hands-on experiences that include working on computers and other equipment. Lab may include students volunteering at not-for-profit organizations upgrading computers and computer peripherals. Prereq: DG211U. (2/2)

**DG207U Intro to Mainframe Programming** 2

Covers basic operation of data entry equipment. Intended to make students self-sufficient in preparation of programs and test data. Pre or Coreq: DG116U. (2/0)

**DG208U Intro to PC Programming** 2

Familiarizes students with the PC programming environment and acquaints them with the distinctions between productivity applications and workgroup applications. Introduces client/server architecture, PC operating systems, and network operating systems. Students will learn to develop informal programmatic solutions to simple business problems and categorize their level of implementation. Pre or Coreq: DG116U. (2/0)

**DG209U eBusiness Application Development** 3

Uses a popular industry standard full case tool and Fourth Generation Language to develop and generate end-to-end, web deployed e-business client-server applications that securely access and update AS/400 and/or Windows NT/2000 data. Students will learn to use a data modeler, AS/400 Object Oriented Repository, programmable templates, AS/400 screen report painter, Windows-based end user query, reporting and charting, and change management facilities. Students will gain facility in cross platform application development and generate industry standard Graphical HTML, Java, XML, or WML. (2/2)

**DG211U Introduction to PC Hardware** 3

Survey of the operation of a modern personal computer, from a hardware point of view. The intent is to give students a basic foundation on which to build good troubleshooting skills in subsequent courses. Topics include system boards, different storage drives, memory and power supplies. Enough software topics, such as an introduction to operating systems, are covered to make the core topics flow together. Low level laboratory exercises enhance and reinforce understanding of the material covers. (2/2)

**DL: Dental****DL103U Dental Assisting I** 3.5

Learn basic principles of dental assisting including fundamental chair-side concepts and techniques, team delivery systems and intra-oral skills. Prereq: DL121U, DL122U, DL120U, DL119U, HS111U, or be concurrent.

**DL119U Dental Materials II** 2

Combines the science of dental materials with manipulative practice. Includes exposure to laboratory procedures common to a dental office. Prereq: DL120U, DL121U or concurrent. (1/2)

**DL120U Dental Materials I** 1.5

Introduces students to materials utilized in the dental field. Handling and preparation of specific materials prepares students for clinical procedures to be performed on patients. Prereq: DL121U, DL122U, DL126U. (1/1)

**DL121U Dental Anatomy** 3

Introduces students to basics of embryology, histology, terms and anatomy of the oral cavity including a detailed study of crown and root morphology of both primary and permanent dentition. (3/0)

**DL122U Fundamentals of Dentistry** 3.5

Provides the foundations of knowledge necessary to begin a study in the dental field. Introduction to instrumentation, dental specialties and special needs patients are discussed. Introductory oral hygiene instruction and basic radiography is provided.

**DL123U Dental Emergencies** 0.5

Provides an overview of emergencies common to the dental office setting. Students will gain knowledge in emergency drugs, allergic reactions and drug-related emergencies. Also emphasized are specific medical conditions related to treatment. Prereq: DL121U, DL122U, DL126U. (.5/0)

**DL125U Preventive Dentistry** 1.5

Provides an introduction to dental disease, the causes and methods for prevention. An intense focus on dental caries and preliminary information on periodontal disease. Students will learn to utilize patient assessment techniques and provide oral health information. Take concurrently or Prereq: DL121U, DL126U. (1/1)

**DL126U Head and Neck Anatomy** 1

Utilizes a systems approach to the gross anatomy of the head and neck with emphasis on the maxilla, mandible, oral tissues, neuromuscular and circulatory function, supporting structures and the temporomandibular joint. (1/0)

**DL127U Oral Pathology** 2

Introduction to the general principles of pathology for dental hygienists with emphasis on specifics of oral pathology; building upon and applying biomedical science knowledge to the diagnosis and treatment of oral and maxillofacial diseases. Terminology is a main focus throughout the course. Prereq: DL121U, DL126U, DL205U. (2/0)

**DL128U Dental Office Procedures I** 1

Learn dental office related functions including computer operations, telephone, recall systems, resumes, and supply inventory. Prereq: DL121U, DL122U, DG145U. (1/0)

**DL129U Dental Office Procedures II** 2

Learn dental office management processes including filing, record keeping, financial arrangements, patient accounts, credit and collection, banking, salaries, tax forms, patient correspondence and ethical conduct. Prereq: DL121U, DG145U, DL128U. (2/0)

**DL130U Dental Nutrition** 0.5-1

Study of the role of diet upon oral structures and application of the role of dietary analysis to the treatment plan of a dental patient. Emphasis is placed on analysis of the complete diet and preventive recommendations. Prereq: DL121U, DL122U, DL126U. (.5 - 1/0)

**DL152U DLT Oral Anatomy** 1

Study of the anatomical and physiological features, structures and function of the human head that must be considered in the fabrication of dental prostheses. (1/0)

**DL156U Dental Anatomy Lab** 2

Includes waxing of dental anatomy tooth surfaces on a stone cast that introduces the basic concepts of occlusion. Prereq: DL121U. (0/4)

**DL180U Periodontology** 2

Introduction to the aspects of periodontal disease, the disease process and management of periodontal patients. Emphasis is placed on periodontal instrument techniques and surgery as performed by the dentist. Prereq: DL121U, DL125U, DL881U, DL882U, DL883U, B1130T. (2/0)

**DL181U Therapeutics and Pain Control** 2

Provides students with knowledge of chemotherapeutics used in dentistry and the mechanisms of drugs in the body. Students are then able to understand manifestations of drug administration in dental treatment. Prereq: B1150T, B1151T, CN102T, B1130T. (2/0)

- DL182U Community Dental Health 1.5**  
Provides concepts of health education and promotion, community dental health, and public health dentistry with emphasis on assessment, planning, implementation and evaluation of community oral health promotion. Prereq: DL122U, DL125U. (1/1)
- DL205U Dental Radiography 3**  
Provides the student with principles and techniques of dental radiography. Students will receive practical experience on manikins and selected patients. Prereq: HS111U and HS110U or OSHA training, DL121U, DL122U, DL126U. (2/2)
- DL208U Specialty Dentistry 3.5**  
Presents the specialty areas of dentistry including: endodontics, periodontics, orthodontics, oral surgery, pediatric and geriatric dentistry. Includes procedures, instruments and current concepts for assisting in these areas, as well as psychological consideration in each. Prereq: DL121U, DL122U. (3/1)
- DL209U Dental Assisting II 1.5**  
Learn principles of dental assisting with focus on intra-oral skill obtainment and sterilization processes. Prereq: DL103U, HS111U, DL121U, concurrent with DL125U. (1/1)
- DL215U Oral pathology for Dental Assistants 1**  
Introduction to the general principles of pathology. Emphasis is on the specifics of disease entities of local and systemic origin to enable interpretation by the dental auxiliary of the medical and dental history with emphasis on specifics of oral pathology. Terminology is a focus, with descriptions of oral lesions and their treatment. Prereq: DL121U, DL126U, DL205U. (1/0)
- DL250U Foundation of Dental Technology 3**  
Orients the student to dental technology including infection control, equipment operation, and health and safety. Applies numerous physicochemical principles to the study and manipulations of basic dental materials. (2/2)
- DL251U Introduction to Dentures 5**  
Introduction to the fabrication of complete dentures including procedures, equipment and the materials required to replace natural dentition and the associated structures of the maxilla and mandible. Also includes complete denture repairing, relining and rebasing. Prereq: DL121U, DL156U, DL250U. (2/6)
- DL253U Introduction to Partial Dentures 5**  
Applies the basic principles for removable partial denture framework fabrication including classification, components, surveying, designing, waxing, investing, casting and finishing. Prereq: DL565U, DL250U. (2/6)
- DL254U Introduction to Crown and Bridge 5**  
Applies techniques of model preparation, articulation and laboratory procedures for construction of full-cast crowns, inlays and bridges. Prereq: DL565U, DL250U. (2/6)
- DL307U Dental Assisting III 1.5**  
Continuation of Dental Assisting II with emphasis on support services, equipment maintenance and pharmacology. Prereq: DL103U, DL119U, DL120U, DL121U, DL122U, DL209U, HS111U. (5/2)
- DL350U Fixed Dental Prosthetics 5**  
Advanced fabrication of ceramics and crown/bridge prosthesis to include but not limited to multiple unit bridges, acid etch, post and core using porcelain systems to match natural dentition. Prereq: DL254U, DL456U. (2/6)
- DL351U Removable Dental Prosthetics 5**  
Advanced fabrication of complete dentures and partial prostheses to include intra-oral gothic arch tracings, articulation of teeth in bilateral balanced occlusion, immediate dentures, characteristics and staining techniques, identification in denture bases and fluid resins. Prereq: DL251U, DL253U. (2/6)
- DL352U Dental Technology Industry 3**  
Includes ethics, jurisprudence, history, certification, and dental organizations. Studies the establishment and operation of a dental laboratory, including market surveying, bookkeeping, cost analysis, design and understanding human behavior from a supervisor's point of view. (3/0)
- DL450U Advanced Orthodontics 12**  
Comprehensive application of orthodontic and pedodontic appliance fabrication. Emphasizes quality, productivity, specific techniques and procedures, and the ability to interpret work authorizations. Students will gain practical experiences in a commercial dental laboratory. Prereq: DL455U. (2/4/24)
- DL451U Advanced Fixed Dental Prosthetics 12**  
Comprehensive application of porcelain and crown/bridge prosthesis to include but not limited to stress-breaker, telescopic, and laminates using techniques and modifications of porcelain systems to match natural dentition in a variety of situations. Students will gain practical experience in a commercial dental laboratory. Prereq: DL350U. (2/4/24)
- DL452U Advanced Removable Dental Prosthetics 12**  
Comprehensive application of complete and partial prostheses. Includes overdentures, lingualized occlusion, biomechanical design principles, specific concepts, stress equalizers, quality and productivity improvement and work authorization interpretation. Students will gain practical experiences in a commercial dental laboratory. Prereq: DL351U. (2/4/24)
- DL455U Orthodontics 3**  
Identify malocclusion classifications and incorporate the study of orthodontic materials, use of equipment, into the fabrication of basic orthodontic appliances. Prereq: DL152U, DL156U, DL121U, DL250U. (1/4)
- DL456U Introduction to Ceramics 5**  
Fabrication of porcelain fused to metal prosthesis to include framework design considerations, porcelain characteristics and limitations, equipment, and the materials required to replace natural dentition. Prereq: DL565U, DL250U. (2/6)
- DL565U Occlusion 1**  
In-depth study of the principles of occlusion and their application to fabrication of dental prostheses. Prereq: DL152U, DL156U, DL121U. (1/0)
- DL700U Local Anesthesia for Dental Hygienist 1**  
A comprehensive course relating the basic concepts for the safe and effective delivery of local anesthesia. Students will engage in the hands-on practice of techniques used in the administration of local anesthesia. Prereq: DL121U, DL126U, DL884U, DL181U. (8-16)
- DL821U Dental Assisting Clinic I 4**  
Acquire technical skills from clinical experiences by applying theoretical concepts in general and specialty dentistry areas at the University of Iowa, College of Dentistry, Veterans Medical Center in Iowa City, and in private dental office settings. Prereq: HS111U, DL121U, DL120U, DL122U, DL119U, CPR. Concurrent with DL209U, DL208U, DL205U, DL125U and HS110U or OSHA training. (5/0/10.5)

**DL832U Dental Assisting Clinic II 2.5-4.5**

Comprehensive application of dental assisting skills in the private dental office setting. Prereq: all required program courses. (1/0/6-10.5)

**DL851U DLT Clinic I 1**

Assigns each student to clinical areas to gain practical experiences relating to instructional and manipulative skills provided in the classroom. Prereq: All technical courses required in the first three terms. (0/0/3)

**DL881U Dental Hygiene I 2**

Provides an introduction to the clinical portion of the dental profession. Emphasis placed on skills necessary for preliminary patient care including health histories, basic instrumentation, and legal and ethical issues. Manikin and patient practice are utilized. (1/0/3)

**DL882U Dental Hygiene II 4**

Provides experiences in the application of dental hygiene techniques on a variety of patients in a clinical setting. Clinical experience will include oral prophylaxis, fluoride therapy and oral physiotherapy. Didactic training will encompass new clinical skills, assessment, treatment planning and effective communication skills. Prereq: DL881U. (2/0/6)

**DL883U Dental Hygiene III 3**

Emphasis on treatment of patients with moderate dental disease, continued application of diagnostic information and treatment planning by student. Prereq: DL882U. (1/0/6)

**DL884U Dental Hygiene IV 5**

Provides continued development of oral prophylaxis skills. Emphasis is placed on accessory treatment, outside of a routine prophylactic appointment, and on aided scaling procedures. Prereq: DL883U. (1/0/12)

**DL885U Dental Hygiene V 5**

Prepares students for transition to practice. Board preparation material, credentialing, advanced instrumentation and accessory procedure techniques are taught. Current trends in the dental field are discussed. Prereq: DL884U. (1/0/12)

**DL900T Honors Project: Dental**

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. Prereq: Permission of instructor. (1/0)

**DM: Drama****DM110T Introduction to Theatre 3**

Requires no previous experience. Introduces the student to the roles of actor, director, designer, playwright and critic, and provides a brief history of the art. (3/0)

**DM120T Acting I 3**

Introduces basic acting techniques with emphasis on improvisation, concentration and self-analysis.

**DM130T Stagecraft 4**

Provides information on and experience with the materials, tools, equipment, and techniques of manual drafting, scenery construction and painting, stage lighting, costuming, and make-up. Hands on experience with each of the areas of study is emphasized. Students are required to work on the technical aspects for one Kirkwood production. The course is designed to produce students who have a working knowledge of the basic techniques of producing a live performance. The course is open to all students. (3/2)

**DM140T Performance Signing I 3**

Introduces students to signed theatre. It teaches students the basics of how to sign performance dialogue, create and act out signing characters, and perform as vocal interpreters. (3/0)

**DM141T Performance Signing II 3**

Continues development of the skills in Performance Signing I. Higher levels of acting, translating, and interpreting skills are developed through longer, more complex dramatic works. Prereq: DM140T. (3/0)

**DM180T Theatre Practicum (Acting) 1**

Provides students credit for work as actors in one Kirkwood production. A minimum of twenty-four hours of practical work is required for a passing grade. May be repeated up to six times. Prereq: Permission of instructor. (0/2)

**DM190T Theatre Practicum (Technical) 1**

Provides students credit for work as technicians in one Kirkwood production. A minimum of twenty-four hours of practical work is required for a passing grade. May be repeated up to six times. (0/2)

**DM220T Acting II 3**

Continues training in basic acting techniques with emphasis on creating characters in scripted scenes. Students present individual and group scenes. Prereq: DM120T or permission of instructor. (3/0)

**DM999T Independent Study: Theatre 1-3**

Allows the student to do readings, papers, research and/or production work under the guidance of a theatre faculty member. Independent study contract required. Prereq: Permission of instructor. (0/2-6)

**EE: Electricity and Electronics****EE100U Intro to Careers in Electronics .5**

Presents information relating to careers that may result from completion of programs: Industrial Maintenance Technology, Communication Electronics, Telecommunications and Wholesale Distribution Technology. Topics include job specific information provided by employers, goal setting, skills inventory and personal planning. (.5/0)

**EE101U Introduction to Electrical Circuits 4**

Studies the theory and application of the physics of electricity. Included are definitions, symbols, resistors and the basic laws that apply to DC circuits. Laboratory experiments are designed to enhance the VOM test instruments and soldering techniques. (3/2)

**EE102U National Electrical Code and Electrical Wiring 5**

Covers the proper techniques for wiring electrical devices for residential applications. Topics include use and care of hand tools, placement of parts, residential wiring diagrams, working drawings, National Electrical Code and actual wiring of components. Prereq: EE101U. (3/4)

**EE105U Advanced Electrical Circuits 5**

Continues Introduction to Electrical Circuits and expands to include AC theory, inductors, capacitors, transformers, three-phase, networks and magnetism. Lab exercises reinforce concepts learned by providing experience and troubleshooting opportunities. Prereq: EE101U, IT105U. (4/2)

**EE107U Electrical Applications 3**

Covers general knowledge of basic electrical applications used by industry. Use of basic electrical equipment including multimeters is stressed. Topics include current, voltage, resistance, symbols and basic AC and DC circuits. (2/2)

<p><b>EE108U Electrical Apps for HVAC II</b> 3 Continues the coverage of electrical applications used by HVAC installers. Students will learn a more thorough explanation of voltage and current, including basic measuring techniques and safety concerns. Motors and transformers in their typical applications are also included. Prereq: EE107U. (2/2)</p>	<p><b>EE133U Electrical Circuits II</b> 3.5 Continues the study of EE132U. Concepts learned in that course are applied to AC circuits. Laboratory experiments are designed to provide practical application of the theories studied. Prereq: Algebra. (2/3)</p>	<p><b>EE175U Active Devices I: Transistor Amplifiers</b> 6 Presents an analytical approach with laboratory and computer-simulation exercises to the design and troubleshooting of transistor amplifiers. Topics include BJTs, FETs, small signal/power amplifiers and frequency response. Prereq: EE160U and concurrent with MT101U and EE165U. (4/4)</p>
<p><b>EE115U Motors and Transformers</b> 5 Provides student with theory and hands on experience for electric motors and transformers. Learning activities include reading, lecture and labs. DC, three phase and single phase motors are covered in depth. Three phase and single phase transformers, applications and connections are studied. Prereq: EE101U, IT110U. (4/2)</p>	<p><b>EE134U Electrical Circuits III</b> 3.5 Continues the study of electrical circuits. AC methods of analysis are introduced. Laboratory experiments are designed to provide practical application of the theories studied. Prereq: Algebra. (2/3)</p>	<p><b>EE176U Active Devices II: Operational Amplifiers</b> 3 Presents an analytical approach with laboratory and computer-simulation exercises to the design and troubleshooting of operational amplifier circuits. The four basic types of negative feedback are extensively examined. Topics include voltage amplifiers, comparators, analog to digital conversion, waveshaping and active filters. Prereq: EE175U. (2/2)</p>
<p><b>EE116U Motor Control Circuits</b> 4 Provides students with theory and hands on experience analyzing, designing and troubleshooting motor control circuits. Learning activities include reading, lecture and labs. Motor control theory is introduced covering control devices, schematic symbols, and the use of schematic and wiring diagrams. Wiring labs provide practical applications for control circuits. Students prepare simple schematics and wiring diagrams to meet specifications. (1/6)</p>	<p><b>EE140U Local Loop</b> 4 Introduces students to the construction and maintenance of the Local Loop. Learning activities include termination and equipment for both residential and commercial applications. Other topics covered include voice data, analog of digital circuits. (4/0)</p>	<p><b>EE205U Air Conditioning and Refrigeration I</b> 5 Familiarizes the student with basic refrigeration terms, basic components and specialized equipment necessary to service a refrigeration or air conditioning system. Practical skills are obtained in laboratory exercises. Prereq: EE116U, IT125U. (4/2)</p>
<p><b>EE125U Solid State Devices</b> 2 Introduces students to the theory and applications of diodes, power supplies and small signal applications of transistor amplifiers. Learning activities including laboratory experiments are designed to enhance the learning of the devices studied. (1/2)</p>	<p><b>EE160U Introduction to Electronics Practices</b> 4 Introduces the fundamental components of an electronics laboratory including breadboarding and measurement. Electric circuit theory is applied to analyze practical circuits. Students are introduced to lab procedures which help apply knowledge to power supply circuits. (3/2)</p>	<p><b>EE206U Air Conditioning and Refrigeration II</b> 10 Covers domestic and light commercial refrigeration, air conditioning, heating systems, and heat pumps in theory and labs. Provides students with system troubleshooting, heating and cooling load calculations, and air duct sizing. Prereq: EE205U. (8/4)</p>
<p><b>EE126U Solid State Circuits</b> 2 Continues the study of the transistor amplifier. Covers advanced small-signal, large-signal and operational amplifiers. Learning activities are supplemented by laboratory exercises on the various amplifier circuits. Prereq: EE125U. (1/2)</p>	<p><b>EE164U Electric Circuits I</b> 7 Presents the methods of analysis for DC electric circuits and introduces analysis of AC circuits. Begins with a study of the fundamental aspects of electricity, then examines the same aspects in extensive laboratory sessions. Prereq: Concurrent with MT100U and EE160U. (5/4)</p>	<p><b>EE215U Heating, Ventilation, and Air Conditioning Systems and Controls</b> 7 Provides the student with a working knowledge of commercial air handling units, heating-cooling systems and hydronic piping layouts. Pneumatic environmental controls application, calibration, and troubleshooting are also covered in theory and laboratory exercises. Prereq: EE206U. (5/4)</p>
<p><b>EE132U Electrical Circuits I</b> 3 Introduces the concepts of the physics of electricity. Basic electrical definitions and symbols are introduced, and a study of DC electric circuit theory and application is covered. Laboratory experiments are designed to provide practical application of the theories studied. Prereq: Algebra. (2/2)</p>	<p><b>EE165U Electric Circuits II</b> 5 Adapts the circuit analysis techniques of Electric Circuits I to the AC realm. AC generation, electric/magnetic fields and frequency response are also examined along with an introduction to digital logic. Laboratory and computer-simulation exercises provide enhanced understanding. Prereq: EE160U, EE164U and concurrent with MT101U. (4/2)</p>	<p><b>EE225U Applied Industrial Electronics</b> 8 Covers basic digital logic circuits, solid-state motor controllers, programmable controllers and solid-state temperature controls. All subjects are covered both in theory and laboratory exercises. All laboratory exercises are conducted on equipment typical of that found in industry. Prereq: EE116U, EE126U. (6/4)</p>
	<p><b>EE166U Digital Circuits</b> 3 Presents the analysis and design of digital circuits. Boolean algebra is introduced as a tool in working with basic gates, flip-flops, counters, shift registers, adders, timers and busses. Laboratory and computer-simulation exercises provide enhanced understanding. Prereq: EE175U. (2/2)</p>	

**EE235U Fundamentals of Fluid Power** 5  
Familiarizes the student with basic industrial hydraulics and pneumatics involving systems components, theory of operation, application, and common troubleshooting techniques. Course theory is supplemented with laboratory experiments. Prereq: EE225U. (4/2)

**EE252U Cabling and Termination** 2  
Introduces the components used in connecting electrical communication devices and systems. Students will work with twisted pairs to construct cables used in communication networks. Laboratory experiments are designed to give the student practical experience with cabling and termination. (1/2)

**EE266U Telecommunications Internship** 2  
Provides an on-site job experience for the student. The student will be exposed to telecommunications equipment and systems in a typical work environment. (0/4)

**EE267U Telephony Circuits I** 3  
Covers the theory of telephony circuits. Emphasis is placed on how a telephone functions, analog to digital conversion, multiplexing, and transmission of voice, data, and video signals. Lab activities reinforce lecture topics. Prereq: EE256U. (2/2)

**EE268U Transmission Circuits I** 3  
Explores in detail the methods of transmitting and receiving voice, data and video signals. The course will include fiber optic, microwave, satellite and data networking forms of transmission. Prereq: EE256U. (2/2)

**EE269U Fiber Optic Circuits** 3  
Covers the theory and application of fiber optic principles and devices. Topics include performance comparisons of specific systems, noise analysis and receive sensitivity. Prereq: EE256U. (2/2)

**EE270U Multiplexing I** 3  
Introduces the concepts of switching networks and multiple-user communication lines. Topics include common channel signaling, public packet switched networks, integrated digital networks and synchronized optic networks. Prereq: EE256U. (2/2)

**EE271U Telephony Circuits II** 3  
A continuation of EE267U. This course will expand the analysis of voice video, and data communication circuits. Prereq: EE267U. (2/2)

**EE272U Transmission Circuits II** 3  
A continuation of EE268U. This course will expand the analysis of fiber optic, microwave, satellite and data networking forms of transmission. Prereq: EE268U. (2/2)

**EE275U Microprocessors I** 5  
Covers extensive applications of microprocessors to industrial processes including interfacing, assembly language programming and diagnostic techniques. Course focuses on 8-bit micro applications. Prereq: EE166U. (4/2)

**EE276U Microprocessors II** 5  
Continues Microprocessors I, covering extensive applications of microprocessors to industrial processes including interfacing, assembly language programming and diagnostic techniques. Course studies 16/32-bit microprocessors and applications to systems. Prereq: EE275U. (4/2)

**EE285U Communication Electronics I** 5  
Provides students a background necessary for working with systems and circuits used in today's communications industry. Major topics are: signal representations, block diagrams, amplitude modulation, single sideband, frequency and phase modulation, time division multiplexing, and frequency division multiplexing. Prereq: EE176U. (4/2)

**EE286U Communication Electronics II** 5  
Continues Communication Electronics I. Major topics are: antennas, transmission lines, propagation of electromagnetic waves, waveguides, FM stereo multiplex, color television and other communication electronics. Prereq: EE285U. (4/0)

**EE287U Communication Projects** 2  
Covers projects related to building an oscillator, an AM generator, a balanced modulator and an FM generator. Other related projects may be assigned as time permits. Prereq: EE176U and concurrent with EE285U. (1/2)

**EE295U Design Projects** 3  
Provides students experience in individually designing subsystems and in working as part of a design group where each student has specific responsibilities toward achieving the overall goal of designing, building, troubleshooting and testing a complex electronic system. Prereq: Concurrent with EE286U. (2/2)

## EF: English as a Second Language

**EF007D ESL Integrated Skills 4** 2  
A study skills class that promotes student success in American educational institutions. Includes cultural awareness, time management, organization, test taking, and note taking skills that are necessary tools for international students to be successful in the classroom. Prereq: EF022D.

**EF008D ESL Integrated Skills 5** 2  
Promotes skills required to be successful in the American college and work environment. Includes writing an academic research paper. Expands on the skills presented in Integrated Skills 4. Prereq: EF007D.

**EF009D ESL Integrated Skills 4 Lab** 1  
Required component of Integrated Skills 4. Prereq: EF022D.

**EF010D ESL Integrated Skills 5 Lab** 1  
Required component of Integrated Skills 5. Prereq: EF007D.

**EF020D ESL Composition II** 4  
The student learns words and phrases; applies meaning to words; learns spelling; becomes familiar with pronouns and articles; and understands the use of present and past tense. (4/0)

**EF022D ESL Composition III** 4  
Emphasizes the development of basic points of writing an American English sentence. The students learn to express their ideas in writing in an organized way. Prereq: EF020D. (4/0)

**EF024D ESL Composition IV** 4  
Develops intermediate-level writing skills for second language students in pre-writing, paragraph writing and revision. Rhetorical modes include descriptive, narrative, comparison/contrast and cause/effect. Prereq: EF022D (3/2)

**EF026D ESL Composition V** 4  
Continued development of a topic into a three to five paragraph composition with the ability to write in the conventions and styles of thinking and ordering that dominate American academic discourse. Prereq: EF024D. (4/0)

**EF030D ESL Reading II** 4  
A beginning reading course that is based on a psycholinguistic approach to reading. The students begin to learn skills of predicting, guessing meaning in context and general comprehension. (4/0)

## Course Descriptions

<b>EF032D ESL Reading III</b> 4 Low-intermediate reading course that aims to develop reading for meaning, personal reading confidence, and the increase of speed and fluency in reading. Prereq: EF030D. (4/0)	<b>EF056D Communications V</b> 4 Prepares students to effectively communicate through listening and speaking in a wide variety of settings resulting in a seamless transition to credit course work and/or involvement in the community. The course will include a service learning component. Prereq: EF054D. (4/0)
<b>EF034D ESL Reading IV</b> 4 Increases intermediate-level reading skills for second language students in comprehension, speed, inference development and skimming/scanning techniques. Prereq: EF032D. (3/2)	<b>EF100D Orientation for International Students</b> 1 To provide international students with a semester-long program covering skills needed in an American college, in the Kirkwood community, and in American culture. (1/0)
<b>EF036D ESL Reading V</b> 4 A high intermediate-level reading course that continues development of judging critically, reading for knowledge and learning notetaking techniques. Prereq: EF034D. (4/0)	<b>EF101D ESL Composition II Lab</b> 0.5 Required lab component of ESL Composition II class. (0/1)
<b>EF040D ESL Grammar II</b> 4 A beginning-level course that introduces basic English grammatical structures and acceptable sentence patterns through a variety of oral and written drills. (4/0)	<b>EF102D ESL Composition III Lab</b> 0.5 Required lab component of ESL Composition III class. Prereq: EF101D. (0/1)
<b>EF042D ESL Grammar III</b> 4 A low intermediate-level of English grammar structures and sentence patterns with emphasis on drill work. Prereq: EF040D. (4/0)	<b>EF105D ESL Reading II Lab</b> 0.5 Required lab component of ESL Composition II class. (0/1)
<b>EF044D ESL Grammar IV</b> 4 An intermediate level of continued development of understanding and using English grammar and acceptable sentence patterns. Prereq: EF042D. (4/0)	<b>EF106D ESL Reading III Lab</b> 0.5 Required lab component of ESL Composition III class. Prereq: EF105D. (0/1)
<b>EF046D ESL Grammar V</b> 4 Provides the student with an intensive review of American English grammar. In addition, the students will further develop their use of idioms. Prereq: EF044D. (4/0)	<b>EF109D ESL Grammar II Lab</b> 0.5 Required lab component of ESL Grammar II class. (0/1)
<b>EF050D ESL Communications II</b> 4 A listening and conversation course that helps students hear and understand the spoken English language and, therefore, be able to orally communicate with native English speakers. (4/0)	<b>EF110D ESL Grammar III Lab</b> 0.5 Required lab component of ESL Grammar III class. Prereq: EF109D. (0/1)
<b>EF052D ESL Communications III</b> 4 A listening and conversation class that builds on basic aural/oral skills. Prereq: EF050D. (4/0)	<b>EF113D ESL Communications II Lab</b> 0.5 Required lab component of ESL Communications II class. (0/1)
<b>EF054D ESL Communication IV</b> 4 A listening and conversation class that further develops conversational listening and speaking skills in order to function as English speakers in the college classroom. Prereq: EF052D. (4/0)	<b>EF114D ESL Communications III Lab</b> 0.5 Required lab component of ESL Communications III class. Prereq: EF113D. (0/1)

## EM: Emergency Medical

<b>EM010U Emergency Medical Technician - Basic</b> 6.5 Certification program consisting of 120 classroom hours of instruction preparing individuals in entrance level emergency care. Students will learn basics of cardio respiratory emergencies, seizures, diabetic emergencies, trauma-related injuries, and other medical emergencies and response protocols. To become certified, participants must successfully complete the national Registry EMT-Basic certifying exam with a minimum score of 70%. Students who complete the course with an 80% or higher average will be eligible for National Registry of EMTs testing of the basic level and Iowa EMT-B certification. (6/1.5)
<b>EM030U Emergency Medical Technician - Basic Clinical</b> .5 Provides opportunities for students to practice patient care under supervision in the prehospital and emergency department settings. Prereq: EM010U. (0/0/1.5)
<b>EM100U Introduction to Paramedicine</b> 2 Provides an overview of paramedic roles and responsibilities and the emergency medical services system. Includes discussion of medicolegal and ethical issues in EMS, agents of trauma and disease and career opportunities for paramedics. Prereq: HS110U, Valid Iowa EMT-B certification, current CPR for Health Care Providers. (2/0)
<b>EM101U EMS Operations</b> 1 Provides discussion and demonstration of proper documentation in EMS, emergency vehicle operations and non-patient care aspects of EMS. Coreq: EM100U. (1/0)
<b>EM105U Pharmacology for Paramedicine</b> 3 Provides an introduction to drug classes, mechanisms of action and metabolism. Discusses indications, contraindications, dosages, routes of administration and side effects of drugs administered by the paramedic. Prereq: HS150U, PT130U. Coreq: EM100U. (3/0)
<b>EM106U Iowa Paramedic</b> 13 Prepares the student for national registration as an EMT-Intermediate and certification as an Iowa Paramedic. Students learn advanced airway management techniques, IV therapy, advanced cardiac life support, trauma management and administration of emergency medications. Prereq: EM010U; Coreq: EM030U. (11.5/3)

**EM205U Cardiorespiratory Paramedicine** 3  
Provides lecture-discussion and case-based teaching in the pathophysiology, recognition and advanced life support management of cardiovascular and respiratory emergencies. Prereq: EM100U, EM105U. (3/0)

**EM206U Paramedic Laboratory I** 2  
Provides scenario-based teaching and student practice in techniques of assessment and management of patients with cardiovascular and respiratory emergencies. Prereq: EM100U, EM105U. Coreq: EM205U. (0/4)

**EM305U Special Patient Populations in Emergency Medical Services** 3  
Provides lecture-discussion and case-based teaching of EMS assessment and management of emergencies specific to pediatric, geriatric, disabled and obstetric patient populations. Prereq: EM205U. Coreq: EM206U, EM207U, EM308U, EM832U. (3.0)

**EM306U Paramedic Lab II** 2  
Provides demonstration and scenario-based practice of assessment and management of trauma, medical, psychological, pediatric, geriatric and obstetric patients. Prereq: EM206U, EM305U, EM307U, EM308U, EM382U. (0/4)

**EM307U Trauma and Environmental Emergencies** 3  
Provides lecture-discussion and case-based teaching in the kinematics of trauma, pathophysiology of shock and trauma, and techniques of trauma management. Discussion of identification and management of environmental emergencies including heat and cold, barotrauma, altitude, radiation, hazardous materials and drowning emergencies. Prereq: EM205U. Coreq: EM306U, EM308U, EM932U. (3/0)

**EM308U Medical and Psychological Emergencies** 3  
Lecture and case-based teaching in the pathophysiology, recognition and advanced life support assessment and management of emergencies involving the nervous, endocrine, renal, and gastrointestinal systems. Assessment and interventions in psychological emergencies. Prereq: EM205U. Coreq: EM832U, EM306U. (3/0)

**EM406U Instruction in EMS** 4  
Provides an introduction to the roles and responsibilities of instructors, overview of EMS curricula, writing objectives and lesson plans, educational program planning, implementation and evaluation. Introduction to teaching methods and learning styles. Student teaching opportunities. Prereq: EM100U. (3/0/3)

**EM801U Iowa Paramedic Clinic** 3.5  
Allows students to participate in the delivery of out-of-hospital and hospital advanced life support care. Students must complete a prescribed number of unassisted ambulance runs to successfully complete this course. Coreq: EM106U. (0/0/10.5/0)

**EM821U Paramedic Clinical I** 4  
Provides opportunities for observation and supervised practice of patient assessment and management in various settings. Prereq: EM100U, EM105U, EM205U, EM206U. (0/0/12)

**EM832U Paramedic Clinical II** 4  
Provides opportunities for observation and supervised practice of patient assessment and management in various settings. Prereq: EM821U, EM305U, EM306U, EM307U, EM308U. (0/0/12)

**EM843U Paramedic Clinical III** 5  
Provides opportunities for guided paramedic practice and evaluation in pre-hospital and hospital clinical environments. Prereq: EM832U. (0/2/12)

**EM844U Paramedic Fieldwork** 4  
Provides opportunities for guided practice and evaluation in the pre-hospital setting. Students are expected to achieve increasing independence as paramedic level practitioners. The student must complete a prescribed number of unassisted runs to successfully complete the course. Prereq: EM843U. (0/0/12)

## EN: Engineering

**EN100T Engineering Orientation** 1  
Explores engineering career options and engineering disciplines. Students will learn problem solving skills and will develop an educational plan of study. Prereq: MT106U. (1/0)

**EN100U Applied Statics** 4  
Analyzes force systems to determine the forces necessary to produce an equilibrium condition for rigid bodies at rest or in uniform motion. Friction forces are also covered. Both analytical and graphical solutions are used to solve problems involving concurrent force systems. Prereq: MT100U. (3/2)

**EN105U Applied Dynamics** 4  
Analyzes force systems to determine the forces necessary to produce an equilibrium condition for rigid bodies that are in motion. Three solution methods are used to relate force and mass with acceleration, velocity and displacement: force method, work-energy methods and impulse-momentum method. Prereq: EN100U. (3/2)

**EN110U Strengths of Materials** 4  
Studies machined and structural members subjected to various kinds of loads - shear, compression, tension, bending or torsion. Strength of materials establishes the procedures to be followed to size the members so that they can withstand the applied loads and meet the expected strength and deflection criteria. Prereq: EN100U. (3/2)

**EN115U Applied Kinematics** 4  
Studies kinematics, a study of motion without regard to forces that cause it. This course studies the analysis of a kinematic system for displacement, velocity and acceleration. The majority of solutions to problems are by a biographical method. Some are solved analytically. Students will study linkages, cams and gears. Students will solve problems by use of vectors in a logical order. Prereq: EN100U. (2/4)

**EN160T Engineering I** 3  
Develops skills in modeling and solving engineering problems, data analysis, engineering graphics, and technical communication using computer application software. Prereq: MT151T. (2/2)

**EN165T Engineering II** 3  
Develops skills in solving engineering problems using the C-programming language. Programming and numerical techniques are directly applied to the engineering discipline. Prereq: MT151T. (2/2)

**EN170T Materials Science** 3  
Covers the different structures of materials and the resulting mechanical, electrical and magnetic properties, phase diagrams, kinetics and materials in engineering design. Prereq: CN110T and MT151T. (3/0)

**EN180T Statics** 3  
Covers such topics as vector algebra, forces, couples, equivalent-force couple systems, Newton's laws, friction, equilibrium, centroids, area moments of inertia and applications. Prereq: MT160T. (3/0)

**EN280T Dynamics** 3  
Emphasizes vector calculus; Newton's laws; kinetics and kinematics of particle motion; multiparticle systems; and rigid bodies and applications. Prereq: MT161T and EN180T. (3/0)

**EN285T Introduction to Electrical Science** 4  
Covers DC and AC circuits, Ohm's law, Kirchoff's voltage and current laws. Circuit analysis techniques including Thevenin equivalents, superposition, source transformation, nodal and mesh analysis, transient and steady state response, complex impedance, average power, RMS voltage and current. Prereq: MT161T. (3/2)

**EN290T Thermodynamics** 3  
Includes basic elements of classical thermodynamics including first and second law; reversibility; irreversibility; Carnot cycle; properties of pure substances closed simple systems and one-dimensional steady-flow open systems; and engineering applications. Prereq: CN110T, MT161T. (3/0)

## EO: Economics

**EO120T Principles of Macro Economics** 3  
Introduces principles of the economizing problem with emphasis on national income and employment analysis. Includes national income accounting; the business cycle; money and banking; fiscal and monetary theory; policy; and economic growth. Recommended for students pursuing a baccalaureate degree. (3/0)

**EO130T Principles of Micro Economics** 3  
Emphasizes markets; the price system and the allocation of resources; demand and supply; market structures; price and output determination; and income distribution. Recommended for students pursuing a baccalaureate degree. (3/0)

**EO150T Asian Economic Systems** 3  
Studies the mechanisms for decision-making and the process of implementing decisions regarding the production, distribution, and consumption of goods and services in Asia. Examines different forms of economic systems including capitalism, capitalist-mixed economics, socialist-mixed economics and market socialism. Encourages students to compare and critically evaluate these various economic systems. (3/0)

**EO999T Independent Study: Economics** 1-3  
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Permission of instructor and dean. (1-3/0)

## EP: Environmental Studies and Pollution Control

**EP121T The Environment: Natural Science Perspectives** 3  
Examines environmental issues from a scientific perspective. Topics examined include ecosystems, energy, global warming, ozone depletion, air pollution, water resources, population growth and biodiversity. Students are required to analyze environmental problems and draw conclusions. (3/0)

**EP160U Supervised Plant Operation** 7  
Offers a training period in the Kirkwood wastewater treatment plant. The student participates in the routine daily operation of the college's wastewater treatment facility under the direct supervision of a faculty member. (0/14)

**EP210U Industrial Wastewater Treatment** 2  
An overview of common industrial treatment methods and their effluent expectations. Course includes a review of an industrial pre-treatment agreement and other applicable standards. Prereq: EP307U. (2/0)

**EP221T Global Seminar: Environmental Perspectives** 3  
Analyzes environmental issues using global case studies, video conferences with other colleges, and the internet. Students will learn factors that affect world food and water supplies, population growth, and global ecology. Prereq: Consent of instructor. (3/0)

**EP300U Water Analysis** 3  
Introduces basic laboratory safety and gravimetric, spectrophotometric electrochemical, titrimetric and microbiological methods. Students learn the procedures for regulatory sampling and safety, and specific analytical procedures for total residue, fluoride, pH, ammonia, acidity, alkalinity, calcium, chloride, hardness, and coliform analysis. Along with reading assignments from the text, the course is enhanced with up-to-date photographs, interactive exercises, and online links. (3/0)

**EP301U Basic Mechanical Maintenance and Pumps** 3  
Provides practical training covering maintenance and repair procedures for pumps typically found in water and wastewater treatment facilities. Also addresses the basic concepts of hydraulics, pump curves and energy consumption. (1/4)

**EP303U Wastewater Collection** 2  
Describes various components, operations, repair and maintenance typically found in collection systems. Course will encompass all safety aspects of water and wastewater plants including SCBA, confined space entry and lock out-tag out procedures. (1/2)

**EP304U Basic Water Treatment** 4  
Explores the rudiments of water treatment. Students will learn regulatory monitoring, iron manganese removal, filtration, coagulation, flocculation, fluoridation, and disinfection. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. (4/0) Credit

**EP305U Water Distribution Systems** 4  
Provides a working knowledge of potable water distribution systems. Students will learn about water storage facilities, operation and maintenance of water mains, water quality issues, disinfection, and safety. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises, and online links. (4/0)

**EP306U Wastewater Collection Systems** 4  
Provides a working knowledge of wastewater collection systems. Students will learn wastewater collection systems safety procedures, sewer inspection and testing, pipeline and maintenance, underground repair, lift stations, equipment maintenance and sewer rehabilitation. Along with reading assignments, the course is enhanced with up-to-date photographs, audio, interactive exercises, and links. (4/0)

**EP307U Basic Wastewater Treatment** 4  
Explores the rudiments of wastewater treatment. Students will learn water pollution control, preliminary and primary treatment, fixed film processes, and suspended growth systems. Along with reading assignments from the text, the course is enhanced with up-to-date photographs, audio, interactive exercises, and online links. (4/0)

**EP308U Wastewater Analysis** 3  
Using the internet students will be able to obtain the skills and knowledge to properly monitor the treatment process to conform to compliance regulations. The topics include BOD, COD, ammonia, great and oil, chlorine and solids analysis. The academic portion of the course, self-study exercises and quizzes are all done over the internet. The course will include hands-on labs at Kirkwood or proficiencies that an operator can complete on the job. Students are able to enroll at any time, set their own schedule for online studies and interact with the instructor outside of the classroom. (2/2)



**EP309U Treatment Plant Math** 3  
Demonstrates proficiency in performing mathematical calculations involving water and wastewater plant operations. The course emphasizes the basic knowledge of calculator use in determining volumes, flows, hydraulic and organic loadings of treatment plants. (3/0)

**EP310U Bio Solids Management** 3  
Meets the needs of those dealing with bio solids in the disciplines of wastewater, water, solid waste and agriculture. Students will learn the integrated method of handling these materials from generation and treatment to final disposal. Prereq: EP304U and EP307U. (3/0)

**EP800U Internship** 7  
Offers a supervised training period in a water or wastewater treatment plant. The student participates in the routine daily operation and maintenance of the host water or wastewater treatment facility. (0/0/0/28)

**EP900T Honors Project: Environmental Studies** 1  
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

**EP999T Independent Study in Environmental Science** 0.5-3  
Provides students an opportunity to further their studies in environmental science. After consultation with instructor, readings, papers and/or basic research or other projects may be assigned. Prereq: College-level biology or environmental science course or consent of instructor. (.5-3)

## ES: Earth Science

**ES110T Introductory Geology** 3  
Presents basic concepts in geology, i.e., earth materials and processes, historical geology and geological resources. Constructive and destructive forces involved in shaping the planet are discussed. Plate tectonics and sea-floor spreading serve as a unifying factor for the course. Either Introductory Geology (ES110T) or Environmental Geology (ES112T) will satisfy three hours of science core requirements. However, both cannot be counted toward meeting core. If both courses are taken, the second will count as an elective. (3/0)

**ES111T Introductory Geology Lab** 1  
Designed to be taken with ES110T. (0/2)

**ES112T Environmental Geology** 3  
Examines the effects of geological processes and geohazards on human life and activities. Course also concentrates specifically on those geological factors that are key components of modern problems of pollution, waste disposal, construction, economics, etc. Either Introductory Geology (ES110T) or Environmental Geology (ES112T) will satisfy three hours of science core requirements. However, both cannot be counted toward meeting core. If both courses are taken, the second will count as an elective. (3/0)

**ES113T Environmental Geology Laboratory** 1  
Designed to be taken with ES112T. (0/2)

**ES120T Evolution of the Earth** 3  
Considers interdisciplinary principles, techniques and methods essential to the interpretation of the geological history of the earth. The development of plate tectonics and continental drift through geological time and the progression and evolution of life from Pre-Cambrian time to present time are also examined. (3/0)

**ES121T Evolution of the Earth Lab** 1  
Designed to be taken with ES120T. (0/2)

**ES999T Independent Study in Geology** 0.5-2  
Provides readings, papers, field or basic research projects for independent work in the geological sciences. Students will be under the individual guidance of a staff member. (0/1-4)

## EU: Education

**EU110T Introduction to Teaching** 3  
Introduces the concerns and activities of beginning teachers. The focus is on developing generic teaching skills applicable from preschool through high school. Microteaching is used to simulate actual teaching situations. Case studies are used to discuss common teaching problems. (3/0)

**EU130T Foundations of Education** 3  
Assists the education student in becoming an effective teacher for the twenty-first century. Topics covered: Teaching as a Profession, Learning How to Teach, Educational Philosophies, Psychological Orientations to Teaching, History of American Education, Sociology of Education, Funding and Governance issues, Legal and Ethical issues, and Curriculum and Instruction methods and issues. (3/0)

**EU140T Educational Technology** 3  
Studies the role of educational media in the teaching-learning process. Selection, preparation, utilization and evaluation of instructional materials for specific communications. Students use production hardware such as 35mm cameras, tape recorders, slide projectors, overhead projectors, computers, etc. to produce their own materials. (3/0)

**EU150T Literacy Tutor Experience** 3  
Provides students with an opportunity to spend six hours per week at a community agency working with children, adolescents or adults as tutors in basic skill areas. A six-hour orientation and biweekly seminar are also part of the course. Prereq: 2.0 GPA. (1/0/6)

**EU151T Literacy Tutor Experience** 2  
Provides students with an opportunity to spend four hours per week at a community agency working with children, adolescents or adults as tutors in basic skill areas. A seminar is also part of the course. Prereq: 2.0 GPA. (1/0/3)

**EU152T Literacy Tutor Experience** 1  
Provides students with an opportunity to spend two hours per week at a community agency working with children, adolescents or adults as tutors in basic skills areas. A seminar is also part of the course. Prereq: 2.0 GPA. (.5/0/1.5)

**EU300T Educational Psychology and Measurement** 3  
Applies psychological concepts to the field of education. Major focus is on cognitive, behavioral and humanistic theories. Areas of emphasis include child and adolescent development; learning theory; memory; motivation; intelligence; instruction; and measurement. Prereq: PC100T. (3/0)

**EU800T Field Experience/Education** 2-3  
Offers experience in classrooms or other educational settings. Student spends 60 or 108 hours per semester at a school working under the supervision of a teacher. Students may choose to work in preschools, elementary or secondary schools. Prereq: EU110T and PC100T or PC200T and permission of coordinator. (1/0/4-8)

**EU900T Honor's Project: Education** 1  
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. Prereq: Permission of instructor. (1/0)

**EU999T Independent Study: Education 1-3**

Provides readings, papers and/or basic research or other projects under the individual guidance of the staff members. Prereq: Consent of coordinator and department. (1-3/0)

## EY: Early Childhood Education

**EY100T Introduction to Early Childhood Education 3**

Provides an overview of the philosophy and history of early childhood education and that impact on curricula. Defines child care settings and terminology in the field (e.g., day care, preschool, family day care) and goals associated with each. Examines the role of the child care professional, related career fields, career ladders and professional ethics. Provides an introduction to observation techniques. (3/0)

**EY110T Curriculum and Activities I 3**

Provides knowledge and skill development to both those beginning their work in early childhood education and those already in the field. Focus is on developing appropriate activities in play, art, literature/storytelling, music and movement, social studies and thematic areas. (3/0)

**EY120T Curriculum and Activities II 3**

Provides knowledge and skill development to both those beginning their work in early childhood education and those already in the field. Focus includes developing appropriate activities in language arts, cognition, socialization, dramatic play, creative dramatics and infant/toddler programs. Prereq: EY110T. (3/0)

**EY130T Child Psychology 3**

Examines genetic and environmental influences on behavior change during the periods of prenatal development through middle childhood including physical development; perceptual and cognitive change; language acquisition; moral development; emotional and behavior change; and social milestones. While the course will emphasize theory and research, practical components on child rearing, behavior management and exceptional children will be explored. (3/0)

**EY135U Child Development 3**

Examines genetic and environmental influences on behavior change during the periods of prenatal development through middle childhood, including physical development, perceptual and cognitive change, language acquisition, moral development, emotional and behavior change and social milestones. While the course will emphasize theory and research, practical components on child rearing, behavior management and exceptional children will be explored. (3/0)

**EY140T Health, Safety and Nutrition 3**

Blends current theory with practical applications on health, safety, and nutrition in group child care settings. Topics include safety, childhood and communicable diseases, good nutrition and menu planning, health and hygiene practices, care of the ill or injured child, identification of child abuse and sound mental and physical health education practices. Certification in mandatory reporting of child abuse is included. Students must obtain certification in CPR/First Aid by completion of the course. (3/0)

**EY160T Child Guidance and Behavior Management 3**

Studies basic principles, methods and techniques for guidance and discipline of young children. Developmentally appropriate behavior management with individual children and in classroom settings will be discussed. Observation skills, assessment and evaluation will be included. Prereq: EY130T or PC200T. (3/0)

**EY170T Planning and Administering Early Childhood Programs 3**

Addresses the functions common to administering quality childcare programs, planning, implementation, operating and evaluating. Aspects covered include director responsibilities; policy setting; development; staff, fiscal and facility management; parent involvement; and marketing. Prereq: Experience in child care setting; Child Psychology and curriculum courses preferred. (3/0)

**EY800T Field Experience/Early Childhood 3**

Offers experience in an approved child care center. Students spend 110 hours working under the direction of a qualified supervisor. Seminars are held to assist students with problem solving in areas such as activity selection and child guidance. Prereq: EY100T, EY110T, EY130T. (1/0/0)

**EY900T Honor's Project: Early Childhood Education 1**

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. Prereq: Permission of instructor. (1/0)

## FI: Fire Science

**FI101U Fire Behavior and Building Design 3**

Studies building construction as it relates to its reaction under fire conditions. Reviews building codes as related to the structural strength of various designs. Qualitative study of chemical and physical aspects of fuels, the combustion process and the products of combustion as these aspects apply to the causes, spread and extinguishing of a fire. (3/0)

**FI102U Firefighting Skills I 2**

Helps firefighters or potential firefighters prepare for Firefighter I Certification. Topics include basic firefighting tactics, fire behavior, safety, forcible entry, hose handling, ladders, protective clothing, SCBA Rescue and Ventilation. Completing Skills I does not meet all criteria for testing for FFI Certification. Attendance is mandatory at all sessions. Equivalent to the 24-hour Basic Attack Course. (1/2)

**FI103U Firefighting Skills II 2**

Continues to build on skills taught in Firefighting Skills I. Student will learn new skills and advance their previous skills for preparation for the Firefighter I Exam. Topics include fire alarm communication, fire department organization, fire hose, fire stream, water supplies, forcible entry and ventilation, ladders, organization, personal protective equipment, and safety. Attendance for all sessions is mandatory. Class is graded on P/F (Pass/Fail) basis. Prereq: FI102U. (1/2)

**FI104U Essential Topics 3**

Builds on skills developed in Firefighting Skills I and II. Will provide the student with knowledge of the topics covered on the Firefighter I written exam. (3/0)

**FI105U FFI Certificate Preparation 2**

Prepares and guides the student for the department assignments necessary to become certified as Firefighter I. Requirements include giving a public education presentation and reviewing Standard and Safe Operating Procedures of a department. Course will also include CPR certification. Students must also pass the Firefighter I exam through the Fire Service Institute to become certified. (2/0)

**FI106U Fire Science Career Orientation 2**

Provides the student with the knowledge and skills necessary to pursue a career in the fire service. Instructional Units include working with paid firefighters on the job. (2/0)

**FI111U Chemistry of Hazardous Materials 3**

Covers properties of chemistry in fire service. Types of chemicals; processes and legal requirements are discussed as they pertain to use, storage and transportation of chemicals. (3/0)

**FI121U Hazardous Materials Management 3**

Discusses the properties of chemically active substances related to hazardous materials. Identifies and demonstrates techniques, methods, and strategies to mitigate haz-mat incidents. Covers state and federal laws as they relate to management of hazardous materials. (3/0)

**FI131U Firefighting Tactics and Strategy 3**

Studies methods of coordinating personnel, equipment and deploying apparatus on the fire ground. Practical methods of controlling and extinguishing structural and other types of fires are discussed. Includes simulation exercises. (3/0)

**FI141U Fundamentals of Fire Prevention 3**

Covers the techniques, procedures, regulations and enforcement of codes (fire, building, life safety) in various occupancies. Communication with the property owner on changes to meet code requirements will be presented. (3/0)

**FI151U Fire Detection and Suppression Systems 3**

Covers the identification of system elements, the proper type for the occupancy as per code, fire department operations at premises, and inspection practices to ensure the system is operating and installed as required. (3/0)

**FI161U Instructional Techniques for Fire Service Training 3**

Covers concepts and techniques for conducting periodic company-level or small-unit training. The course emphasizes teaching principles applicable to in-service fire and rescue service skills training. It will meet NFPA standard 1041 1992 version - covers objectives for Fire Instructor I and II as specified in this standard. Successful completion of this course allows the student to meet Iowa Fire Instructor I and Iowa Fire Instructor II course requirements as specified by the certifying agency - Fire Service Institute or Iowa State University. (3/0)

**FI163U History and Philosophy of the Fire Service 2**

Provides the student with an understanding of where the fire service has come from so he/she can better help steer the fire service into the future. Instructional units are facilitated through a guided self-study format. (2/0)

**FI171U Special Topics in Fire Science 1-3**

Provides seminars, research or other projects for fire service personnel needing review or improvement of knowledge and skill. (1-3/0)

**FI900T Honor's Project: Fire Science 1**

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. Prereq: Permission of instructor. (1/0)

**FN: Finance****FN101T Principles of Banking 3**

Presents the fundamentals of bank functions in a descriptive fashion so that beginning bankers can view their chosen profession in a broad perspective. (3/0)

**FN102U Financial Planning Basics 2**

Studies factors needed to consider when devising a financial plan. Examines taxation, risk and return, safety, insurance, investments, and retirement planning. (2/0)

**FN103T Personal Financial Management 3**

Provides a comprehensive examination of the concepts and principles of personal finance and offers solid strategies for successful management and planning. Students will learn planning, analyzing and controlling financial resources and developing the knowledge and skills necessary to take advantage of favorable financial opportunities, resolve personal financial problems, achieve self-satisfactions and strive towards financial security. (3/0)

**FN105T Consumer Lending 2-3**

Examines the role of consumer credit in overall banking operations. Not a "how-to" training program, it offers an improved understanding of the consumer credit function within a bank. (2-3/0)

**FN106U Tech for Customer Counseling 3**

Training combines theoretical and practical information to use when counseling financial institution customers. Among the topics covered are communication skills, customer expectations, problem solving techniques and the special concerns of the counselor in a financial environment. (3/0)

**FN109U Residential Mortgage Lending 2**

Reviews the steps in originating, processing and closing a mortgage loan. Examines the differences between FHA, VA and conventional loans; key regulations affecting residential mortgages such as Truth-in-Lending and RESPA; and basic features of AMLs, GPMs and other alternative mortgage loans. (2/0)

**FN112U Teller Training: Basic 2**

Provides basic teller training for entry-level tellers. This course includes description of the basic functions of the banking industry, defines the teller's responsibility in banking, explains a variety of daily transaction procedures, summarizes the features and benefits of four basic banking products, and emphasizes quality customer service. (2/0)

**FN114U Retail Banking Series 3**

Deals with leadership skills for individuals preparing to manage human and financial resources in today's fast-paced banking world. (3/0)

**FN115U Securities Processing 3**

Emphasizes the operational aspects of screening various securities, administering consumer and corporate trust accounts, and the bank's own investment portfolio. (3/0)

## Course Descriptions

### **FN116T Monetary Banking Systems 3**

Stresses the practical aspects of money and banking and emphasizes the basic monetary theory needed by the banking student in a job. Emphasis also is placed on such problems as economic stabilization; types of spending; the role of gold; limitations of central bank control; government; fiscal policy; balance of payments and foreign exchange; showing their repercussions on the banking industry in affecting yield curves; and the structuring of portfolios. (3/0)

### **FN117T Trust Operations 3**

Provides basic trust terminology and discusses the concepts and ideas comprising the various trust functions and translates them into workable procedures. Includes the types of securities handled by a trust department and the kinds of investments typically made with trust account assets. Prereq: FN101T. (3/0)

### **FN118T Fundamentals of Finance 3**

Examines the tools and techniques used in the world of finance. Students are introduced to basic financial concepts such as time value of money, asset valuation, risk analysis and return on investment. Evaluation and decision-making techniques will be used as they pertain to financial management in various business situations. Prereq: MT120T. (3/0)

### **FN119T Money and Banking 3**

Presents a fundamental treatment of how money functions in the U.S. and world economies. Topics include the concept of money supply and the role the bank plays as a money creator and participant in the nation's payment mechanism.

### **FN119U Deposit Operations 3**

Provides an overview of U.S. payment systems, banking law, and regulations and current industry practices. Examines bank deposit-taking activities, and considers how banks manage deposit funds. (3/0)

### **FN125U Introduction to Commercial Lending 3**

Provides an introductory overview of the commercial lending function. It is divided into four sections: commercial lending overview, the lending process, portfolio management, and regulation and business development. (3/0)

### **FN126U Introduction to Securities Marketing .5**

Introduces the financial goals typical investors have as well as how investing in securities (stocks, bonds, and mutual funds) can help investors reach their goals. Students will learn how the securities business works, what economic news to look for, what products are available, and the factors that should be considered in selecting investments appropriate to their goals, circumstances, and tolerance for risk. (.5/0)

### **FN127U Introduction to Financial Planning Products .5**

Focuses on the need for financial planning and the various products and services for financial planning offered through retail banking. (.5/0)

### **FN128U Mutual Funds and Annuities .5**

Provides students with a broad overview of mutual funds and annuity products sales by identifying products, showing students how they work, and providing them with the necessary skills to recognize the types of risks associated with mutual funds and annuities investments. (.5/0)

### **FN129U Referring Mutual Funds and Securities Customers .5**

Provides an overview of mutual funds and securities that are available through many retail banks today. The course covers why banks offer securities products, the risks associated with them, and their basic features. (.5/0)

## **FO: Foreign Languages**

### **FO100T Elementary French I 4**

Introduces the "5C's" of second language acquisition (Communication, Cultures, Connections, Comparisons, and Communities) by developing the fundamental communicative skills of listening, speaking, reading and writing, and providing the opportunity to examine the practices and products of various francophone cultures. Making comparisons and connections between the French and English language, practices, products and people is an important course component. Open to students with little or no previous study of French. (4/0)

### **FO110T Elementary Spanish I 4**

Develops fundamental skills in the Spanish language. Emphasis is on acquiring the proficiency to communicate with the native speaker in everyday situations. Includes activities that promote an understanding and knowledge of the Spanish-speaking peoples and their culture. (4/0)

### **FO115U Conversational Spanish for Careers 3**

Develops conversational skills in the Spanish language. The emphasis is in acquiring proficiency in communicating in Spanish in work situations. Includes activities that promote basic Spanish grammar, specialized and everyday vocabulary and basic understanding of Latin American culture. (2/2)

### **FO116T Spanish for Healthcare Professionals 3**

Teaches basic medical vocabulary, interviewing skills and important cultural differences to improve communication with Spanish-speaking patients and coworkers. This course is conversation based and is geared toward students and practitioners in a variety of healthcare related fields. Prereq: FO210T. (3/0)

### **FO116U Spanish for Medical Personnel 1**

Provides the student with basic knowledge to communicate with Spanish clients. Vocabulary and grammar will be emphasized to effectively communicate with clients in the clinical health setting. (1/0)

### **FO120T Elementary German I 4**

Develops fundamental skills in German language. Emphasis is on acquiring the proficiency to communicate with the native speaker in everyday situations. (4/0)

### **FO140T Elementary Chinese I 4**

Develops fundamental skills in Modern Standard Chinese language. Emphasis is on acquiring the proficiency to communicate with the native speaker in everyday situations. (4/0)

### **FO200T Elementary French II 4**

Continues to develop the "5 C's" of second language acquisition (Communication, Cultures, Connections, Comparisons and Communities) by improving the fundamental communicative skills of listening, speaking, reading and writing acquired in Elementary French I. Examines the practices and products of francophone cultures. Includes discussion of the comparisons and connections that exist between various francophone cultures and language and our own. Prereq: FO100T or permission of instructor. (4/0)

**FO210T Elementary Spanish II 4**

Allows the student to communicate with others on subjects of daily common experience in most informal and a limited number of formal conversations on activities related to family, work, health, friends, leisure activities, social life, environment, etc. The vocabulary used in this course is non-specialized, containing everyday words as well as frequently used expressions, all within a cultural context. Cultural facts from Hispanic and Latin American cultures will also be presented in the classroom. Prereq: FO110T or permission of instructor. (4/0)

**FO220T Elementary German II 4**

Continues Elementary German I. Prereq: FO120T or permission of instructor. (4/0)

**FO240T Elementary Chinese II 4**

Continues Elementary Chinese I. Prereq: FO140T or permission of instructor. (4/0)

**FO300T Intermediate French I 3**

Develops the "5 C's" (Communication, Cultures, Connections, Comparisons, and Communities) by providing intensive practice in the fundamental communicative skills of listening, speaking, reading and writing, with a methodic study of different cultural contexts and a review of the basic grammar. Offers the opportunity for language use beyond the limited sphere of the elementary courses. Discussion of the cultural practices and products of francophone countries presented in the readings and viewing materials constitute an important part of the course. Comparisons and connections between francophone and anglophone cultures and language will also be examined. Class is conducted in French. Prerequisite: FO200T or permission of instructor. (3/0)

**FO310T Intermediate French II 3**

Continues to develop the "5 C's" (Communication, Cultures, Connections, Comparisons and Communities) by expanding the repertoire of realia (movies, readings, Internet explorations) and class activities. Provides continuous practice in developing the communicative skills and encourages group discussion. Examining the practices and products of francophone cultures as well as recognizing the importance of comparisons and connections between French and "American" culture and language is an important class component. Class is conducted in French. Prereq: FO300T or permission of instructor. (3/0)

**FO320T Intermediate Spanish I 3**

Provides practice of language beyond the controlled situations of the elementary courses. This course develops fundamental skills in Spanish through activities aimed at expressing original ideas and conveying messages in correct Spanish with the aid of authentic resources. Class activities offer advanced training on listening, speaking, reading, writing, and understanding the cultures of the Spanish speaking countries. Grammar study includes a review of previously introduced topics as well as new ones. Prereq: FO210T or permission of instructor. (3/0)

**FO330T Intermediate Spanish II 3**

Enables students to continue to develop reading skills, using primarily materials from literature, contemporary newspapers and magazines aimed at providing a better understanding of the Hispanic and Latino cultures and pertinent current issues. Class activities include pronunciation exercises, some grammar review and class discussion that promotes spontaneous conversation. Prereq: FO320T or permission of instructor. (3/0)

**FO331T Advanced Spanish: Latin American and Spanish Culture 3**

Develops communication skills through the study of the history, literature and cultures of the Spanish-speaking countries of the world. May emphasize a specific area (Spain, Mexico, Central America, South America) or explore common aspects of all or several areas. Conducted in Spanish. May be repeated (elective credit second time). Prereq: FO330T or permission of instructor. (3/0)

**FO360T Intermediate Chinese I 4**

Develops communication skills in Modern Standard Chinese language including expression of original ideas, exchange of messages, reading and writing. Emphasis is placed on understanding Chinese culture. Prereq: FO240T or permission of instructor. (4/0)

**FO361T Intermediate Chinese II 4**

Builds on language skills of previous Chinese courses emphasizing the use of Modern Standard Chinese language as well as understanding Chinese culture. Prereq: FO360T or permission of instructor. (4/0)

**FO900T Honors Project: Foreign Language 1**

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

**FO999T Independent Study in Foreign Language 1-3**

Provides for individualized learning beyond courses offered on a regular basis. Students work directly with a faculty member on furthering proficiency in several different areas of the student's own choosing, e.g., reading comprehension, aural/oral proficiency, understanding of civilization and culture, etc. Prereq: Permission of instructor and dean. (1-3/0)

**GY: Geography****GY100T Human Geography 3**

Emphasizes the application of geographic principles to contemporary social, economic and political problems. (3/0)

**HA: Disabilities Services Careers****HA100T Introduction to Disabilities Services 3**

Examines the values, skills, and issues of working with people with disabilities in educational, vocational and residential settings. Students will visit agencies and complete volunteer experiences at community sites. This course meets part of the requirement for the Iowa Paraeducator Generalist Certification. (3/0)

**HA101T Beginning Braille 2**

Develops the skills needed to support Braille learners. Topics include the philosophy of Braille, using Braille, making adaptations and using technology. (2/0)

**HA105T Making a Difference 3**

Introduces the careers related to working with people especially people with disabilities. The course includes the philosophy of special education, an introduction to ways children with disabilities learn, information specific to disabilities, ways to work with families, and working as members of a team. Students will complete service learning projects. This course meets part of the requirement for the Iowa Paraeducator Generalist Certification. (3/0)

**HA110T Health Aspects of Disabilities 2**

Develops skills needed to work with people with disabilities. The course includes an overview of physical and health issues and common interventions. (2/0)

**HA120T Observation and Management of Behavior** 3

Develops skills of observation and management of the behavior of others individually and in groups. Students develop strategies for helping others to manage their own behavior. This course meets part of the requirement for the Iowa Paraeducator Generalist Certification. May be repeated one time for credit with permission of coordinator. (3/0)

**HA130T Mainstreaming** 3

Develops the skills to facilitate the mainstreaming of students with disabilities and work with gifted and talented students in school settings. The course includes an overview of the special education system and the evolving relationship with regular education. Issues related to adults with disabilities are discussed. (3/0)

**HA200T Exceptional Persons** 3

Studies the educational, cultural, and social aspects of children and adults who are exceptional in the context of mental, emotional and physical development. Includes discussion of gifted and talented children in schools. Prereq: PC100T. (3/0)

**HA300T Job Coaching** 3

Studies issues related to working with adults who are developmentally disabled in supported employment settings as job coaches. Students will complete independent projects. Prereq: A.S., A.A., or B.A. degree. (3/0)

**HA800T Disabilities Services Careers Field Experience and Seminar** 3 or 6

Places the student in two settings (educational, vocational, or residential) which serve people with disabilities. Students develop specific objectives related to program competencies. Students meet in seminars to assess progress and discuss student experiences. Prereq: HA100T, PC100T, and one of the following: HA110T, HA120T or HA130T. (1.5/0/0/6-18)

**HA803T Job Coaching Field Experience and Seminar** 3

Places the student in a supported employment setting working as a job coach. Students develop specific objectives related to program competencies. Biweekly seminars are held to assess progress and student experiences. Prereq: A two- or four-year degree. (1/8)

**HI: History**

**HI100T Ancient Mediterranean World** 3

Surveys the cultural, religious, political and social heritage of the ancient Near Eastern people as the foundation of Western Civilization. (3/0)

**HI110T Europe in the Age of Monarchy** 3

Explores the social, cultural, intellectual, economic and political foundations of Western civilization in Europe from the Middle Ages to Absolutism and Constitutionalism. (3/0)

**HI120T Europe in the Age of Revolution** 3

Studies four revolutions - the Scientific, French, Industrial and 19th Century Liberal revolutions - that changed the traditional Western society into the modern world. (3/0)

**HI130T Europe in the Age of Nationalism** 3

Examines themes of modern European civilization. Emphasis is on the development of nationalism, the rise of Communism and Fascism, and the changes in the present society. (3/0)

**HI140T U.S. History: Agrarian America** 3

Studies the European Background, the Colonial Experience, the Revolutionary period and 19th Century History to the Civil War. Includes political, economic and social history of this period as well as the development of American thought. (3/0)

**HI150T U.S. History: Industrial America** 3

Studies the period from reconstruction to the present. Emphasis is upon industrialization and its impact; the development of a strong federal government; an aggressive foreign policy; and a growing involvement in an international economy. (3/0)

**HI161T Holocaust and Genocide in Memory and Literature** 3

Explores the reasons for the Holocaust and the nature and history of anti-Semitism. Analyzes why the Holocaust and the Final Solution occurred in Germany. Studies Jewish Resistance and both collaboration and resistance between Nazism and foreign countries. Compares the Holocaust aimed at the extermination of the Jews with genocide and extermination of other groups in history including Africans, Americans, Cambodians, Native Americans. Uses a comparative framework. (3/0)

**HI170T History of Science** 3

Covers major aspects of the history of science from the early modern period into the twentieth century. As this is a history course, not a science or technology course, the emphasis is on the historical backgrounds of various scientific ideas. The course will focus on some of the major figures in the development of modern Western science including Newton, Darwin, Faraday, and Einstein. (3/0)

**HI900T Honors Project: History** 3

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. Prereq: Permission of instructor. (1/0)

**HI999T Independent Study: History** 1-3

Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Permission of instructor. (1-3/0)

**HM: Humanities**

**HM100T Encounters in Humanities** 3

By asking a series of questions about various examples of human activity (literature, philosophy, history, visual arts and music), teaches a method of inquiry for use in understanding and appreciating the humanities. (3/0)

**HM101T American Pluralism** 3

Examines the pluralistic nature of our American communities through a critical analysis of the history, literature and culture of one or more of the following cultural groups: African Americans, Asian Americans, European Americans, Hispanic Americans, or Native Americans. (3/0)

**HM102T Introduction to Cultural Anthropology** 3

Explores what it means to be human. A comparative, holistic study of group life in various cultures is undertaken. Selected aspects of physical and cultural anthropology perspectives provide the basis for these cross-cultural examinations. Formerly SY130T (3/0)

**HM105T Working in America** 3  
Introduces students to the humanities through an interdisciplinary study of work. By examining works of art, literature, music, philosophy, religion, history and anthropology, this course explores human labor in the past, present and future in an attempt to understand how work shapes human nature and culture. Focus will be on the meanings and values of students' work experiences. (3/0)

**HM106T Culture and Technology** 3  
Introduces students to the relationships between technology and culture through an interdisciplinary study of the humanities. The course examines these relationships through works in the humanities, for example art, literature, music, philosophy, religion, history, film and anthropology (3/0)

**HM107T Communication and Culture** 3  
Examines the implications and impacts of various communication media, especially modern ones, on human culture and society. Using tools of historical and cultural studies, as well as the interpretative methods of the humanities, students will explore, for example, how new communications media affect interpersonal relations, self concept, democracy, experiences of space/time and human creativity. (3/0)

**HM110T Genealogy and Family History** 2  
Places genealogical research and family history within the larger context of social history. Topics are general historical research and techniques of genealogical research, including vital records (birth, death, and marriage), U.S. and state censuses and substitutes, land and probate, oral history, immigration and migration within the U.S., military records. Lectures, discussions, readings, independent research and a written project are required. May be taken for a grade or audit. (2/0)

**HM134T Film History** 3  
Introduces film history, theory and criticism with an emphasis on the development of technology and techniques. It covers international film from its early beginnings to the present decade, introducing students to the elements of narrative film as well as cultural, technological and economical influences. (3/0)

**HM136T Film Analysis** 3  
Focuses on the methods and technologies of film art. The emphasis is on analysis of classic narrative films. Subjects for analysis include narrative structure, segmentation, shot-by-shot breakdown, elements of mise-en-scene and montage, auteurs, genres, production considerations, and conventions. (3/0)

**HM210T Film Topics** 3  
Stakes out a particular genre in film such as the kidpix (teenage movies) of the 80s or science fiction, or a particular area such as literary adaptations to the screen. Students will learn the historical significance of these films and the basic vocabulary and techniques of film analysis. Course may be repeated for credit. Prereq: CC113T. (3/0)

**HM900T Honors Project: Humanities** 1  
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

**HM902T Honors Project: Anthropology** 1  
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

## HO: Hospitality

**HO103T Hospitality Management** 4  
Allows students to perform as supervisors and managers in the kitchen and dining room facilities, and also allows them to apply management techniques and theories in working with others to create a successful restaurant environment. Emphasis is placed upon computer application in analyzing food and beverage costs, labor costs, and other operating costs as applied to the student-run restaurant. Prereq: HO113U, AO102U. (2/4)

**HO113U Dining Room Techniques** 4  
Provides students exposure to service techniques - suggestive selling, human relations, marketing, controlling cash, record keeping - in the program's dining facilities. The course is designed for individuals employed in the field or for those who are seeking employment as wait staff personnel. (0/8)

**HO115U Bakery I** 2  
Course provides lab experience in preparing bakery products. Yeast products, quick bread, pies, cakes and cookies are emphasized. Bakery procedures; scaling techniques; weights; measures; use and care of equipment; sanitation and safety; work simplification; costing; and the production of the highest quality bakery products is stressed. Prereq: HO135U or concurrent enrollment in this course. (0/4)

**HO116U International Breads** 2  
Provides for lab experiences in preparing yeast and unleavened breads typical of international bread traditions. Preparation procedures; use and care of equipment; sanitation and safety; work simplification; identification of special ingredients and traditional shaping techniques; costing; and selection of ingredients are included in the course. Research into the history and traditional uses of breads is emphasized. Prereq: HO115U or permission of instructor. (0/4)

**HO117U Restaurant Law** 3  
Reviews legal subjects relevant to the food service industry. Emphasis is on government regulations; food and liquor liability; patron rights and safety; employer/employee rights and responsibilities; the court system; and business management. (3/0)

**HO118U Food Production I** 4  
Introduces fundamental skills and techniques of basic cookery. Student will develop basic food handling competencies and work with herbs, spices, dairy, eggs, fruit, vegetables, starches, salads, stocks, soups, sauces, meats, poultry, seafood, bread and pastries. Students learn kitchen procedures; use and care of equipment; sanitation and safety; efficient work methods; and the production of quality menu items. Prereq: HO135U or concurrent enrollment in this course. (0/8)

**HO119U Food Production II** 4  
Provides experience in the preparation of quantity food production. Students will rotate through stations of the kitchen and will prepare stocks, soups, sauces, entrees, salads and desserts. Kitchen procedures; use and care of equipment; sanitation and safety; efficient work methods; and the production of quality menu items continues to be emphasized. Prereq: HO118U. (0/8)

**HO122U Food Fundamentals I** 3  
Studies the scientific principles involved in the preparation of food. Identification and composition of foods; terminology; and basic cooking methods and techniques are emphasized. The functional role of ingredients to the final product is studied. (3/0)

**HO123U Food Fundamentals II** 3  
Continues the study of the scientific principles and techniques in the preparation of food applying the functional role of ingredients to the development of recipes and food products. Prereq: HO122U. (3/0)

## Course Descriptions

### HO124U Culinary Arts I 4

Emphasizes advanced culinary competencies in the preparation of haute cuisine. Students rotate through various stations: sauté, broiler, line, saucier, patisserie, garde manger, table-side and steward. In each area, the student will gain production and management skills; kitchen procedures; use and care of equipment; sanitation and safety; efficient work methods; managing skills; human relations skills; and skills in the production of quality menu items; calculating food costs; and purchasing and storage requirements. Prereq: HO119U or permission of instructor. (0/8)

### HO125U Culinary Arts II 4

Continued experience in culinary competencies of haute cuisine is provided as students continue to rotate through the stations of a classical kitchen. Students will research and demonstrate fine dining cooking techniques, and gain experience in high styling of plate presentations. Steward duties will continue. HO124U or permission of instructor. (0/8)

### HO133U Introduction to Wines and Spirits 2

Studies alcoholic beverage classifications, laws, promotion and service with the emphasis on wines - classifications, characteristics and tastings. Beer making and bar management is included. (2/0)

### HO134U Menu Planning and Nutrition 3

Studies basic principles of menu planning in relation to the eating habits and tastes of various age and social groups, and types of food service establishments. Pricing and costing of menu items is emphasized, and using the menu as a management and merchandising tool is defined. Basic nutritional concepts in relation to current health concerns are reviewed. (3/0)

### HO135U Sanitation/Safety/Equipment 2

Studies the principles of bacteriology, food-borne illness, sanitation, safety, personal hygiene, housekeeping and health regulations and inspections. The use, cleaning and maintenance of equipment is also stressed. Each student, upon successful performance on a national test, is certified by the Educational Foundation of the National Restaurant Association. (2/0)

### HO137U Garde Manger 2

Emphasizes cold food (garde manger) preparation and presentation techniques. Chaud-froid, aspics, pates, galantines, ballattine, hors d'oeuvres, charcuterie and food decorating are emphasized. Students plan, prepare, present and serve a garde manger dinner. Prereq: HO125U or permission of instructor. (0/4)

### HO138U Purchasing and Cost Control 3

A study of the selection, purchase, receiving and storage of food, supplies and chemical products. Specification writing is practiced. Cost control methods, storeroom procedures and math are emphasized. Prereq: MT102U. (3/0)

### HO139U Culinary Competition 2

Emphasizes skills and techniques for preparing foods for culinary competitions. American Culinary Federation culinary guidelines are followed. Students prepare showpieces and platters, and participate in culinary shows and competitions. Prereq: HO137U and/or permission of instructor. (0/4)

### HO140U Basic Cake Decorating 1

Provides instruction for the beginning cake decorator. Practical border work, cake writing, figure piping, flowers, wedding cake assembly, and use of airbrush are emphasized. Students utilize decorators' tools, do basic decorating and designing, and develop artistic creativity. Equipment required. (.5/1)

### HO142U Hospitality Personnel Management 3

Introduces the functions of personnel management: planning, team building, performance evaluation, recruiting, coaching, training, discipline, counseling, termination and labor relations. The aspects of technical, conceptual and human skills are reviewed with the perspective of becoming a mature supervisor/manager. (3/0)

### HO144U Food and Culture 3

Examines the implications and impacts of various cultures on food, preparation procedures, dining customs, and the effect on society, both past and present. Explores the historical and cultural significance of food and eating habits. (3/0)

### HO145U Artistic Display 1

Provides hands-on experience in sculpting and display techniques when working with food mediums such as tallow, salt, bread doughs, sugar art, marzipan, chocolate and ice. Art principles, preparation techniques and presentation are also stressed. (0/2)

### HO146U Classical Cuisine 1

Introduces students to various culinary traditions of the world. Menus considered typical in a variety of different countries will be studied; two of the menus will be prepared and presented to guests at international dinners in the Class Act Restaurant. Prereq: HO119U or permission of instructor. (0/2)

### HO147U International Pastries 2

Provides for lab experience in preparing pastries representative of ethnic and cultural cuisine traditions of the world. Bakery procedures; use and care of equipment; sanitation and safety; work simplification; costing; and production of quality pastry items are stressed. Research into cuisines of the world is also included in the course. Prereq: HO116U or permission of instructor. (0/4)

### HO148U Science of Baking 3

Introduces the principles of food science and technology as they apply to baking and pastry arts. Scientific methods are used to explore bakery ingredients and their chemical behavior in the processing, preparation and storage of these products. Specific emphasis is given to the development of healthy recipes. (3/0)

### HO151U Culinary Travel Studies 1-3

Focuses on the history, culture and cuisine of a specific geographic region, with the major emphasis on cuisine. This course is offered for variable credit and includes a study tour of a specific geographic region. May be repeated for credit. (1-3/0)

### HO152U Stocks and Sauces 1

Reviews and improves the student's techniques in making stocks, sauces and a variety of condiments. Classic French method and techniques will be stressed. Students will have hands-on experience to become competent in the art of making sauces. Prereq: HO118U(.5/1)

### HO154U Advanced Culinary Skills 2

Re-emphasizes selected culinary skills such as braising, broiling, sauteeing and meat fabrication. It allows the student to practice and perfect basic skills previously covered in Food Production I and II. Prereq: HO119U. (1/2)

### HO156U Plated Desserts 1

Provides experience in the preparation of fine dining style-plated desserts. Students will rotate through different dessert components making sauces, pastries, mousses, fillings, cakes, and ice creams. Students will learn how to work with chocolate, pastillage, cooked sugar, and pastry garnishes adding extra dimension to desserts. Each week the class will focus on new desserts learning how to plate and serve sweet works of art. Prereq: HO115U or permission of instructor. (0/2)



## HS: Health

### HS101U First Aid Concepts 0.5

Learn basic first aid concepts along with the types of emergencies and conditions. Prereq: None. (Prior training in basic life support for healthcare providers preferred.) (0.5/0)

### HS102U CPR 0.5

Learn basic life support for healthcare providers. (0/1)

### HS110U Professionals in Health 2

Presents skills and characteristics expected for professional preparation and employability. Provides an overview of the health industry current trends and issues. Discusses the work environment as it relates to health and safety regulations. (2/0)

### HS111U Health Skills I 1

Introduces basic patient care skills: infection control techniques; measuring and recording vital signs; and body mechanics. Laboratory practice and skill achievement is required. (.5/1)

### HS112U Health Skills II 1

Introduces basic skills related to patient mobility, methods for ambulation, positioning and range of motion. Discusses causes and effects of immobility. Laboratory practice and skill achievement is required. (.5/1)

### HS118U Cardiopulmonary Assessment 1

Provides the student with the necessary competencies to conduct a general head-to-toe integumentary assessment as well as a more detailed cardiovascular and chest/pulmonary assessment enabling the student to identify and document any abnormalities. Prereq: HS150U or BI150T and BI151T. (.5/1)

### HS120U Medical Terminology 4

A comprehensive study of medical terminology as the language of medicine. Analyzes words by dividing them into component parts. Relates the medical terms to the structure and functional pathology of diseases and current medical procedures. Emphasizes word usage, abbreviations, pronunciation and spelling. (4/0)

### HS121U Metrology 0.5

Utilizes the ratio and proportion method for conversion between measurement systems and dosage calculation. Includes calculation of intake and output, and learning the abbreviations related to administration of medications.

### HS123U Basic Medical Terminology 2.5

Introduces basic word structure and terminology pertaining to body systems. Includes spelling, pronunciation, and word usage. Provides a basic overview of disease process, symptoms, anatomy, special procedures, pharmacology, and abbreviations. (2.5/0)

### HS124U Medical Terminology: Pathology 1.5

Investigates advanced medical terminology associated with the body systems. Includes an in-depth study of disease symptoms, disease pathology and surgical procedures. Prereq: HS123U. (1.5/0)

### HS141U Elements of Pharmacology 1

Introduces essential concepts of pharmacology including drug legislation, terminology and pharmacy therapy in the clinical management of patient care. Provides an overview of the different drug classifications and their actions and use. Prereq: HS120U, BI150T or HS150U. (1/0)

### HS150U Basic Anatomy and Physiology 3

Designed for students in the specific health sciences. An overview of human form and function presented in a lecture/laboratory format. (2/2)

### HS154U Basic Microbiology 1.5

Includes the structures and function of microorganisms, characteristics of pathogenic and nonpathogenic bacteria, infection processes, specifics of the immune response, and principles and applications of asepsis. (1/1)

### HS156U Homeostatic Physiology 3

Designed for advanced Health Sciences students. This course emphasizes body systems important to maintaining homeostasis in the human. Nerve and muscle tissue, cardiac, respiratory, fluid-electrolyte and endocrine physiology are addressed. Prereq: HS150U. (3/0)

### HS157U Introduction to Pathology 3

Introductory course to the study of pathology. Includes description, etiology, signs and symptoms, diagnostic procedures, current medical treatment, progress and prevention of disease of each body system with emphasis on basic concepts and the terminology of pathology. Prereq: HS150U and BI151T. (3/0)

### HS159U Kinesiology 3

Provides a basic understanding of normal human body movement as related to skeletal, muscular and neurological systems. The student will learn muscle origin, insertion, action and joint structure as well as anatomical palpation, human gait and movement analysis. Prereq: BI150T and BI151T or HS150U. (2/2)

### HS165U Pathophysiology 3

Presents clinical disorders and diseases commonly treated in the fields of occupational and physical therapy. Pathology, etiology, diagnosis, signs, symptoms and prognosis will be covered. Prereq: HS122U, HS123U, TA101U. (3/0)

### HS415U Limited Practice Radiographer 5

Emphasis is placed on providing the knowledge and skills necessary to provide maximum protection from ionizing radiation for the patient and personnel. Includes basic physics as applied to X-ray machines and technology; film processing; patient position; preparation for radiographs of the chest, extremities and spine; film evaluation; and radiation protection. The course meets the rules and regulations of the state of Iowa for radiation-emitting equipment. Prereq: Health career experience or education. (4/2)

### HS425U Basic Electrocardiography 1

Provides instruction in electrocardiography including psychological and physical preparations of a patient for an EKG: proper set-up and operation of equipment, mounting of tracings and troubleshooting to obtain accepted tracings. The student should learn to recognize the characteristics of normal rhythm and certain dysrhythmias. Prereq: HS150U. (.5/1)

### HS426U Cardiac Monitoring 2.5

Surveys the theory and application of specialized diagnostic procedures, equipment and monitoring techniques in cardiac medicine. Includes ECG and monitoring leads, basic interpretation and dysrhythmia recognition, thermodilution cardiac output and oxymetrix-mixed oxygen measurements, pulmonary artery catheters, hemodynamics and clinical application. Prereq: HS150U and HS156U or RC206U. (2/1)

## HS435U Advanced Cardiac Care 2.5

Provides theory and laboratory practice in managing specific life-threatening cardiac dysrhythmias resulting from myocardial infarction. Includes review of basic life support; use of mechanical aids to establish an airway and maintain ventilation; ECG monitoring and recognition of life-threatening dysrhythmias; cardiac defibrillation; establishing an intravenous drug access and initiating appropriate cardiac drug therapy. Prereq: HS150U or BI150T and BI151T. (2/1)

## HS440U Pharmacy Technician 5

Provides the knowledge and skills necessary for employment as a pharmacy technician in a retail or hospital pharmacy under the direct supervision of a pharmacist. Includes basic understanding of medications, prescriptions and terminology, record keeping, ethics and jurisprudence as well as the role of the pharmacy technician. Also includes a required preceptorship. Prereq: ASSET testing. (4.5/1)

## HS441U Phlebotomist 4.5

Prepares students to function as a phlebotomist in a medical laboratory. Students will learn to obtain patient's blood specimens by venipuncture and capillary methods and to facilitate the collection and transportation of other laboratory specimens. Includes anatomy and physiology of the circulatory system, terminology prefixes and suffixes, abbreviations, and customer service skills. (2.5/1/4.5)

## HS901U Nurse Aide 3

This 75 hour nurse aide course meets the training requirements of the Omnibus Budget Reconciliation Act of 1987 (OBRA) for aides working in nursing facilities (NF) and skilled nursing facilities (SNF). Students learn basic care giving skills and concepts to provide safe, effective resident care. (2/1/1.5/0)

## HS999U Studies in Health Science 1-5

Provides readings, papers, seminars and/or basic research or other projects/assignments under the individual guidance of a faculty member. Prereq: Consent of instructor and coordinator. (1-3/0)

## IB: Industry and Business

### IB001U Industrial Technical Mathematics 3

Introduces the student to mathematical concepts necessary to develop knowledge of industrial applications. (2.5/1)

### IB002U DC Electrical Circuit Fundamentals 5

Introduces the student to the physics of electricity and DC circuit analysis techniques. Prereq: IB001U. (3.75/2.5)

### IB003U AC Electrical Circuit Fundamentals 6

Introduces the student to analysis of steady state sinusoidal electrical circuits. Prereq: IB003U. (4/4)

### IB004U Introduction to Motors, Transformers and Control Circuits 5

Introduces the student to fundamentals and troubleshooting of distribution transformers, motors, motor controllers and 480-volt load center breakers. Prereq: IB002U, IB003U. (4.5/1)

### IB005U Electrical Solid State Components 2

Introduces the student to basic solid state devices such as diodes, transistors and op-amps. Prereq: IB002U, IB003U. (1/2)

### IB006U Electrical Test Equipment 2

Provides laboratory experience with various types of devices used to test digital electric circuits. Prereq: IB002U, IB003U. (1/2)

### IB007U Electrical Troubleshooting 4

Provides laboratory experiences in analysis and troubleshooting of electrical equipment using electrical test equipment. Prereq: IB006U, IB009U. (1/6)

### IB008U Digital Electronics Fundamentals 4

Introduces the student to fast-switching circuit theory and its application in microcircuits. Prereq: IB005U. (3/2)

### IB009U Electronic Print Reading 2

Introduces the student to the reading, drawing and interpretation of blueprints common to the electronics industry. Prereq: IB002U, IB003U. (1/2)

### IB010U Basic Electronics 4

Introduces students to the theory and applications of diodes, power supplies and small-signal transistor amplifiers. Prereq: IB002U, IB003U. (3/2)

## IC: Career Studies

### IC101U Program Planning Course 1

Introduces the student to the college's Applied Science and Technology departments and the procedures for further planning the course of studies needed in the Career Studies program. The student will develop a portfolio identifying the program of study to achieve his/her personal educational and career goals. (1/0)

### IC102U Experiential Learning Assessment 1

Assists students in preparing the necessary documentation for requesting college credit for previous work and life experience relevant to each student's program of study. This course should only be utilized when such experiences may not be assessed through CLEP, departmental examinations or other evaluation processes. Grading is on a pass/fail basis. (1/0)

### IC103U Noncollegiate Sponsored Instruction Variable

Provides college credit for noncredit educational experiences. A maximum of 21 credit hours may be awarded for these educational experiences. (Applies only to Associate of Applied Science degree programs.)

## ID: Interior Design

### ID101U Design Fundamentals 3

Studies the introductory elements and principles of art, architecture and design for applied composition and evaluation. Includes American architecture and furniture styles and applies an art unit. Interior design as a career is identified and explored.

### ID102U Interior Design Textiles 3

Studies fibers, yarns, fabrics, finishes, and regulations used in commercial and residential interior textile products. Fabric properties are evaluated according to variables of end-use serviceability and product categories. Directed laboratory activities provided. (3/0)

### ID103U Historical Interiors I 3

Surveys the progression of architecture, the decorative arts and furniture styles from classical antiquity through the renaissance of Europe. Projects and study stress the identification and coordination of the periods. (3/0)

**ID104U Historical Interiors II 3**

Surveys the progression of architecture, the decorative arts and furniture styles of 18th century Europe and America through the 20th century. Identification of modern design in architecture and furniture is stressed. (3/0)

**ID105U Color Theory 3**

Serves as a skills course that works with color according to the attributes of Hue, Value and Chroma according to the color wheels of Munsell and David Brewster (Prange). Students swatch color schemes as they apportion space into areas of the Dominant Hue, Secondary Hue, Accent Hue and areas of neutral. (3/0)

**ID106U Architectural Graphics 4**

Introduces architectural tools and drawing. Basic skills are mastered in graphic communication which includes lettering, plan types, schedules, symbols, color rendering techniques, and swatchboard presentation techniques. Twelve hue resource files are collected providing diverse materials and textures for interior design application projects, which require color value distribution of the Twelve Hues from the David Brewster Color Wheel. (2/4)

**ID107U Kitchen and Lighting Design 4**

Provides standards and skills in kitchen space planning and design according to NKBA industry standards. The study and skills of lighting and electrical planning is applied to kitchen design. Kitchen design includes work-center requirements, cabinetry, countertops, storage, plumbing, appliances, and the graphic communications and presentation skills required in a kitchen dealership. Project cost estimation and specifications are required. A portfolio kitchen project including materials board and CAD Drawings is produced and presented. Prereq: ID106U. (4/0)

**ID108U CAD for Interior Designers I 3**

Provides Interior Design students with CAD skills to produce two dimensional floor plans and elevations drawings. Acquaints students with the current version of Autocad as a tool to produce drawings and setup client files. (1/4)

**ID109U CAD for Interior Design II 3**

Provides training for students to create and render three-dimensional objects; project viewpoints; work in model and paper space using CAD symbol libraries resources; load custom menus and generate their own menus; and learn how to write macros and script files for efficiency. Students attach attributes to blocks and extract data from designs into documents and databases. Production of portfolio quality work is required. Prereq: ID108U. (2/2)

**ID110U Interior Design I 4**

Applies color theory and textiles to instructional units on furniture style and selection, upholstery, windows and window treatments, and floorings. Emphasis is on the study of materials and how to measure, estimate quantity, complete order forms and cost quotations, and installation. A product resource file is compiled along with lab assignments that build skills working with materials as they are applied to interiors and working with a client. Prereq: ID109U. (4/0)

**ID111U Interior Design II 4**

Allows the student, through project work, to apply three new units to residential Interior Designing: wall materials, interior architectural detail (millwork) and bath design (41 guidelines of NKBA). The interior products are specified and color schemed. A project portfolio is completed, including materials board, CAD paper space drawings, color renderings, and a complete cost analysis. A major residential project is managed from programming, room space planning, working drawings to furniture plans. The final is an oral presentation of the project. Prereq: ID110U. (4/0)

**ID112U Contract Design 4**

Studies space planning of private office casegood typicals and modular systems workstation typicals for the open-plan office. Includes units in accessibility for ADA code compliance in public facilities, electrical distribution, ergonomics and fire codes. Students will work in small groups and manage project completion. Projects include CAD paper space drawings and materials boards. Prereq: ID106U. (4/0)

**ID113U Portfolio Assessment 1**

Provides an opportunity for students to assemble their portfolios and set up career goals in the transition from school to work. Professional Interior Designers are guest speakers and will discuss their career specialties with students. Speakers will discuss what they look for in a job candidate and interview techniques. Resumes will be prepared for specific design specialties. CAD paperspace drawings are accumulated through the semester. The student presents his or her portfolio as the final exam. (1/0)

**IN: Interdisciplinary Studies****IN105T Introduction to Liberal Arts 1**

Instills an attitude that will facilitate learning at the college level. Emphasizes team building and development of a positive self-concept. Also emphasizes the theme of a person educated in liberal arts as a lifelong learner, understanding the ways of knowing and the styles of learning. (1/0)

**IN110U College Orientation 0.5**

Provides group orientation and advising activities for business students enrolled in applied science degree programs. Review of program requirements along with department and college policies and procedures. Assistance is given in academic planning, identifying campus resources and how to be a successful student at Kirkwood. (1/0)

**IN120T Understanding Cultures: Latin America 3**

Examines human spatial and cultural behavior in Latin America by exploring political, economic, religious and social institutions. Theoretical readings are balanced with case studies to enable students to explore theoretical perspectives in a cross-cultural context. (3/0)

**IN122T Understanding Cultures: Pacific Societies 3**

Examines human spatial and cultural behavior in Pacific Island countries by exploring political, economic, religious and social institutions. Theoretical readings are balanced with case studies to enable students to explore theoretical perspectives in a cross-cultural context. (3/0)

**IN123T Understanding Cultures: The Mideast 3**

Examines in a cross-cultural context the politics, economics, history, ethnic groups, religions, and cultures of the Mideast from Morocco to Afghanistan and Pakistan. Includes study of all aspects of the Arab/Israeli conflict. Students will also acquire an understanding of nationalism, tribalism and energy issues in a global context. (3/0)

**IN124T Understanding Cultures: Modern China 3**

Focuses on the 19th and 20th centuries, a period of confusion, violence and chaos, during which China has undergone a dramatic revolution. Compares how ancient China struggled to adopt the most useful practices of the western enlightenment while keeping its unique identity. Explores this struggle by examining geography, philosophy of Confucianism, and religious and political practices. (3/0)

**IN125T Understanding Cultures: Modern Japan 3**

Begins with a survey of Japanese history and culture to the Meiji Restoration of 1868. Emphasis is on the borrowing and blending of Chinese culture with Japanese culture, dating back to the Tang dynasty in China. Students will focus on the Japanese adaptation to the challenges of modernization with emphasis upon accommodating industry and modern systems of government within a traditional Japanese cultural system. Issues will include the relationship with China, World War II, and the economic expansion of Japan from 1945 to the present. (3/0)

**IN126T Global Interdependence and Human Survival 3**

Focuses on key, current global issues (i.e. the environment, development and underdevelopment, nuclear war, peace, etc.) affecting the future of our global condition and survival. Attempts to familiarize students with both the making and the future of the global structure, and a study of competing ideologies in viewing current global issues. (3/0)

**IN128T Cultures in Transition: Central Europe 3**

Introduces participants to Eastern Europe, particularly to the Czech Republic and to Slovakia. Analyzes the geographic setting, environmental problems, the livelihoods and the people of the nation. Provides an overview for students just beginning the study of the region. (3/0)

**IN140T Death, Loss and Grief 3**

Examines selected topics dealing with death and dying including health care, religious, social, legal and funeral practices. (3/0)

**IN170T Human Evolution 3**

Considers biological evaluations and applications to the history of the human species. Hypotheses and theories concerning origins of the earth, life, levels of life, the human species and races are examined. Topics include primate classification and relationships; human evolution; anthropological and archeological techniques; the evolution of prehistoric culture; and human migration into North America. Concept-building subject areas include genetic evolution and paleontology principles. (3/0)

**IN180T International Study 1-12**

Provides students with the opportunity to pursue studies in such areas as history, art, politics, music, literature, foreign language and occupational program areas. (1-5/2-24)

**IN183T British Life and Culture 3**

Provides an introduction to London. The history of London from 50 AD to present day. Field trip to the House of Parliament. Students will visit theatres in London including a backstage tour of the Royal National Theatre. They will examine differences between British and U.S. systems. Students will visit major art galleries and art museums as well as examining the interrelationship between the popular culture of the U.K. and the U.S. (3/0)

**IN200T Tools for College Success 2**

Develops learning skills for success in college, the workplace and lifelong learning. Focuses heavily on self-assessment resulting in greater control of various learning processes and greater development of essential learning skills. (2/0)

**IN201U Social Science Concepts 3**

Reviews overview of major concepts from the areas of psychology, sociology, human growth and development, composition and speech communication. Prereq: Basic background in disciplines as stated in description. (3/0)

**IN202U Scientific Concepts 3**

Provides an overview of major concepts from the areas of anatomy, microbiology, nutrition and physiology. Emphasis will be on integrating these concepts and presenting current understandings of each of the topical areas. Prereq: Iowa Nursing Articulation Program. (3/0)

**IN203D Service Learning Experience 0**

Students participate in a project or on-going volunteerism in the college or community. The project or experience must be of benefit to the college or community and includes planning, participation and reflection components. Participation in a Service Learning Experience develops the student's appreciation and commitment to responsible leadership. (0/0)

**IN230T Social Science Research and Reasoning 4**

Develops skills for evaluating empirical and public literature dealing with the scientific study of behavior; experimental and nonexperimental methods of investigation; principles of research design and control; philosophy of scientific social science; planning, conducting and reporting research. Prereq: PC100T or SY100T and MT125T. (4/0)

**IN900T Honors Project: Interdisciplinary Studies 1**

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. Prereq: Permission of instructor. (1/0)

## IT: Industrial Technology

**IT100U Industrial Math I 3**

Covers basic math skills such as addition, subtraction, multiplication and division of whole numbers, decimals and fractions. Covers specifically dimensional analysis and significant digit concepts. Also gives practice in solving stated problems and covers introductory algebra concepts. (3/0)

**IT101U Industrial Math II 3**

Covers basic algebra as it relates to fundamental equations, ratios and proportion, and percentages. Covers applied geometry as it relates to finding length, areas, volumes, etc. Also covers basic right angle trigonometry and gives more practice in solving stated problems. (3/0)

**IT102U Electrical/Electronic Math 3**

Provides the student with the essential mathematical skills for the study of DC electrical circuits. Topics covered are the real number line, fractions, decimals, basic algebra for equation manipulation, ratio and proportion, square roots, calculator techniques, SI measurement system, dimensional analysis, precision and rounding, etc. (3/0)

**IT103U Machinist Mathematics I 2**

Begins with a review of fractions and decimals as they are used to solve shop problems. Students are introduced to the problems involving powers and roots, tapers and angles. Use of the calculator is introduced along with handbook tables and formulas. Introduces the student to metric conversion and more advanced applied math involving calculations of area, volume and weight of material. (2/0)

**IT104U Machinist Mathematics II 1**

Continues Machinist Mathematics I. Introduces students to more advanced practical mathematics. Includes metric conversion, area and volume calculation, temperature conversion and expansion of metals. Right angle trigonometry is introduced along with calculations that relate to numerical control programming. Prereq: IT103U (1/0)

- IT105U Applications of Geometry** 1  
Begins with a review of right angle trigonometry as it applies to the machinist and continues with additional trig (both right angle and oblique angle) and geometry concepts. Emphasis will be on practical application of the mathematical concepts to the planning and programming skills required for preparing CNC programs. Prereq: IT104U or equivalent industrial math experience. (1/0)
- IT106U Unified Physics** 3  
Studies principles of force, work, rate, momentum, resistance, power potential and kinetic energy as related to mechanical, fluid, electrical and thermal devices. (2/2)
- IT107U Industry Orientation** 1  
Presents information relating to careers and jobs that may result from the completion of the HVAC installer and Plumbing Technology programs. Topics include job specific information provided by employers and visits to actual work settings. (0/2)
- IT108U Fundamentals of Plan and Print Reading** 2  
Covers the fundamentals of blueprints and floor plans used to lay out HVAC systems. Includes dimensions, specifications and interpretation of details found on typical sets of plans. (1/2)
- IT110U Industrial Maintenance and Electrical Math** 5  
Provides the student with the essential mathematical skills for the study of DC electrical circuits. Topics covered are the real number line, fractions, decimals, basic algebra for equation manipulation, ratio and proportion, square roots, calculator techniques, SI measurement system, dimensional analysis, precision, rounding, etc. (5/0)
- IT111U Introduction to Technical Mathematics** 3  
Prepares the student for the study of technical mathematics. Concentrates on algebraic skills and other related math skills. (3/0)
- IT112U Mathematical Reasoning** 3  
Introduces the concept of approaching mathematics problems in an orderly, logical manner. Story problems will be studied in some detail. (3/0)
- IT113U Introduction to Engineering Technology** 2  
Introduces the concept of technology and the technician's role. An overview of EET is presented with emphasis on job possibilities and necessary education. Also examined are skills necessary for technical people. (1/2)
- IT114U Principles of Technology** 4  
Introduces the student to concepts of basic physics - force, work, power, etc., as they apply to various systems (mechanical, electrical, heat, light and fluid) using commonly found examples in an applications-oriented course. (2/4)
- IT115U Welding Mathematics I** 2  
Covers basic mathematic skills needed for layout design, fabrication and blueprint reading. Addition, subtraction, multiplication, and division of fractions and decimals is covered with special emphasis on their application. Geometric principles and linear measurement units are included to assist in understanding and utilizing basic shop skills. (2/0)
- IT116U Welding Mathematics II** 3  
Covers basic algebra as it relates to fundamental equations, ratios and proportions, and percentages. Also covers basic right angle trigonometry and provides for additional practice in solving stated problems. Prereq: IT100U, IT111U, IT115U. (3/0)
- IT117U Advanced Electrical Math** 2  
Provides the student with additional math skills required to handle complex electrical circuit analysis. Topics covered include exponents, logarithms, dimensional analysis, imaginary numbers, j-operators and phasors. (2/0)
- IT120U HVAC Installation I** 4  
Provides a comprehensive introduction to designing and installing HVAC systems. Students will learn how to lay out and install duct systems and hydronic heating systems. Other topics covered include soundcontrol, vibration control, and room-to-room load calculations. (2/4)
- IT121U HVAC Installation II** 7  
Provides a comprehensive introduction to designing and installing HVAC systems. Other topics covered include sound control, vibration control and room by room load calculations. Prereq: IT120U. (3/8)
- IT124U Pipe Joining Methods** 3  
Covers the correct techniques to use when joining pipes. Students will learn correct techniques for making a solder joint, a brazed joint and a threaded joint. Alternative techniques are also taught, including flare, crimp and compression. (1/4)
- IT125U Applied Physics I** 2  
Studies Mollier diagrams involving refrigerant characteristics, thermal dynamics and processes as they relate to a compression refrigeration cycle. Course material also covers the study of psychometrics, which defines air properties and processes such as heating, cooling, humidification and dehumidification. Concurrent with EE205U. Prereq: IT100U. (1/2)
- IT126U Applied Physics II** 3  
Studies mechanical power transmission, energy convertors, fluid power and precision measuring instruments. Prereq: IT125U. (2/2)
- IT127U Physics I** 3  
Introduces the student to general physics concepts and a systematic approach to problem solving techniques for physics-based problems. The mechanics division of physics will receive principal emphasis, but other applications are introduced. The course is designed to provide some introductory skills applications for later courses in statics and dynamics. Laboratory work is an integral part of the course. (2/2)
- IT128U Physics II** 3  
Continues Physics I. Covers topics in fluid mechanics, heat theory and electricity. Designed to be an introductory course in these topic areas with principal emphasis on conventional terminology and general applications. Laboratory work is an integral part of the course. Prereq: IT127U. (2/2)
- IT130U Plumbing System Design** 4  
Introduces the student to the design of plumbing systems as used in residential and commercial settings. Students will learn to use codebooks to correctly size a plumbing waste system, plumbing vent system, water distribution system and a gas distribution system. (2/4)
- IT131U Plumbing System Applications** 6  
Provides a comprehensive coverage of the methods, tools and techniques used to install plumbing systems in a residential and commercial setting. Students will learn to install a plumbing waste system, plumbing vent system, water distribution systems and a gas distribution system. (3/6)
- IT132U Plumbing Fixtures and Applications** 4  
Provides an introduction to the tools and methods used in the installation of plumbing fixtures and applications. Students will learn to correctly assemble and install toilets, lavatories, sinks and water heaters and selected appliances in residential and commercial settings. (2/4)

## IT135U UTC Physics I 3

Studies the concepts of force, parameter, rate, resistance, energy loss and introduction to magnetism. Introduces resistive-capacitive-inertive systems. This course uses the UTC format. All topics are presented with cross-disciplinary applications: mechanical, fluid, electrical and thermal. (2/2)

## IT136U UTC Physics II 3

Continues UTC Physics I. Builds on resistive-capacitive-inertive systems including forced oscillation, waves, and radiated energy. Prereq: IT135U. (2/2)

## IT145U Microcomputer Applications 2

Covers several applications for microcomputers in business and industry. Included are operating systems, data management, communications, word processing and peripheral devices. Prereq: Co-requisite EE101U. (1/2)

## IT147U Basic Skills and Concepts in Industrial Technologies 3

Covers a variety of subjects relating to general knowledge and procedures of an industrial nature. The course is modularized in a way that allows students to carry out activities related to several majors in the department. (1/4)

## IT900T Honor's Project: Industrial Technology 1

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

## IT900U Independent Study in Industrial Technologies 1-5

Provides for individualized learning under guidance of an appropriate instructor. Students will identify technical matters and/or projects to achieve specifically identified goals. (1/0-6)

## LA: Law

### Legal Assistant/Paralegal courses

## LA100T Paralegal Studies Orientation 3

Provides an overview of the American legal system and the practice of law. Introduces the student to legal processes, court systems, courses of law, basic legal research methods, and to the nature, ethics and regulation of legal professions. Introduces the substantive law and skill areas students will encounter in subsequent legal assistant courses. Examines the relationship between different kinds of legal systems and between social science and law. Prereq: Test into CC113T and permission of coordinator. (3/0)

## LA102T Legal Ethics 1

Studies the canons of professional ethics and disciplinary rules applicable to lawyers and legal assistants, together with applicable disciplinary proceedings and court decisions. Prereq: LA100T. (1/0)

## LA103T Fundamentals of Legal Research and Writing 2

Provides instruction in law library and computer technology resources needed for law applicable to solving legal problems, including research strategies, analysis and application of law, and communicating research results orally and in written legal memoranda. Prereq: LA100T. (2/0)

## LA106T Torts 2

Provides instruction on principles of tort law, emphasizing skills in reading and interpreting primary and secondary sources of law. Prereq: LA100T. (2/0)

## LA108T Contracts 2

Provides instruction in principles of contract law, emphasizing skills in reading and interpreting primary and secondary sources and practicing preparation of contracts. Prereq: LA100T. (2/0)

## LA109T Advanced Legal Research and Writing 2

Provides instruction in using computer-based legal research methods to address complex legal research problems and in utilizing research results in appellate briefs and other advocacy legal documents. Prereq: LA100T, LA103T. (2/0)

## LA110T Civil Litigation 3

Teaches the rules, processes and paralegal skills for preparing cases for civil trials including the preparation of complaints, discovery and motions. Prereq: LA100T. (3/0)

## LA117T Criminal Procedure 2

Studies due process, the rules of criminal procedure, the rights of defendants and the paralegal's role in preparation of criminal cases. Prereq: LA100T. (2/0)

## LA120T Estate Planning/Administration 2

Provides a working knowledge of lifetime and testamentary estate planning enabling the student to draft trusts and wills, and to compute tax consequences. Provides understanding of the process of settling estates both within and outside probate court. Prereq: LA100T. (2/0)

## LA125T Real Estate Law 2

Studies the law of real property and surveys the more common types of real estate transactions and conveyances such as deeds, contracts, leases, deeds of trust and studies recording systems and public documents. Prereq: LA100T. (2/0)

## LA130T Bankruptcy Law 2

Teaches the Bankruptcy Act, applicable rules and selected case law and their application to the preparation of a bankruptcy filing. Prereq: LA100T. (2/0)

## LA135T Family Law 2

Provides a study of laws of marriage; divorce; child custody and support; separations; annulments; paternity; adoptions and mental health commitment procedures; and tax aspects of divorce and separation. The emphasis of the course is on the procedural and practical aspects of the laws. Prereq: LA100T. (2/0)

## LA140T Administrative Law 2

Provides a working knowledge of administrative law and procedure and the practical skills necessary for advocacy before an administrative agency. Prereq: LA100T. (2/0)

## LA141T Employment Law Topics 2

Surveys selected legal aspects of the employer-employee relationship, such as federal labor laws, civil rights laws, Americans With Disabilities Act, privacy and harassment laws and human resource management issues. Prereq: LA100T. (2/0)

## LA143T Investigation for Paralegals 2

Provides overview of the fact-gathering process for paralegals, including principles and techniques of investigation, sources of public and private information, methods for preserving information, and analyzing the probativeness, sufficiency, and admissibility of facts for trial. Prereq: LA100T. (2/0)

**LA145T Business Organization Law** 2  
Explores and explains the legal characteristics of proprietorships, corporations, partnerships and other business vehicles, and teaches drafting of articles of incorporation, by-laws, partnership agreements and related business documents. Prereq: LA100T. (2/0)

**LA147T Environmental Law** 2  
Surveys state and federal law related to protection of the environment. Covers knowledge, skills and duties likely to be required of paralegals practicing in this area. Prereq: LA100T. (2/0)

**LA800T Legal Assistant Internship** 3  
Provides an opportunity to use and refine paralegal skills in a work setting with the guidance of legal professionals. Students attend monthly seminars throughout the internship semester to share and gain perspective on their experiences. Prereq: Completion of all law courses and permission of instructor. (0/12)

#### Business Law Courses

**LA150T Introduction to Law** 3  
Introduces the student to the broad spectrum of the involvement of business in customary business law topics. (3/0)

**LA160T Business Law I** 3  
Surveys principles of law as applied to business relationships and transactions. (3/0)

**LA170T Law and Banking Principles** 3  
Introduces basic American law, presenting the rules of law that underlie banking. Topics include jurisprudence; the court system and civil procedure; contracts; quasi-contracts; property; torts and crime; agencies; partnerships; corporations; sales of personal property; commercial paper; bank deposits and collections; documents of title; and secured transactions. Emphasis is on the Uniform Commercial Code. (3/0)

**LA175T Law and Banking Applications** 3  
Introduces laws pertaining to secured transactions, letters of credit and the bank collection process. (3/0)

## LB: Library

**LB100T Information Literacy** 1  
Provides basic instruction in using the library as an access point to information. Students will develop methodology to master the process of inquiry and improve their ability to find, evaluate and use information. (1/0)

## LR: Literature

**LR203T Forms of Literature: The Story Cycle** 3  
Explores, through story cycles and critical theory, the questions: What is a story cycle? How are they crafted, read and interpreted? How are they different from or similar to other forms of literary expression? How does form affect interpretation? Prereq: CC112T, CC113T or permission of instructor. (3/0)

**LR204T Forms of Literature: Nonfiction** 3  
Focuses on literary nonfiction - essays, memoirs, profiles or criticism that aspires not only to inform but also to employ language aesthetically and prompt reflection on experience. Students will explore, through literature and critical theory, the following questions: What is literary nonfiction? How are works of literary nonfiction crafted, read and interpreted? How are they different from and similar to other forms of literary expression? How does form affect interpretation? Prereq: CC112T, CC113T or permission of instructor. (3/0)

**LR205T Forms of Literature: Drama** 3  
Focuses on the study of dramatic literature. Students will practice a method of reading and interpreting plays, exploring the following questions: What is drama? How are works of drama crafted, read and interpreted? How are they different from and similar to other forms of literary expression? How does form affect interpretation? Prereq: CC112T, CC113T or permission of instructor. (3/0)

**LR206T Forms of Literature: Fiction** 3  
Explores, through short stories, novels, films and critical theory, the following questions: What is fiction? What are its common elements? How does understanding these elements and the ways they interconnect affect our understanding of how fiction is crafted, read and interpreted? How is fiction different from or similar to other forms of literary expression? Prereq: CC112T, CC113T or permission of instructor. (3/0)

**LR207T Forms of Literature: Poetry** 3  
Focuses on the study of poetry. Students will practice reading and interpreting poems, exploring the following questions: What is poetry? How are poems crafted, read and interpreted? How are they different from and similar to other forms of literary expression? How does form affect interpretation? Prereq: CC112T, CC113T or permission of instructor. (3/0)

**LR222T Literature and Cultures: American Dreams** 3  
Explores a variety of expressions of self and society in America through established fiction, autobiography, journals, letters, photographs and other cultural artifacts. Prereq: CC112T, CC113T or permission of instructor. (3/0)

**LR224T Literature and Culture: Women and Work** 3  
Through reading literature along with social documents by women and men, the course explores gender identity and work issues for women in traditional and nontraditional gender roles - as domestic angels, factory workers or professionals. Materials may include autobiographies, letters, films, short fiction, poetry, drama, novels and other artifacts. Prereq: CC112T, CC113T or permission of instructor. (3/0)

**LR225T Literary Themes: Beyond Bartleby** 3  
Explores images and issues of business and labor as they manifest in major fiction and nonfiction texts. Prereq: Admission to the ADVANCE program and CC112T, CC113T or permission of instructor. (3/0)

**LR226T Literature and the Search for Identity** 3  
Explores the theme of "identity" in literature - short stories, novels, poems, plays and nonfiction. May use ideas and approaches from literary criticism, psychology, philosophy and religion to illuminate the importance of stories in structuring humane experience and establishing a sense of our own identities. Prereq: CC112T, CC113T or permission of instructor. (3/0)

**LR240T Children's Literature** 3  
Provides a broad overview of children's literature, with emphasis upon work done by American writers and illustrators. Students use standard techniques of literary analysis to critique the works explored in the course. Prereq: CC112T, CC113T or permission of instructor. (3/0)

**LR241T Literature of the African Peoples** 3  
Provides an introduction to the literature and culture of persons of African descent. Readings include fiction and nonfiction authors from Africa, the Caribbean and the United States. Prereq: CC112T, CC113T or permission of instructor. (3/0)

**LR250T Selected Topics** 1-3  
Offers specialized study in interest areas. Areas may include special courses in mythology, American culture, adolescent literature or other concentrations. Prereq: CC112T, CC113T or permission of instructor. (1-3/0)

# Course Descriptions

**LR900T Honors Project: Literature 1**  
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

**LR999T Independent Study: Literature 1-3**  
Provides readings, papers and/or research projects in literature under the guidance of a staff member. Prereq: Permission of instructor. (1-3/0)

## MC: Music

**MC100T Music Appreciation 3**  
Includes study of elements and forms of music with attention to major historical periods and composers of historical significance and survey of indigenous music. (3/0)

**MC101T Introduction to Music Theory 3**  
Introduces music majors and nonmajors to the principal elements of music theory including notation, melody, choral harmony and musical form. Intended for students with strong interest but limited background in music theory. (3/0)

**MC105T Music Theory I 3**  
Studies notation, scales, modes, intervals, tonality, harmony, melody, instruments, voices, four-part writing, harmonic progression and style periods. (3/0)

**MC106T Music Theory II 3**  
Studies the major-minor dominant seventh chord, the diminished chords, modulation, nondominant seventh chords, secondary dominant chords, binary and ternary form, American popular song, and blues, boogie and jazz. Prereq: MC105T or permission of instructor. (3/0)

**MC107T Aural Skills I 1**  
Concentration on developmental skills in the aural recognition of triads, intervals, scales, simple rhythms, definition of chord progressions, sight singing and simple dictation. (0/2)

**MC108T Aural Skills II 1**  
Continuation of Aural Skills I. Prereq: MC107T or permission of instructor. (0/2)

**MC110T Jazz Improvisation I 2**  
Studies theoretical principles and techniques used in the jazz idiom. Provides opportunity for application of music theory at the performance level to include scales, chord progressions, melodic patterns and rhythmic elements. Recommended for both instrumentalists and vocalists.

**MC111T Jazz Improvisation II 2**  
Continues the study as outlined in Jazz Improvisation I. Prereq: MC110T or permission of instructor. (2/0)

- MC150T Voice 1-2**
- MC151T Piano 1-2**
- MC152T Organ 1-2**
- MC153T Synthesizer 1-2**
- MC154T Violin 1-2**
- MC155T Viola 1-2**
- MC156T Cello 1-2**
- MC157T Bass 1-2**
- MC158T Flute 1-2**
- MC159T Oboe 1-2**
- MC160T Clarinet 1-2**
- MC161T Bassoon 1-2**
- MC162T Saxophone 1-2**
- MC163T Cornet-Trumpet 1-2**
- MC164T French Horn 1-2**
- MC165T Trombone 1-2**
- MC166T Baritone 1-2**
- MC167T Tuba 1-2**
- MC168T Percussion/Drum Set 1-2**
- MC169T Guitar 1-2**

**MC200T Rock, Jazz and Blues Music 3**  
Explores American rock, jazz and blues music in the twentieth century. Emphasis on major composers, bands, and performers 1900-present. Examines American popular music trends and styles through lecture, discussion, and listening. (3/0)

**MC201T Music Technology 2**  
Provides an overview of and practical experience with a number of commercially available music-related hardware and software products. A basic understanding of the Musical Instrument Digital Interface (MIDI) and its application to composition, orchestration, film scoring, recording, performance and education is required. Other technology includes electronic keyboards, tone generators, digital recording systems, CD-ROM, multimedia and videodisc. Software categories include sequencers, notation packages, interactive software and educational programs. Prereq: Knowledge of basic music fundamentals. (2/0)

**MC205T Advanced Music Theory I 3**  
Studies 16th century polyphony, 18th century counterpoint (including the fugue), variation technique, 19th century Romanticism, borrowed chords, 9th, 11th and 13th chords, the neapolitan 6th chord, augmented 6th chords, altered dominants and chromatic mediants. Prereq: MC106T or permission of instructor. (3/0)

**MC206T Advanced Music Theory II 3**  
Studies form with emphasis on sonata-allegro and rondo, devices of the late 19th and early 20th centuries, the contemporary period and particular analysis of significant works by 20th century composers, serialism, and new trends since 1970. Prereq: MC205T or permission of instructor. (3/0)

**MC207T Advanced Aural Skills I 1**  
Aural dictation and transcribing more complex melodies, rhythms, chords, four-part writing, recognition of various 7th chords, compound intervals and sight singing, including duets. Prereq: MC108T or permission of instructor. (0/2)

**MC208T Advanced Aural Skills II 1**  
Continuation of Advanced Aural Skills I. Prereq: MC207T or permission of instructor. (0/2)

**MC220T Chorale (Concert Choir) 1**  
Serves students with ability and desire to sing in a mixed-voice group. May be repeated for credit. Prereq: Permission of instructor. (0/3)

**MC226T Vocal Jazz 1**  
Provides auditioned members an opportunity to sing a variety of jazz styles from traditional to contemporary arrangements. May be repeated for credit. Prereq: Permission of instructor. (0/5)

**MC230T Concert Band 1**  
Introduces new literature each semester to extend the experience of the student's learning to read and play different styles and tempos. This group is open to community members and does not require an audition. (0/2)

**MC231T Chamber Ensemble 1**  
Students practice and perform traditional literature for trios, quartets and other small groups. (0/2)

**MC235T Jazz Ensemble (Instrumental) 1**  
Explores various styles of jazz from traditional to contemporary through a performance-oriented class. May be repeated for credit. (0/3)



**MC236T Community Jazz Ensemble (Instrumental)** 1

Performance-oriented class designed to explore various styles of jazz from traditional to contemporary. May be repeated for credit. Rehearses evenings only. (0/3)

**MC237T Jazz Combo** 1-2

Explores various styles of jazz in a small group setting and emphasizes improvisational techniques. This course must be taken for a grade, may not be challenged and is transferable. Prereq: Permission of instructor. (0/2-4)

**MC238T Jazz Improvisation Clinic** 1

Studies theoretical principles and improvisational techniques in the jazz idiom. Beginning, Intermediate and Advanced levels. Designed for students of all ages: high school juniors and seniors to professional musicians. (0/2)

**MC239T Jazz Exploration Lab Choir** 2

Explores a wide variety of jazz styles through historic overview and performance in a Jazz Lab Choir. Designed for students with previous choral experience. Vocal jazz background not required. Prereq: Permission of instructor. (1/2)

**MC241T String Ensemble** 1

Students practice and perform literature for string trios, quartets and other small groups of stringed instruments. Prereq: Approval of instructor. (0.2)

**MC281T Performance Seminar for Musicians** 0.5

Provides the opportunity to develop and improve performing techniques required of all musicians. Emphasizes student performances, development of repertoire and discussion of performance style. Required of all music majors and open to all students enrolled in applied lessons. Prereq: MC150T-MC169T. (0/1)

**MC290T Sing Jazz: Vocal Jazz Symposium** 1

Three-day workshop designed for music educators. Topics to include rehearsal techniques and strategies, designing jazz warm ups, sound system design and operation, basic improvisation, jazz history. (0/2)

**MC999T Independent Study in Music** 1-2

Allows the student to pursue a special concentration of music study under the guidance of a faculty member. Requires a contract and approvals of faculty member and dean. (0/2-4)

## MD: Communication Media/Public Relations

**MD100T Mass Media** 3

Surveys the field of mass communications. Takes the theoretical position that mass communication is a social system, considering the functions, structure and performance of the individual media, as well as the auxiliaries. (3/0)

**MD105T Practical Reporting/Electronic News Gathering** 2

Provides a hands-on instructional setting for basic reporting, editing and photography for print and broadcast journalism. (1/2)

**MD120T Newswriting and Reporting** 3

Involves an in-depth study of objective news reporting and advocacy journalism as well as training in writing the news story, writing headlines, copyright and editing. Prereq: Ability to type 30 wpm. (3/0)

**MD130T Promotion and Public Relations** 3

Teaches students how to plan an effective promotional campaign by identifying target audiences, understanding the effect of mass communication media and preparing materials for media campaigns. Includes principles of design and layout. (3/0)

**MD200T Photojournalism** 2

Introduces communication with photographics, editing and combining words and photographs for newspapers, magazines and brochures. Color slide processing is also covered. (1/2)

**MD205T Introduction to Electronic Production** 2

Presents basic principles and techniques used in audio and video production. Course emphasis is on studio operation. Students learn how to operate cameras and studio switches, and how to serve as floor manager. Audio techniques include operation of audio console and use of prerecorded music. (0/2)

**MD210T Advanced Audio** 2

Teaches editing, splicing and audio production techniques. Students will conduct interviews and learn sound effects. Prereq: MD205T (1/2)

**MD215T Advanced TV** 2

Designed to teach students the proper operation of remote video and audio equipment. Course emphasizes script writing and videotape editing. Final projects will be televised on Kirkwood's cable channel. Prereq: MD205T (1/2)

**MD220T Broadcast Writing and Performance** 3

Emphasizes scripts and commercial writing skills. Students will announce and perform before microphones and cameras. (3/0)

**MD800T Communication Media/Public Relations Field Experience** 3

Provides on-the-job training in the media field. Prereq: Permission of instructor/coordinator. (0/0/12)

**MD900T Honors Project: Communication Media/Public Relations** 1

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

**MD999T Special Projects** 1

Provides opportunity to carry out a media project under professional direction. Prereq: Permission of instructor. (0/2)

## ME: Medical Assisting

**ME101U Administrative Medical Office Procedures** 4

Presents the principles of administration for the medical office including facility and supply management, telephone, and appointment techniques, managing records and medical bookkeeping. (1/4)

**ME200U Medical Assistant Pharmacology** 3

Provides a basic background in the classification of drugs, their sources, uses, and legal implications. Discusses characteristics of typical drugs, side effects, precautions, interactions and patient education. Prereq: HS150U, HS111U, ME202U or concurrent. (2/0)

**ME201U MA Clinical Procedures** 3

Includes basic clinical skills used in a medical office: preparing for the patient's visit, assisting the physician and patient during examination and treatment including minor surgery, positioning, microbiology and sterilization, X-rays, nutrition, and medical specialties. Prereq: HS111U. (1.5/3)

**ME202U Math for Medications** 1

Provides a basic mathematical background for an understanding of measurement systems and the calculation of dosages of oral and parenteral medications for medical assisting. (1/0)

## ME205U Medical Insurance and Legalities 3

Provides a working knowledge of basic medical insurance programs, forms utilized and the record keeping of insurance claims. Also includes medical ethics and legalities related to medicine. Prereq: HS120U and DG145U. (3/0)

## ME207U Medical Typing 2

Concentrates on typing and word processing of forms, letters and other papers common to medical offices. Introduces transcription. Prereq: OF123T or test out of typing and HS120U. (1/2)

## ME208U Medical Lab 3

Provides basic principles and skills in hematology, urinalysis, venipuncture, blood chemical test and quality control as applied to the physician's office. Prereq: HS120U, HS150U. (1/4)

## ME300U Medical Assisting Mental Health Concepts 2

Emphasis on fundamental aspects of mental health. Includes basic psychological principles, aspects of mental illness, and availability of local resources. (2/0)

## ME831U Medical Assisting Clinic 6.5

Offers supervised practical experience in medical offices, clinics and other medical care settings. Prereq: All Medical Assisting technical courses. (.5/0/18)

## MI: Health Information Technology

### MI103U Introduction to Health Information Technology 2.5

Provides an overview of the health information management profession, and the development, content, and analysis of medical records in health care settings. Students will learn the importance of health information management in reimbursement and different classification systems. Includes legal issues in medical records, patient confidentiality, form construction and design, numbering systems, and indexes and registers. Explore health information storage and retention systems and computerization of health records. (2/1)

### MI205U Medical Transcription 1

Develops skills in transcribing various medical reports with emphasis on the proper use of medical terminology. Introduces transcription systems and management techniques. Confidentiality in the completion of medical reports is stressed. Prereq: HS120U, MI103U(0/2)

### MI206U Legal Aspects of Health Information 2

Includes use of the medical record as a legal document, release of information, consents, the medical record in legal proceedings and an overview of current health legislation. Prereq: MI103U. (2/0)

### MI207U Introduction to Medical Coding 2.5

Studies basic disease and procedural coding of the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM). Prereq: MI103U (concurrent), HS120U (concurrent), BI150T (concurrent). (2.5/0)

### MI208U Intermediate CPT-4 Coding 3

Continues more complex concepts of procedural coding utilizing the Current Procedural Terminology, 4th Edition (CPT-4) classification system and includes practical application of coding outpatient/ambulatory records. Prereq: MI406U. (2.5/1)

### MI300U Professionalism in Medical Transcription 1

Provides an overview of the career through lectures, guest speakers, job shadowing and tours, with an emphasis on professional issues and confidentiality. (1/0)

### MI301U Career Medical Transcription 6

Includes transcribing physician-dictated reports with emphasis on developing accuracy, speed, and medical knowledge for transcription of medical reports. Correct usage of grammar, punctuation, editing, and proofreading skills are emphasized along with professionalism and confidentiality. Prereq: All medical transcription courses, coreq with HS157U.

### MI405U Quality Improvement 3

Focuses on quality assessment and performance improvement in health care settings and the role of health information management professionals in quality improvement, utilization management, credentialing and risk management. Simulations of quality assessment and utilization management functions, the role of peer review organizations and their impact on health information are included. Prereq: MI103U. (2/2)

### MI406U Medical Coding and Classification 3

Continues more complex concepts of disease and procedural coding of the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM). Introduces procedural coding utilizing the Current Procedural Terminology, 4th Edition (CPT-4) classification system. Includes practical application of coding inpatient and outpatient records. Prereq: MI107U, BI151T. (2.5/1)

### MI407U Abstracting/Health Statistics 2

Emphasizes abstracting of medical records and computer input of data. Includes basic arithmetical and statistical principles, hospital statistics and formulas, vital and public health data sources. Discusses presentation of data and data quality. Prereq: MI406U and HS157U or concurrent. (1/2)

### MI408U Health Information Systems 2.5

Provides an overview of the use of automated information systems in the health care delivery system. Introduces terminology and essential concepts of health information systems and management of data. Examines data integrity and privacy/security issues affecting the access to and use of patient information. Prereq: MI103U, DG102T. (2/1)

### MI500U Health Information Management and Supervision 3.5

Provides basic principles of personnel supervision including developments and considerations vital to the performances of supervisors in today's health care environment. Prereq: MI842U. (3/1)

### MI505U Reimbursement Methodologies 2.5

Introduces the prospective payment systems for inpatient health care (Diagnosis Related Groups - DRG) and ambulatory health care (Ambulatory Patient Classifications -APCO. Explores Local Medical Review Policies (LMRP) and the Resource Based Relative Value System (RBRVS). Focus on fraud and abuse issues, coding compliance, and the National Correct Coding Guide. Includes practical application of diagnosis and procedural coding as well as DRG and APC assignment. Prereq: MI406U. (2/1)

### MI621U Health Information Professional Practice Experience I 2.5

Combines the theory of health information management with supervised practice in selected health care settings, either a hospital or a physician's office. Introduces the student to the Health Information Management/Medical Record Department, their specific health information systems, filing systems, numbering systems, indexes, registers, etc., including healthcare provider specific coding practices. Coordinated by college. Prereq: MI103U (concurrent), MI207U (concurrent). (.5/0/6)

**MI833U Health Information Professional Practice Experience II** .5

Combines the theory of Health Information Management in a physician's office. Provides practical application in specific health information systems, filing systems, numbering systems, and provider specific coding practices. Coordinated by the college. Prereq: MI406U, MI821U. (0/0/1.5)

**MI842U Health Information Professional Practice Experience III** 3

Combines the theory of health information management in selected health care settings with experiences in health information systems, quality assurance, coding of diseases and procedures, and medical record management. Prereq: MI833U. (0/0/9)

**MI853U Health Information Professional Practice Experience IV** 2

Combines the theory of health information management in selected health care or classroom settings including long term care, State Health Registries, consulting, portfolio construction, resume creation, job skills, and other alternative health care careers coordinated by the college. Prereq: MI842U. (1/0/3)

**MI900T Honor's Project: Health Information Technology** 1

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

## MN: Manufacturing

**MN100U Fundamentals of Welding** 1-3

Covers basic welding techniques with oxyacetylene and electric welders. Designed for the general tradesperson working in the areas of mechanics and automotive technology. Students are introduced to a variety of welding situations including cutting, brazing and various welding positions on lighter gauges of metal and basic fabrication. (.5-1/1-4)

**MN104U Blueprint Reading for Welders** 2

Studies basic elements of drawings, orthographic views, structural drawings and welding symbols associated with welding fabrication. (2/0)

**MN105U Pipe Welding Symbols** 1

Studies basic blueprint pipe welding symbols, dimensioning for layout and methods of representing a pipe layout. Prereq: MN104U. (1/0)

**MN110U Introduction to Arc Welding and Weaving** 1

Includes operation of AC and DC welding equipment. Striking an arc, beads of weld in all directions, in the flat position and building beads of weld. Welding safety is stressed. Also covers welding techniques used to make beads of weld any width. Three basic weave patterns are taught. (.5/1)

**MN111U Flame Cutting** 1

Develops the skills needed in oxyacetylene flame cutting including set-up, operation and maintenance of equipment. Oxyacetylene safety is stressed. (.5/1)

**MN112U Introduction to Joint Welding** 1

Studies in detail fillet welds in the flat position using single- and multiple-pass techniques. Includes an introduction to welding metallurgy. (.5/1)

**MN113U Powdered Iron Weld Methods** 1

Covers the methods used to make fillet welds using large-diameter, powdered-iron "drag rods," also the selection and the A.W.S. numbering system of covered electrodes. (.25/1.5)

**MN115U Butt Joints - Flat** 1

Introduces the basic methods of preparing and welding butt joints in the flat position. Also includes the use of the A.W.S. welding symbols. (.25/1.5)

**MN116U Horizontal Weld Techniques** 1

Introduces horizontal welding techniques and methods used to make various types of joints in the horizontal position. (.5/1)

**MN117U Vertical Weld Techniques** 1

Introduces vertical welding techniques and methods used to make various types of joints in the vertical position. (.25/1.5)

**MN118U Overhead Welding Techniques** 1

Introduces overhead welding techniques and methods used to make various types of joints in the overhead position. (.25/1.5)

**MN119U A.W.S. Bend Test** 4

Covers the testing of welds including the preparation and welding of A.W.S. Welder Certification Guided Bend Tests in all positions using E-7018 electrodes. Students must pass this test to complete the metallic arc welding section of the welding program. (1.5/5)

**MN120U Gas Tungsten Arc Welding - ThinWall Pipe** 3

Teaches entry-level skills using the gas tungsten arc welding process on small-diameter, thin-wall steel pipe in all positions. Prereq: MN128U. (1/4)

**MN121U Gas Tungsten Arc Welding - Heavy Wall Pipe** 5

Teaches entry-level skills using the gas tungsten arc welding process on large-diameter, heavy-wall steel pipe in all positions. Prereq: MN128U. (1/8)

**MN122U Introduction to Fabrication for Welders** 2

Provides the student with hands-on fabrication basics used by welding industries. Covers layout, reading blueprints, applied math, cost estimation, jigs and fixtures, and introduction to shearing, bending, drilling, sawing and other manufacturing process associated with welding fabrication. Prereq: MN129U and IT116U or permission of instructor. (0/4)

**MN123U Welding Internship** 2

Provides employment in an approved welding-related position, which includes instructor visitations/evaluations and employer evaluations of performance. Prereq: MN122U, all first- and second-phase, or permission of instructor. (0/0/0/8)

**MN124U Introduction to Flux Core** 1

Continues the study of Gas Metal Arc Welding. Learning objectives focus on semiautomatic welding process as it applies to flux cored welding. Student will weld with both dual shield and self-shielding wires. Student will learn the strengths and weaknesses of both processes. (0/2)

**MN125U Gas Metal Arc Welding** 2

Studies the setup and operation of the semiautomatic welding process, using both hard wire and flux core wire. (1/2)

**MN126U Oxy-acetylene Welding** 2

Provides instruction in oxyacetylene welding including the setup and operation of equipment and accessories. Welding procedures for light gauge steel and heavy steel plate in all positions and various joint types are taught. (1/2)

**MN127U Oxy-acetylene Braze Welding** 2

Introduces the techniques and procedures used to braze, braze weld and silver solder. Studies the various methods and procedures of oxyacetylene repair welding of cast iron and nonferrous materials. Aluminum welding techniques are stressed. (1/2)

**MN128U Gas Tungsten Arc Welding** 4

Covers all position welding techniques on ferrous and nonferrous materials using the heliarc welding process. (1.5/5)

# Course Descriptions

## MN130U Gas Metal Arc Welding-Pipe 3

Focuses on entry-level skills using the gas metal arc welding process on pipe. Prereq: MN125U. (1/4)

## MN132U SMAW Pipe Fixed Horizontal Position 3

Provides advanced pipe welding techniques in the 5G and 5F positions using E6010 and E7018 electrodes. Basic fit-up and weld-off techniques with fillet welds and groove welds (with and without backing) will be learned. Specimens will be welded and tested to ASME code standards. (1/4)

## MN133U Introduction to SMAW Pipe 2

Provides basic pipe welding techniques in the 2G and 2F positions using E6010 and E7018 electrodes. Basic fit-up and weld-off techniques with fillet welds and groove welds (with and without backing) will be learned. Specimens will be welded and tested to ASME code standards. (0/4)

## MN134U Pipe Fitters Math 3

Provides practical math course intended for the pipe welder apprentice, journeyman or supervisor. The student will complete a series of math exercises commonly used in pipefitting. Trigonometry review to complex rolling offsets will be covered. Prereq: Concurrent with MN135U. (3/0)

## MN135U SMAW Pipe Welding Qualification Test 3

Provides advanced pipe welding techniques in the 6G and 6F positions using fillet welds and groove welds (with and without backing) will be learned. Specimens will be welded and tested to ASME code standards. (1/4)

## MN136U Welding Special Projects 1

Allows for those needing specific welding training, other than the regular courses, or practice for various weld tests. Also for those needing review or upgrading of methods and skills. (0/2)

## MN137U Quality Assurance Program/Welding 2

Provides the student with a thorough technical understanding of the elements that must be considered to develop a quality assurance and quality control program. Information is presented to explain the relationship between cost and weld quality and the duties typically performed by the welding inspector. (2/0)

## MN138U Welding Codes 1

Provides the student with a thorough technical understanding of the purpose for welding codes, as well as the application of codes. Information is presented to explain the relationship between weld quality and the use of welding codes. Prereq: MN137U. (.5/1)

## MN139U Procedure and Qualification Tests 1

Provides the student with a thorough technical understanding of the importance of weld quality through development of procedures, qualification of procedures and measurement of people performance (skill and ability). The sequence of events required to prove proper methods, skills and maintenance of the qualification systems is also presented to provide a complete analysis of the requirements for quality welding. Prereq: MN138U. (.5/1)

## MN140U Discontinuities and Defects 1

Provides the student with a thorough technical understanding of discontinuities and defects associated with arc welding. Welding discontinuities are identified, defined and the causes established related to weld shape, size and contour; internal inconsistencies and weld metal irregularities; and weld and base metal properties. These discontinuities are discussed with relation to variables in the welding procedure specific to the welding process employed. (.5/1)

## MN141U Destructive Testing 1

Provides the student with a thorough technical understanding of the purpose for destructive testing and procedures applicable to the variety of common destructive methods. The results of the test method will be discussed to reinforce the reasons for testing in relation to weld quality. Prereq: MN140U. (.5/1)

## MN142U Nondestructive Testing 1

Provides the student with a thorough technical understanding of the purpose for nondestructive testing and the procedures applicable to the variety of common nondestructive methods. The results of the test methods will be discussed to reinforce the reasons for testing in relation to weld quality. Prereq: MN141U. (.5/1)

## MN144U Introduction to Shop Processes Theory 5

Covers theory of operation of machining tools, metallurgy as it applies to manufacturing, identification and elementary heat treatment of steel. Safety is taught as it applies to each machine process. Proper terminology of the machinist trade is emphasized. (5/0)

## MN145U Introduction to Shop Processes Lab I 4

Covers lab use of basic measuring tools, layout and inspection tools, and bench work. Safe operation of machine tools and heat treating equipment is taught. Emphasis is on following blueprints and holding tolerances through the use of a variety of processes to produce a product. Must be taken simultaneously with or after MN151U, IT103U and MN144U. (0/8)

## MN146U Introduction to Shop Processes Lab II 4

Continues MN145U. More complex prints are used to introduce additional machine tool processes. Prereq: MN145U and concurrent with MN151U, IT103U. (0/8)

## MN147U Application of Shop Processes Theory 3

Continues Introduction to Shop Processes Theory. Covers more advanced principles in setup and operation of lathes, mills and grinders. Introduces carbide lathe tools, milling cutters, and emphasizes productivity and accuracy. Covers theory of basic shaper setup and operation, and an introduction to basic turret lathe setups. Shop safety, cooperation and communication continues to be stressed. Prereq: MN146U. (3/0)

## MN148U Application of Shop Processes Lab I 4

Covers advanced setup and operation of lathes, mills and grinders using different materials and cutters. Productivity and safe operation is emphasized. Must be taken simultaneously with or after IT104U, MN152U and MN147U. Prereq: MN146U. (0/8)

## MN149U Application of Shop Processes Lab II 4

Continues MN148U. Use of carbide cutters is emphasized. Productivity and safety continue to be emphasized along with more complex prints and setups. Must be taken simultaneously with or after IT104U, MN152U and MN147U. Prereq: MN148U. (0/8)

## MN151U Machinist Blueprint Reading I 1

Introduces students to the importance of prints in industry. Covers the alphabet of lines and principles of sketching. Continues with an introduction to orthographic projection; auxiliary views; detail and assembly drawings; dimensions and tolerances; and sectional views. Title block information is covered along with materials lists, drawing notes and drawing change systems. (1/0)

**MN152U Machinist Blueprint Reading II** 1  
Continues Machinist Print Reading I. Covers geometric dimensioning and tolerancing and the interpretation of advanced prints including numerical control programming and documents. (1/0)

**MN153U Survey of Machine Shop Practices** 5  
Introduces beginning students to basic principles of measurement, layout, setup and operation of saws, drills, lathe and vertical mill. Principles of speeds and feeds are introduced along with practical basic heat treatment of steel. Safety is stressed as it applies to each machine and process. Prereq: Concurrent with MN161U. (2/6)

**MN156U Basic Engine Lathe** 5  
Includes common lathe operations including turning, boring, tapers and angles, knurling and single-point threading. Basic mill setups for cutting keyways will be an option. Prereq: MN161U, MN153U or permission of instructor, concurrent with MN165U. (2/6)

**MN157U Basic Mill Operation** 5  
Includes principles of squaring up material, milling steps and slots, and basic principles of jig boring. Prereq: MN161U, MN153U or permission of instructor, concurrent with MN166U. (2/6)

**MN161U Machinist Related Math/Blueprint I** 1  
Includes the principles of reading shop prints and solving practical math problems involving fractions and decimals. The use of a calculator will be stressed. (1/0)

**MN165U Machinist Related Math/Blueprint II** 1  
Continues Principles of Blueprint Reading. Math will include calculations involving powers and roots and practical math relating to tapers, angles and thread cutting. (1/0)

**MN166U Machinist Related Math/Blueprint III** 1  
Continues previous blueprint reading. Math involves calculations consisting of powers and roots and the use of handbook tables and formulas needed to solve shop problems. Prereq: MN161U. (1/0)

**MN167U Machinist Related Math/Blueprint IV** 1  
Continues previous blueprint reading. Math will include plane geometry along with right angle trig and other practical math related to shop problems. Prereq: MN165U. (1/0)

**MN168U Machinist Related Math/Blueprint V** 1  
Culminates course in the Machinist Math/Blueprint series. Math will continue study of plane geometry and more advanced shop trig. Jig borer coordinate calculations will be included. Prereq: MN166U. (1/0)

**MN170U Exploring Industrial Electronics** 4  
Covers an exploration of basic digital logic circuits, solid-state motor controllers, programmable controllers and solid-state temperature controls. All subjects are covered both in theory and laboratory exercises. All laboratory exercises are conducted on equipment typical of that found in industry. (3/2)

**MN171U Electrical Distribution** 4  
This is a skills-based course that will train the student in safe work procedures for distribution system installation and maintenance of high voltage electrical systems. You will work on a variety of structures as well as underground systems, repairing typical hardware and apparatus. Participants will be able to identify the terms and definitions associated with an electrical power supply systems; cable and conductors used in transmission and distribution systems. Course involves both lecture and application in the lab.(3/2)

**MN172U Advanced Machine Shop (CNC)** 4  
Covers more advanced principles of setup and operation of lathes mills and grinders. Introduces carbide lathe tools, milling cutters, and emphasizes productivity and accuracy. Computer assisted programming introduced as it applies to Computer Aided Design/Computer Aided Manufacturing (CAD/CAM). Shop safety, cooperation and communication continue to be stressed. (2/4)

**MN173U Basic Machine Shop** 4  
Introduces beginning students to basic principles of measurement, layout, setup and operation of saws, drills, lathe and vertical mill, learning activities introduce principles of speeds and feeds as well as the basic heat treatment of steel. Machine safety is stressed. (2/4)

**MN174U Introduction Manufacturing** 3  
Covers the theory of machining tools, structural steel and metallurgy as they relate to manufacturing. Safe operation of machine tools and equipment is taught. Proper terminology used in the manufacturing trades is emphasized. (2/2)

**MN175U Advanced Engine Lathe** 5  
Stresses close tolerance machining of a variety of materials, use of carbide tooling, internal and external threading of Acme and other thread forms. Prereq: MN156U, concurrent with MN167U. (1/8)

**MN176U Advanced Mill Operation** 5  
Allows students to set up and operate horizontal mills, and students will learn how to set up rotary tables, indexers and dividing heads. More advanced jig boring techniques will be covered. Gear cutting will be an option. Prereq: MN157U, concurrent with MN168U. (1/8)

**MN177U Heat Treating and Grinding** 3  
Studies metallurgy as it relates to the manufacture of iron and steel, the standard identification of metals and the heat treatment of steel. Precision surface and cylinder grinding of parts previously fabricated in earlier courses will be required. (1/4)

**MN178U Machinist Special Projects** 1-5  
Allows students to work on projects of their own choosing. The fixturing and machining of interrelated parts will utilize knowledge, problem solving abilities and skills acquired in previous courses. Prereq: MN175U or MN176U and MN177U. (0/10)

**MN205U Intro to Computer Numerical Control** 3  
Introduces computer numerical control as it relates to CNC lathes and milling machines. The use of microcomputers and related software is covered. Emphasizes input language, codes, machine setup and operation, inspection of parts, and communication with peripherals. Prereq: MN143U, MN145U, MN156U, MN157U. (1/4)

**MN206U Intermediate Computer Numerical Control** 6  
Continues the introductory course adding canned cycles, looping, sub-routines and interpretation of programs written by others. Internal machining on the lathes will be covered. More complex parts and production of multiple parts will be undertaken. Prereq: MN205U or appropriate industrial experience. (1/10)

**MN207U Advanced Computer Numerical Control 6**

Allows students to progress from the trainers to the full-size industrial CNC machines. Conversational programming will be introduced, and advanced projects involving mating parts and short production runs will be undertaken. Students will be introduced to computer-assisted programming as it applies to CAD/CAM. Routine and preventive maintenance procedures will be learned. Prereq: MN206U or appropriate industrial CNC programming experience. (0/12)

**MN208U Automated Production Methods 5**

Covers computer-assisted programming and introduces students to automation as it applies to machining operations. Automatic machine feeding, automatic cycle repetition, robots and other equipment-oriented concepts will be studied. System concepts such as mass production, batch processing and just-in-time processing will be covered from a theoretical view. Prereq: MN207U. (1/8)

**MN215U Geometric Tolerancing 1**

Presents information concerning the special symbols used in geometric dimensioning and tolerancing. These symbols are a language used to communicate the ideas and intent of the designer to the people who manufacture the parts or the person who inspects the finished part. Prereq: MN151U and MN152U or appropriate work experience. (1/0)

**MN256U Automated Systems 6**

Studies production concepts such as mass production, batch processing and job shopping as they relate to automation is presented. Students will study varying applications of identical components in different automated manufacturing systems. Field trips, written reports and laboratory experiences will be used to examine planning, implementation and cost effectiveness of automated systems. Application of control systems to achieve automation is also studied. Prereq: MN255U, MN190U and CC115T. (3/6)

**MN265U Flexible Manufacturing Systems 6**

Presents instruction in configuring work cells. Both external computer controls and integrated controllers will be studied. Students will learn how to utilize geometry from AutoCAD designs in developing CNC programs for production. Movement of materials and products to and from work cells will also be covered. Prereq: Concurrent with MN251U. (2/8)

**MN266U Computer Integrated Manufacturing 6**

Allows students to apply all previously and concurrently learned information and skills to an application project jointly selected by the student and instructor. The project will involve taking a simple product from the completed design stage through the entire manufacturing process to finished product. Appropriate uses of automation will be demonstrated throughout the process. Prereq: Concurrent with MN251U and MN265U. (2/8)

**MN275U Process Control Systems I 5**

Introduces the student to complete control systems starting with feedback sensors to make process decisions and progressing to electrical robotic systems, pneumatic material transfer systems, and a combination of electrical, pneumatic and conveyor transport systems. Extensive electronic control and programming are involved. (2/6)

**MN276U Process Control Systems II 3**

Introduces the student to methods of integrating machines, sensors, software and computer-controlled devices. Programmable logic controllers will be used to interface to various types of real-world devices. Monitoring software, sequence control of process steps and graphic portrayal are studied, programmed and integrated into a process. (1/4)

**MN277U Data Acquisition 5**

Introduces techniques of acquiring data, converting data to useable form, and using the data to make decisions, track a process, etc. The hardware/software PC-based packages used in this course demonstrate the need for acquisition of data in all control systems. (3/4)

**MR: Marketing**

**MR101T Principles of Marketing 3**

Studies the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create the exchanges that satisfy individual and organizational goals. (3/0)

**MR102T Principles of Retailing 3**

Studies retailing and its functions in a free enterprise system. All facets of retail operation are considered including planning, organization, personnel, facilities, control, pricing, buying, selling and promotion. (3/0)

**MR102U Retail Advertising and Display 3**

Emphasizes instruction and practical experience in the areas of ad layout, design and construction for use with local advertising media. Includes relationship of display to the total promotional program and a study of elements of display, construction materials, merchandise selection and the actual display construction. (3/0)

**MR103T Principles of Selling 3**

Provides the basic skills needed to sell goods and services in a marketing economic system. Students will learn about careers in selling, buyer behavior, product knowledge and selling concepts. Emphasis is on problem solving. (3/0)

**MR104T Principles of Insurance 3**

Exposes students to different types of insurance contracts, the concept of risk and government's relationship with the industry. (3/0)

**MR106T Principles of Advertising 3**

Acquaints the student with the philosophy of advertising, historical concepts and practical applications of advertising at the local and national levels. Includes media and media selection, copywriting and layout, with an emphasis on product selection for advertising. (3/0)

**MR107T World View: Introduction to International Business 3**

Provides students with an overview of the concepts of international business. Students acquire an awareness of the effects of monetary exchange, geography, Foreign Credit Insurance Corporation, trade duties and restrictions, sociological and political problems, and other areas of involvement as they affect international business. (3/0)

**MR107U Food Store Marketing I 3**

Offers an introduction to the specialized field of food merchandising. Careers, size of the industry, consumer expenditures and behavior are studied. The students study the merchandising of each one of the major departments in a supermarket. Also included is labor scheduling, gross profits and sales promotion. Convenience stores, clubs, wholesaling and food manufacturing are also studied. (3/0)

**MR108T International Marketing 3**

Covers the theoretical and practical concepts of international marketing. A clear delineation of marketing functions in domestic and international business will be stressed. Other topics covered include the cultural dynamics of the global markets, political and legal environment and multinational markets. (3/0)

**MR109U Food Store Marketing II** 3  
Provides practical food merchandising strategy for supermarket and convenience stores. Emphasis is on the decision-making process using mathematics concepts and management principles. The technical knowledge learned in Food Store Marketing I is used as a basis for decision-making in the management area. Students will have opportunities to practice individual and group projects in several areas. Financial decisions are emphasized. (3/0)

**MR111T Advanced Foreign Trade Documentation** 3  
Continues the Foreign Trade Documentation course. This course will provide an advanced study of documentation procedures and practices for international shipments with an emphasis on letters of credit including uniform customs and practices for documentation credits, standby and transferable letters of credit, and consulate/legalization requirements. Prereq: MR120T or permission of instructor. (3/0)

**MR113T Marketing Management** 3  
Involves designing and developing marketing strategies, new products for businesses, and facilitating the marketing process from product idea conception to production and delivery. Emphasis will be on developing a marketing plan, situation analysis, marketing strategies and product management. (3/0)

**MR118T Sales Management** 3  
Includes training, forecasting, territory assignment, budgeting, staffing, planning and evaluation in the study of managing salespersons in an organization. Students will focus on management principles in solving sales and salesforce problems. Students will use case methods and the computer for problem solving and project completion. Prereq: MR103T. (3/0)

**MR119U International Transportation and Documentation I** 3  
Examines the functions for the movement of goods from point of origin to international and intercontinental destinations, as well as the preparation and distribution of documentation. Students will further study the process for moving products from the exporting country into the importing country. (3/0)

**MR120U International Transportation and Documentation II** 3  
Continues the study of transportation and export documentation with emphasis on banking documents, letters of credit, importing, and other issues relative to the international transportation industry. Prereq: MR119U. (3/0)

**MR121T International Law** 1-3  
Covers international sales, credit and the commercial transaction; international and U.S. trade laws; regulations of the international market place including NAFTA, GATT, Incoterms, Licensing and the Foreign Corrupt Trade Act. (3/0)

**MR121U Introduction to Exporting** .5  
Provides students with an overview of the exporting process. Describes the movement of good from point of origin to international and intercontinental destinations. One of five short courses that together are comparable to International Transportation and Documentation I.(.5/0)

**MR122T Introduction to E-Commerce** 3  
Addresses the electronic commerce needs of modern business organizations, merchants and consumers. The course will examine how the Internet can cut costs while improving the quality of goods and services and increasing the speed of service delivery. The impact of the Internet on our economy will be examined and will include the purchase of Personal and Business Services. E-Commerce will be studied from the company's perspective, showing how the Internet is used for business-to-business marketing activities. Global E-Commerce will also be analyzed. Students will use multiple web browsers to conduct market research and learn to develop an E-Commerce Web, using Microsoft FrontPage to build a personal web site. (2/2)

**MR122U Incoterms/International Payment Terms** .5  
Examines the various international payment methods and their risk to buyer and seller. Discusses the terms of sale for an export sale. One of five short courses that together are comparable to International Transportation and Documentation I.(.5/0)

**MR123T E-Marketing** 3  
Examines the process of planning and executing the conception, distribution, promotion and pricing of ideas, goods and services to create exchanges that satisfy individuals' and organizations' objectives. It increases efficiency in traditional marketing functions, with the Internet technology of electronic marketing transforming many marketing strategies that results in new business models that add customer value. (3/0)

**MR123U Ocean Transportation** .5  
Covers the issues to consider and the requirements for the movement of goods for an ocean shipment. Students will study the process of moving products by ocean. One of five short courses that together are comparable to International Transportation and Documentation I. (.5/0)

**MR124U Air/Inland Transportation** .5  
Covers the issues to consider and the requirements for the movement of goods for air and inland shipments. Students will study the process for moving products inland and by air. One of five short courses that together are comparable to International Transportation and Documentation I. (.5/0)

**MR900T Honors Project: Marketing** 1  
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

**MR125U Export Documentation** 1  
Covers the preparation and distribution of export documents for an export sale. Hands on preparation of all documents required for an export sale. One of five short courses that together are comparable to International Transportation and Documentation I. (1/0)

## MT: Mathematics

**MT010D Beginning Algebra** 3  
Includes the properties of the real numbers, equations and inequalities in one variable, formulas, applications, operations and factoring of polynomials, exponents and graphing linear equations. This course presumes a proficiency in fractions, decimals and signed numbers. (3/0)

**MT100U Technical Mathematics I** 4  
Studies applied math with no attention devoted to proofs and theorems, but with full emphasis on a high skill level in calculations. Topics include concepts of basic algebra, functions and graphs, trig functions, determinants, vectors, quadratic equations, exponents and radicals, J-operator and systems of nonlinear equations. (4/0)

- MT101U Technical Mathematics II** 4  
Introduces calculus with skills acquired in Technical Mathematics I used for problem solving. Special topics will be covered: introduction to statistics, introduction to the derivative, application of derivative, integration and application of integration. Prereq: MT100U. (4/0)
- MT102U Basic Math** 1-3  
Covers basic business skills such as addition, subtraction, multiplication and division of whole numbers, decimals and fractions. Covers specifically dimensional analysis and significant digit concepts. Also gives practice in solving business math problems, and covers introductory algebra concepts. (1-3/0)
- MT104U Survey of Mathematics** 4  
Provides an overview of topics that include: sets, real number systems, ratios, proportions, percentages, geometry, algebra and functions. The course is for students with a minimum of 1 year of high school algebra and who are intending on taking Statistical Ideas or Math for Decision Making. Prereq: one year high school algebra or placement test. (4/0)
- MT105U Intermediate Algebra** 4  
Provides for development of the skills needed for success in college-level mathematics courses for business or liberal arts students. Includes the study of equations, inequalities, functions, graphs, polynomials, rational expressions, exponents, radicals and logarithms. Designed for the student who will NOT be going on into the Pre-Calculus sequence. Prereq: MT010D or math placement test. (4/0)
- MT106U Intermediate Algebra I or Pre-Calculus** 4  
Provides for development of the techniques necessary for success in Pre-Calculus and beyond. Includes a more in-depth study of equations, inequalities, functions, graphs, polynomials, rational expressions, exponents, radicals and logarithms than is covered in MT105U. Designed for the student who will take the higher-level mathematics courses needed for mathematics and science fields of study. Prereq: MT010D or math placement test. (4/0)
- MT107U Accelerated Algebra** 5  
Includes the study of equations and inequalities in one and two variables, systems of equations, polynomial functions, rational expressions, exponents, radicals and logarithms. Is the content equivalent to beginning and intermediate algebra. Prereq: 2 years high school algebra and placement test. (5/0)
- MT110T Mathematics for Decision Making** 3  
Introduces selected areas of mathematics in familiar settings and develops students' conceptual and problem solving skills. The course includes a study of mathematical concepts selected from statistics, probability, game theory, growth patterns and coding information. Other topics may be included. Prereq: MT104U or MT105U or placement test. (3/0)
- MT112T Mathematics for Elementary School Teachers** 3  
Designed to prepare students to teach mathematics to elementary school children. Includes methods of problem solving, concepts of basic math, logic, statistics, probability and geometry. Prereq: MT105U or placement test. (3/0)
- MT115T Statistical Ideas** 3  
Designed for students who are not majoring in mathematics or the sciences. The course will provide an overview of the basic ideas needed by "consumers" of statistics and can also provide a helpful framework for a more detailed study of the subject. Prereq: MT104U or MT105U or placement test. (3/0)
- MT118T College Algebra** 3  
Provides for the development of a solid foundation in algebra skills, preparing students for Business Calculus. Illustrates how algebra can model and solve authentic real-world problems. Develops problem-solving skills and fosters critical thinking. Prereq: MT105U or MT106U or placement test. (3/0)
- MT120T Finite Mathematics** 3  
Includes methods of solving linear equations and inequalities. Introduces linear programming, matrices, functions, graphs, counting techniques, probability, mathematics of finance and applications. Prereq: MT105U or math placement test. (3/0)
- MT125T Fundamentals of Statistics** 4  
Includes descriptive statistics (mean, median, mode, standard deviation and variance). The emphasis is on inferential statistics and probability distributions as applied to confidence intervals, hypothesis testing of mean and standard deviation, and applications in business and other fields. Correlation and linear regression lines are also introduced. Prereq: MT118T or MT120T. (4/0)
- MT130T Business Calculus** 3  
Studies the techniques of differential and integral calculus likely to be encountered in an undergraduate course in business economics. Applications are emphasized in these areas. Prereq: MT118T or MT150T. (3/0)
- MT150T Pre-Calculus I** 5  
Begins a two-semester sequence to prepare students for the three-semester calculus sequence. The central theme is the concept of a function and its graph. Functions studied include polynomial and rational functions, exponential, logarithmic and circular. Prereq: MT106U or math placement test. (5/0)
- MT151T Pre-Calculus II** 5  
Includes the study of trigonometric functions, graphs, identities and applications. Also includes the study of conic sections, polar coordinates, parametric equations, vectors, planes and surfaces. Prereq: MT150T or math placement test. (5/0)
- MT152T Accelerated Pre-Calculus** 5  
Includes trigonometric and transcendental functions, vector analysis and analytic geometry. Assumes the student has a strong background in algebra and trigonometry and is prepared to study the content equivalent to Pre-Calculus I and II at an accelerated pace in a one semester course. Prereq: 3 1/2 years of high school college preparatory and placement test. (5/0)
- MT160T Calculus I** 4  
Includes limits, derivative, differentiation, the differential elementary applications of calculus and introduction to integration. Prereq: MT151T or math placement test. (4/0)
- MT161T Calculus II** 4  
Continues Calculus I and includes study of the integral, integration, application of integration, techniques of integration and infinite series. Prereq: MT160T. (4/0)
- MT262T Calculus III** 4  
Continues Calculus II and includes study of vector functions, function of several variables, multiple integrals and vector fields. Prereq: MT161T. (4/0)
- MT270T Differential Equations** 4  
Studies exact equations, separable equations, linear equations, physical applications, series solutions, systems of linear differential equations and methods of approximating the solutions to first-order equations. Laplace transforms are introduced and used to solve differential equations. Prereq: MT161T. (4/0)



**MT900 Honors Project: Mathematics**  
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of Instructor. (1/0)

**MT999T Independent Study in Mathematics** 1-3  
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Instructor and department approval. (1-3/0)

## **ND: Electroneurodiagnosis (END)**

**ND100U Introduction to EEG** 2.5  
Provides an introduction to basic electroencephalographic concepts and techniques. Instrumentation is demonstrated in the classroom, and hands-on experience is provided in the laboratory. (1/3)

**ND205U Electroneurodiagnostic Technical Science** 7  
Provides theory and application of electrical concepts, recording techniques, data analysis and description. Prereq: HS150U, ND100U. (2/6/6)

**ND206U Electroneurodiagnostic Clinical Science** 2  
Introduces the student to electroneurodiagnosis, neurophysiology, functional neuroanatomy, normal and abnormal conditions, and correlates. Includes electroencephalographic signs of cerebral disorders. Studies specific neurological disease entities; integrates EEG patterns for cerebral disorders and diagnosis. Prereq: HS150U, ND100U. (1/1)

**ND207U Applied Electronics and Instrumentation** 1.5  
Includes electronics and instrumentation associated with the conventional electroencephalograph: the power supply, contribution of electrodes, differential amplifier concepts, filters (low frequency, high frequency and 60-hertz filter), the writer unit, electrical output, electrical safety and standards for clinical electroencephalographs. Also covers ambulatory monitoring and digital electroencephalography. Prereq: ND101U. (1/1)

**ND305U Evoked Potentials I** 1  
Provides evoked potential instrumentation: EP history, signal averaging, statistics, A/D converter, signal averagers, amplifiers, filters and stimulators. Includes recording evoked potentials from volunteers and observing the effect of different variables. Prereq: ND207U. (1/0)

**ND406U Evoked Potentials II** 2  
Provides introduction in somatosensory, visual and brainstem auditory evoked responses. Laboratory sessions provide practical application and evaluation of EP data. Prereq: ND305U. (1/2)

**ND407U Sleep Technology** 6.5  
Provides clinical practice in polysomnography using appropriate techniques according to protocol. Record review with physicians and correlative seminars are included. Prereq: ND842U. (1/1/15)

**ND831U EN Clinical I** 6  
Focuses on clinical application of basic EEG techniques according to lab protocol under direct supervision of staff. Record review with physicians and correlative seminars are included. Prereq: ND205U, ND206U. (1/0/15)

**ND842U EN Clinic II** 7.5  
Provides continued clinical recording techniques including a broad patient population and procedure range. Record review with physicians and correlative seminars are included. Prereq: ND831U. (1/0/19.5)

**ND853U EN Clinic III** 5.5  
Provides clinical practice in performing electroencephalograms, evoked potentials, intraoperative monitoring and epilepsy monitoring. Record review with physicians and correlative seminars are included. Prereq: ND406U, ND842U. (1/1/12)

## **NG: Nursing**

**NG107U Introduction to Nursing** 2  
Provides the basic concepts related to nursing, such as adaptation, basic nutrition, communication, nursing roles, teaching/learning, and health. Students learn the nursing process and issues related to nursing practice on an introductory level. With Practical Nursing I and Practical Nursing Clinic I. Prereq: HS111U, HS112U, HS110U, HS101U, DG145U, BI150T, BI151T. (2/0)

**NG109U Practical Nursing I** 5  
Introduces the role of provider of care for the adult client with an emphasis on chronic illnesses including gerontological issues. The areas of pathophysiology, nutrition and pharmacology are integrated relative to the client problems. Basic nursing skills are practiced in a supervised lab setting. Taken concurrently with Introduction to Nursing and Practical Nursing Clinic I and Metrology. Prereq: HS111U, HS112U, HS110U, HS101U, DG145U, BI150T, BI151T. (4.5/1)

**NG206U Practical Nursing II** 5  
Presents concepts related to maternal/child health including pediatrics and obstetrics. Medical/surgical and mental health illnesses throughout the lifespan are studied. Principles of growth and development are applied. The areas of pathophysiology, pharmacology, and nutrition are integrated relative to the client problems. Basic nursing skills are practiced in a supervised laboratory setting. Prereq: NG107U, NG109U, HS121U. Coreq: PC200T, NG851U. (4.5/1)

**NG307U Associate Degree Nursing I** 3.5  
Emphasizes the utilization of the nursing process to promote adaptation in clients with physiological problems. Concepts studied include acid/base balance, fluid and electrolytes, shock, and biological defenses. Selected disease states present in the adult population assist in the application of these concepts. The areas of pathophysiology, nutrition and pharmacology are integrated relative to the client problems. Advanced skills are practiced in a supervised lab setting. Prereq: NG206U, NG852U. Coreq: NG309U, NG873U. (3/1)

**NG309U Introduction to Associate Degree Nursing** 1  
Examines the role of the associate degree registered nurse. Concepts of nursing process, wellness, community and management are introduced. Prereq: NG206U, NG852U. Coreq: NG307U, NG873U. (1/0)

**NG407U Associate Degree Nursing II** 3  
Emphasizes the utilization of the nursing process to promote adaptation in adults, families, and communities. Selected cardiovascular and neurological disease states are studied. Advanced psychosocial concepts and illnesses are studied in the context of the family and the community. The areas of pathophysiology, nutrition and pharmacology are integrated relative to the client problems. Prereq: NG307U, NG873U, NG309U. Coreq: NG874U. (3/0)

**NG507U Associate Degree Nursing III 3**

Emphasizes the utilization of the nursing process to promote adaptation in adult, pediatric, and obstetrical clients with acute multi-system problems. Registered nurse roles related to pharmacology are integrated relative to the client problems. Prereq: NG407U, NG874U, BI130T. Coreq: NG875U. (3/0)

**NG851U Practical Nursing Clinical I 2**

Focuses on the application of knowledge, psychomotor and affective skills to perform the role of provider of care. Emphasis is on making basic observations and performing nursing cares associated with activities of daily living in observations and performing nursing cares associated with activities of daily living in long-term care and medical settings. Concepts related to nutrition, pharmacology and pathophysiology are applied. Taken concurrently with Practical Nursing I, Intro to Nursing, and Metrology. Prereq: HS111U, HS112U, HS110U, BI150T, BI151T, HS101U, DG145U. (0/0/6)

**NG852U Practical Nursing Clinical II 3**

Focuses on the application of knowledge, psychomotor, and affective skills to perform the role of provider of care through observation and implementation of nursing care in various settings. Concepts related to nutrition, pharmacology and pathophysiology are applied. Prereq: NG851U, NG107U, NG109U, PC200T, HS121U. Coreq: NG206U. (0/0/9)

**NG873U Associate Degree Nursing Clinical I 3**

Focuses on the application of knowledge, psychomotor and affective skills to perform the role of provider of care. Emphasis is on making advanced assessments and performing nursing skills associated with acute inpatient settings. Concepts related to nutrition, pharmacology, pathophysiology, and care planning are applied. Prereq: NG852U. Coreq: NG307U, NG309U. (0/0/9)

**NG874U Associate Degree Nursing Clinical II 3**

Focuses on the application of knowledge, psychomotor and affective skills to perform the role of provider of care. Emphasis is on making advanced physiological and psychosocial assessments and planning individualized care in acute inpatient settings. Concepts related to nutrition, pharmacology, pathophysiology, and care planning are applied. Prereq: NG309U, NG307U, NG873U; Coreq: NG407U. (0/0/9)

**NG875U Associate Degree Nursing Clinical III 4**

Focuses on the application of knowledge, psychomotor, and affective skills to perform the role of provider of care. Emphasis is on developing, prioritizing, and evaluating individualized care of clients with complex disease states in acute care and community settings. Concepts related to nutrition, pharmacology, pathophysiology and care planning are applied. Prereq: NG407U, NG874U, BI130T; Coreq: NG507U. (0/0/12)

**NG998U Nursing Concepts (BSN) 3**

Provides an overview of major nursing concepts to update registered nurses seeking additional education. The major concepts include issues contributing to the current practice of professional nursing, concepts of adult medical/surgical nursing and maternal/child discussion. A family-centered approach will be utilized as the focus of discussion. The nursing process will be used as a basis for discussing application of these nursing concepts. Concepts of pharmacological and pathophysiological aspects will be integrated throughout the course. Prereq: Registered nurse or graduate of ADN/RN program. (3/0)

## OF: Computer/Office Applications

**OF101U Office Concepts and Procedures 3**

Provides for an understanding of the concepts, terminology, skills and procedures needed for employment in an office. This course covers such topics as telephone and teleconference techniques; travel arrangements; meetings; mail and shipping services; ethics and professionalism; office supplies; and other basic office information not covered in a specific Office Administration course. (3/0)

**OF103T Business Math and Machines 3**

Provides for the integration of business math concepts and formulas and electronic calculator operation. Emphasis will be on ten-key touch, and applying business mathematics using the calculator. (3/0)

**OF103U Information Processing 3**

Develops and applies oral, written, and listening communication skills using a variety of tools in an individualized environment. Students will learn to use transcription and voice recognition equipment in order to make formatting decisions while improving listening skills. Student learning outcomes will focus on English, proofreading, editing, and producing mailable documents. Prereq: OF106T, OF133U. (2/2)

**OF104T Records Management 3**

Integrates the rules of filing with the management of records, and addresses the need for office personnel to understand the complete life cycle of business records, from creation to final disposition. This course emphasizes the latest ideas in manual paper systems as well as the interface of records management with computer database systems. (3/0)

**OF104U Business Communications 3**

Develops skills and knowledge needed for effective oral and written communication in business. Students will demonstrate these skills by giving oral presentations and writing business related letters, memos and reports. Prereq: OF133U. (3/0)

**OF105T Administrative Office Applications 3**

Integrates the skills, knowledge and personal qualities necessary for an administrative assistant to perform the operational and supervisory functions for today's computerized office. Provides simulated office activities in a team environment using integrated software, problem-solving techniques and decision-making experiences with special emphasis on creativity, computer applications and professionalism. Prereq: OF101U and OF107T or permission of instructor. (3/0)

**OF105U Professionalism 1-2**

Develops and recognizes leadership in a student professional organization. Special emphasis is placed on leadership development activities. There is opportunity to participate in state and national business competitions. This course may be repeated for credit. Students may take this course for 1 or 2 credit hours. The on-campus course is 1 credit hour; the Internet course is 2 credit hours. (1-2/0)

**OF106T Word Processing I 3**

Provides beginning keyboarding instruction using computers and word processing software. Instruction includes the alphabetic keyboard and number keys; tables; business and personal letters; reports; and memos. Diagnostic and guided drills are utilized to enable students to achieve a speed goal of 45 wpm. (1/4)

**OF107T Word Processing II 3**

Continues Word Processing I. Begins with a review and reinforcement of the keyboard and beginning correspondence. Includes advanced word processing software features. Guided drills are used to reach the speed goal of 55 wpm. Prereq: OF106T or permission of instructor. (1/4)

**OF107U Certified Professional Secretarial Review 1-3**

Reviews the three areas of the Certified Professional Secretary examination: Finance and Business Law; Office Systems and Administration; and Management. (1-3/0)

**OF108T Word Processing III 3**

Provides further development of word processing desktop publishing techniques using word processing software for windows. Applications studied include formatting and editing documents; multiple windows; merging techniques; envelopes and labels; macros; sorting; using columns and tables; templates; file management; and desktop publishing features. Students learn to make effective document formatting decisions working independently and as a member of a team. Evaluation will be based on student production and/or project completion. Prereq: OF107T or permission of instructor. (1/4)

**OF113T Keyboarding I 1.5**

Begins with the alphabetic keyboard and includes basic formatting using MS Word. Includes exercises designed to increase speed to 30 wpm (words per minute). (0/3)

**OF114T Keyboarding II 1.5**

Includes exercises designed to increase speed to 45 wpm. Covers formatting of letters, reports and tables using MS Word. Prereq: OF113T. (0/3)

**OF121U Legal Office Applications 3**

Designed as a finishing course in legal administrative assistant training. This class focuses on legal office procedures, legal office hardware and software, and legal office marketing techniques. Students use critical thinking skills in the study of current law office issues. Projects are used to allow students to demonstrate application of learned concepts. Prereq: OF123U or LA100T. (3/0)

**OF122U Legal Machine Transcription 2**

Develops a student's ability to transcribe legal materials in document form from machine dictation. Formatting and editing decisions are performed by transcribing realistic office-style dictation into mailable copy using local jurisdiction standards. Prereq: OF123U and OF124U. (1/2)

**OF123T Personal Keyboarding 1**

Covers personal letters, business letters, unbound reports and leftbound reports. Speed goal is 30 wpm. A course for non-Office Administration majors. Prereq: OF113T or instructor permission (0/2)

**OF123U Legal Terminology 2**

Provides instruction in the correct definitions and application of terms commonly used in legal offices. This course develops an overall understanding of various areas of law including civil, probate, real estate, family, criminal, bankruptcy and workers compensation. Grammar and editing skills are essential to success in this class. (1/2)

**OF124U Legal Document Formatting 3**

Provides instruction for and application of formatting legal documents and instruments using local jurisdiction standards, with emphasis on editing skills. Evaluation is based on speed and accuracy as well as production and correct use of legal terminology. Prereq: OF106T or permission of instructor. (2/2)

**OF126U Medical Transcription 4**

Develops speed and accuracy in transcribing medical reports and introduces students to dictation by local physicians. Prereq: OF103U or instructor's approval. (2/4)

**OF127U Desktop Publishing 3**

Allows the student to create professional-quality documents such as a one-page bulletin or a short newsletter using both Office Publisher and PageMaker desktop software. The student will also integrate text, graphic and image files previously created with a variety of application software. Prereq: OF106T or permission of instructor. (2/2)

**OF132U Beginning Microsoft Word 1.5**

Provides the functions of Microsoft Word for Windows software. Following the completion of this course, students should be able to apply the learning to business and personal use. Students will learn the basics of word processing using a Windows environment. Prereq: ability to keyboard. (0/3)

**OF133U Business Editing 3**

Provides an opportunity for students to improve English language skills. The principles of English grammar, punctuation and style will be studied. Emphasis is placed on correct grammar usage, spelling, vocabulary and proofreading/editing skills for the office professional. (3/0)

**OF134U Legal Office Ethics 1**

Serves to make students aware of the ethical guidelines that attorneys and law office staff are required to follow. Students will understand situational and learn the appropriate procedures to take to avoid legal malpractice. General office ethics and legal office ethics will be covered. (1/0)

**OF136U Computer Business Applications 3**

Provides basic development and integration of software applications using Microsoft Office. Students will learn applications that include Windows, Word, Access, Excel, Outlook and PowerPoint. Students will apply this knowledge by creating web pages using these applications and integrating applications from one program to another. (2/2)

**OF137U Advanced Computer Business Applications 3**

Extends students' basic knowledge of Microsoft Office software applications including Word, Access, Excel and PowerPoint. Students will be able to test for MOUS (Microsoft Office User Specialist) certification. Prereq: OF136U or DG102T. (2/2)

**OF141U Keyboard Speed/Accuracy Building 1**

Provides the student with an opportunity to improve keyboarding speed and accuracy to meet student-selected goals. This course can be taken any time after a student has acquired basic keyboarding skills. Prereq: OF113T (1/0)

**OF146U Special Topics in Office Systems 3**

Studies advanced concepts and issues relevant to information systems management. Students will be provided up-to-date information on special contemporary topics, learn to work cooperatively and improve communication/presentation skills. Students will take an active part in the course design by researching and presenting topics of interest to them as well as assigned topics. (3/0)

**OF147U Intro to Data and Network Communications 3**

Provides students with a fundamental understanding of the different types of data communications used specifically in the business environment. It examines the newest technologies in Local Area-, Wide Area-, and Metropolitan Area Networks as well as servers and network communication equipment. Other topics include e-Business applications, network management and security and emerging initiatives that provide the most up-to-date information in the industry. (3/0)

## Course Descriptions

**OF148U Integrated Office Applications 3**  
Integrates the skills, knowledge and personal qualities necessary to perform in today's office setting. Provides simulated office activities in a team environment using integrated software, problem-solving techniques and decision-making skills. Additional training in desktop publishing and web page design will be given. Prereq: OF136U or DG102T. (3/0)

**OF154U Introduction to Multimedia 3**  
Develops knowledge of multimedia concepts by studying multimedia software and the hardware components that are needed to develop and view multimedia productions. Assessment projects will be used by students for demonstration of knowledge of multimedia elements (copyright, video, graphics, sound, animation), knowledge of tools (digital camera, video camera, scanner, cams), and knowledge of editing software (sound editing, video editing, graphics, editing). (3/0)

**OF157U Advanced Microsoft Word 1.5**  
Includes in-depth study of styles, document and section formatting, tables, merge, and online forms. Other topics include endnotes/footnotes and columns. Prereq: OF132U or permission of instructor. (0/3)

**OF158U Post-Advanced Computer Business Applications 3**  
Covers post-advanced applications in Microsoft Office. Students will gain advanced skills in working with master documents, creating index and table of contents from long reports, and creating online forms in Word. Students will also learn to use auditing and data validation tools in Excel, to customize forms and administer a database system in Access, and create complex PowerPoint presentations. This course will prepare students for the MOUS (Microsoft Office User Specialist) certification exams. Prereq: OF137U. (2/2)

### OT: Occupational Therapy

**OT100U Foundations of Occupational Therapy 3**  
Introduces the philosophical, ethical and theoretical concepts of the current practice of occupational therapy. Provides an overview of the role of the OTR and COTA in the processes of patient evaluation, treatment planning, implementation and discharge. Presents note writing and goal development. (3/0)

**OT207U OT Methods I 3**  
Introduces methods and techniques used in OT. Provides knowledge and skill in the use of activity analysis to adapt modalities for evaluation and treatment planning. Prereq: OT100U. (2/2)

**OT305U Physical Dysfunction 5**  
Presents theory and evaluation techniques for physical dysfunction. Students will be exposed to techniques for standardized evaluation instruments of range of motion, muscle strength, sensation, coordination and group protocol as they affect functional daily living skills. Prereq: OT100U, HS165U, HS159U, TA203U. (4.5/1)

**OT306U OT Methods II 2.5**  
Presents evaluations and treatment methods used in occupational therapy. Emphasis on the instruction and adaptation of self-care and sensorimotor activities. Presents information on positioning and wheelchair selection. Documentation of the treatment process is presented. Prereq: OT207U, OT305U, HS112U. (2/1)

**OT405U Psychosocial Dysfunction 4**  
Presents diagnosis, symptomology and etiology of psychosocial dysfunction. Discusses theory, evaluation, and treatment techniques for individuals and groups with psychosocial impairments. Provides knowledge of OTR and COTA role delineation in psychiatric settings. Prereq: TA203U, OT207U. (4/0/0)

**OT406U OT Methods III 3**  
Presents information on the evaluation and treatment methods for work, leisure, psychosocial, cognitive and perceptual activities. Presents the fabrication of splints and use of orthotics. Technology and physical agent modalities are discussed. (2/2)

**OT408U Occupational Therapy Pediatrics and Geriatrics 3**  
Presents theoretical concepts related to the unique needs of pediatrics and gerontology. Provides knowledge and skills in assessment, treatment planning, and activities related to pediatric and geriatric populations. Prereq: OT100U, PC100T, TA101U, OT405U, OT406U. (3/0)

**OT851U Occupational Therapy Assistant Fieldwork I 1-3**  
Fieldwork and seminar experiences to provide opportunities to develop observational, interpersonal and communication abilities. Experience includes involvement with disabled and nondisabled individuals. Prereq: HS112U and first- and second-semester OTA technical courses. (.5-2/0/1.5-3)

**OT852U Occupational Therapy Assistant Fieldwork II 6-12**  
A supervised Level II fieldwork experience emphasizing physical dysfunction, psychosocial, or specialty practices in occupational therapy. Provides experience developing the responsibilities expected of an entry-level occupational therapy assistant. Prereq: All previous OTA technical courses. (0/18-36)

### PA: Physics/Astronomy

**PA100T Introductory Physics 3**  
Provides basic work with scientific reasoning and fundamental concepts in classical and modern physics. Lab provides opportunities for measurements and application of concepts. Recommended for students planning to take College or Classical Physics, as well as all liberal arts students desiring an introductory course. Mathematics at the level of beginning algebra is used in this course. (2/2)

**PA105T Astronomy 3**  
Centers around a variety of topics including the universe and the earth in space, properties of stars, nuclear energy sources, the solar system, quasars, black holes and life in the universe. Laboratories and observations are incorporated. (2/2)

**PA150T College Physics I 4**  
Emphasizes introductory physics concepts and methods of scientific reasoning. The first semester of this sequence treats the structure and properties of matter, descriptions of motion, Newton's Laws, conservation laws, rotational motion, fluid statics, fluid dynamics and thermodynamics. Designed primarily for students interested in Pre-Medical, Pre-Dental, Pre-Pharmacy, Pre-Forestry or Pre-Teacher education programs and those who seek to meet science requirements in their professional programs. Mathematics at the level of intermediate algebra/trigonometry is used in this course. Prereq: MT106U or equivalent. (3/2)

**PA151T College Physics II** 4  
Continues College Physics I and includes static and current electricity, electromagnetism, wave motion, optics, atomic and nuclear physics. Applications to the life sciences are integrated with material throughout the semester. Prereq: PA150T (3/2)

**PA210T Classical Physics I** 5  
Introduces physics using calculus-level mathematics. Designed for students in Engineering, Mathematics and Physics. The first semester of this sequence covers the topics of vectors, linear and rotational kinematics, statics, dynamics, and oscillatory and wave motion. Prereq: MT160T or permission of instructor. (4/2)

**PA211T Classical Physics II** 5  
Introduces physics using Calculus I-level mathematics. Designed for students in Engineering, Mathematics and Physics. The first semester of this sequence covers the topics of vectors, linear and rotational kinematics, statics, dynamics, and oscillatory and wave motion. Prereq: PA210T and MT161T. (4/2)

## PC: Psychology

**PC100T General Psychology** 3  
Provides an introduction to the study of behavior with emphasis in the areas of learning, cognition, motivation, personality, behavioral disorder, therapy and social influence. An understanding of the impact of both theoretical perspectives and experimental evidence on the formulation of the science of human behavior is also stressed. Psychological theories and principles are utilized to explain and predict behavior. (3/0)

**PC105U Human Relations** 3  
Emphasizes the importance of proper attitudes towards self, others and organization values. Stresses the development of a good self-concept and the relationship this has to energy levels, emotions, verbal and nonverbal communication. Prepares students to understand how to deal with conflict and how to be a productive member of a work group. (3/0)

**PC110T Human Sexuality** 3  
Studies the psychological, sociological, and biological aspects of human sexuality. Explores issues such as gender, sexual response, behavior, motivation, values, homosexuality, conception, contraception, sexual dysfunction, pornography and legal issues. (3/0)

**PC200T Developmental Psychology** 3  
Examines the process of human development through an understanding of the impact of both theoretical and experimental perspectives. The course is a genetic and psycho-social life-span approach to recognizing the ways in which experience shapes development. Topic areas include genetics, prenatal development, infancy, childhood, adolescence, adulthood and death. Prereq: PC100T. (3/0)

**PC210T Social Psychology** 3  
Explores individual behavior as affected by other people. Covers research methods, ethics and classic as well as current research on topics including self and person perception, attitude formation and change, aggression, prosocial behavior, interpersonal attraction, gender-related behavior, conformity and deviation, persuasion, and individual behavior in groups. Prereq: PC100T. (3/0)

**PC220T Psychology Adjustment** 3  
Examines the concept of adjustment in areas of work, health and stress, relationships, and sexuality from theoretical and clinical viewpoints. Allows students to explore and test research-based techniques for modifying and maintaining behaviors, thoughts, feelings and relationships. Prereq: PC100T. (3/0)

**PC230T Psychology of Disorders and Treatment** 3  
Surveys the classification and treatment of psychological disorders. Provides a history of the field as well as an analysis of relevant theories, methods of research, clinical assessment procedures, and legal/ethical issues. Prereq: PC100T. (3/0)

**PC900T Honors Project: Psychology** 1  
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

**PC999T Independent Study: Psychology** 1-3  
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department. (Hours arranged.) (1-3/0)

## PG: Photography

**PG100T Beginning Photography** 2  
Introduces students to the 35-mm camera and to techniques of shooting, processing and printing black-and-white photographs. (2/0)

**PG101T Beginning Photography Lab** 1  
Accompanies Beginning Photography lecture. Students receive hands-on instruction on camera operation, exposure, and development of film, darkroom equipment, and making photographic print. (0/2)

**PG200T Intermediate Photography** 2  
Continues exploration of photographic materials with emphasis placed on the development of a personal vision. Experimentation with the twin lens reflex camera. Prereq: PG100T. (1/2)

**PG210T Advanced Black and White Photography** 2  
Explores black and white sensitometry, archival printing techniques for fine printing and the zone system. Advanced study of chemicals and processes is covered. Students are introduced to the 2 1/4-inch format camera and will print on large paper. Students further develop their personal aesthetic direction. Prereq: PG200T or permission of instructor. (1/2)

**PG220T Color Photography** 2  
Introduces the most commonly used color photographic processes including transparency and negative films, negative and reversal printing processes. Prereq: PG100T or permission of instructor. (1/2)

**PG230T Photojournalism** 2  
Introduction to communicating with photographs, editing, and combining words and photographs for newspapers, magazines, and brochures. Color slide processing is also covered. Prereq: PG100T or permission of instructor. (1/2)

**PG240T Projects in Photography** 1-2  
Studies photography as an art form including the theory of photography with an introduction to contemporary photography methods. The student must provide his or her own camera. Prereq: PG200T. (0/2-4)

## PM: Power Mechanics

### PM100U Career Orientation 0.5

Presents information relating to careers that may result from completion of programs: Auto Collision Repair, Automotive Technology, Diesel Power Technology or Marine and Small Engine Repair. Topics include job-specific information provided by employers, goal setting, skills inventory, student club information, budgeting and personal planning. (.5/0)

### PM103U Fundamentals of Internal Combustion Engines I 3

Covers fundamentals of two- and four-stroke engine operation, servicing and adjustment. Learning activities will concentrate on proper disassembly, measuring and reassembly of actual engines. (2/2)

### PM105U Technical Procedures for Power Mechanics Technicians I 3

Covers general knowledge and procedures expected of power technicians. Selection of tools, general shop safety, fire safety, first aid and CPR will be covered. (1.5/3)

### PM107U Fundamentals of Automotive Servicing 3

Provides the beginning apprentice technician with an introductory overview of automotive servicing from a maintenance and replacement standpoint. Classroom and hands-on activities emphasize routine maintenance procedures in the care of tires, batteries, lighting, belts, hoses, filters and cooling systems. Presents career information on career pathways, employers, goal setting, skills inventory, student club information and personal plan. (2/2)

### PM110U Fundamentals of Power Transfer I 4

Includes an introduction to basic drive trains including clutches, manual transmissions, propeller shafts, rear axle assemblies and planetary gears. Emphasizes operation, diagnosis, repair and maintenance procedures. (2/2)

### PM112U Fundamentals of Vehicular Air Conditioning & Heating 4

Provides a comprehensive introduction to vehicular air conditioning. Learning activities will develop a basic understanding of theory, diagnostic practices and procedures essential to air conditioning servicing. Development of sound practice and good judgement in performance of all air conditioning procedures is emphasized. (3/2)

### PM113U Fundamentals of Hydraulics I 3

Covers the characteristics of liquids and how these qualities are utilized in vehicles and equipment. Topics include principles and laws of fluid power (liquids), applications, advantages and disadvantages. (2/2)

### PM116U Fundamentals of Electricity 3

Covers introduction to electricity, i.e. voltage, amperage, and resistance with emphasis on Ohm's Law and its practical application. Meter fundamentals are covered. Series, parallel and series-parallel circuits are studied. (2/2)

### PM122U Automotive Engines 3

Covers fundamentals of internal combustion engine operation, servicing, and adjustment. Students will learn theories in practical, hands-on applications in both the classroom and lab exercises. (2/2)

### PM124U Introduction to Metalworking 3

Provides the beginning technician with shop safety and general introductory knowledge and procedures use in metalworking. (1/4)

### PM125U Introduction to Refinishing 3

Provides the beginning technician with shop safety, health issues, and general introductory knowledge and procedures used in painting. (1/4)

### PM130U Cooling Systems 2

Introduces the student to truck cooling systems. The principles of cooling systems and the standard components of cooling systems are examined. Testing and servicing of cooling systems from a truck perspective are explained. (1/2)

### PM131U Truck Engines 3

Covers the introduction to diesel engines commonly used in the trucking industry. The design of engine components and subassemblies is examined with emphasis on the reasons certain design features are used. Correct procedures for testing and servicing truck engines are explained and demonstrated. (2/2)

### PM132U Truck Electronics 3

Continues the basic electrical coverage of PM116U with an additional emphasis on the types of electrical circuits and subassemblies found in most trucks. Students will learn interior and exterior lighting, steering, column, dash, wiper motors, temperature controls, power locks and windows, and on-board computers. (2/2)

### PM133U Truck Clutches 3

Introduces the student to the testing and servicing of clutches found on most trucks. Learning activities include examining, servicing and replacement of clutches. (2/2)

### PM134U Air Brakes and ABS 2

Covers a basic introduction to air brakes and anti-locking braking systems. Learning activities will concentrate on theory, operation, diagnosis, maintenance, and repair of air and anti-lock brakes found on diesel trucks. (1/2)

### PM135U EFI Engine Systems 4

Provides a thorough explanation and hands-on experience in the theory, operation, diagnosis, maintenance and repair of electronic fuel injected diesel engines. Learning activities include the use of testing equipment used to diagnose EFI engines. Lab activities are designed to reinforce the understanding of the operation and maintenance of these engines. (2/4)

### PM136U Agricultural Electrical 3

Continues the basic electrical coverage of PM116U with an additional emphasis on the types of electrical circuits and subassemblies found in most trucks. Learning activities concentrate on circuits including interior and exterior lighting, steering column, dash, wiper motors, temperature controls, power locks and windows, and on-board computers. (2/2)

### PM145U Technical Lab I 4

Simulated automotive repair environment. Learning activities include complaint, cause, and correction to customer vehicles. Parts and Labor calculations also covered. (1/6)

### PM146U Technical Lab II 4

Continues to expose students to an automotive repair environment. Learning activities include complaint, cause, and correction to customer vehicles. Parts and labor calculations also covered. (1/6)

### PM150U Metalworking and Refinishing Practices 3

Covers general body construction along with body alignment and general metal techniques with emphasis on use of body fill material. Provides an overview of glass and trim replacement and also the relationship between body and frame components. Also introduces spot matching techniques and spraying complete autos. (1/4)

### PM155U Metalworking II 4

Continues Metalworking I with students working in the lab area on actual autos. Covers most work situations found in auto body repair shops. Prereq: PM150U. (.5/7)

### PM156U Metalworking III 4

Continues Metalworking II with students working in the lab area on actual autos. Covers most work situations found in auto body repair shops. Prereq: PM155U. (1/6)

**PM157U Body Straightening & Painting 7**

Emphasizes quality of work and speed of repair. Students also learn estimating and total auto rebuilding using frame-straightening equipment. Provides practical application with emphasis placed on appearance, completion of work in time schedules, material cost, striping, molding installation and proper procedures without instructor help. Prereq: PM156U. (1/12)

**PM160U Metalworking and Refinishing I 3**

Continues PM150U. Lab activities cover general body construction along with body alignment and metal techniques on the use of fill material. Covers an in-depth analysis of glass and trim replacement and the relationship between body and frame components. The course also covers spot painting and matching techniques in addition to spraying complete autos. (1/4)

**PM165U Refinishing II 3**

Continues Refinishing I with emphasis on working with actual autos. Students will practice additional spot painting and matching techniques as well as spraying of complete autos. Prereq: PM160U. (.5/5)

**PM166U Refinishing III 3**

Continues Refinishing II involving the finer points of refinishing. Skills are developed in two-tones, tape striping, blemish troubleshooting, blending, matching, touch-ups and professional quality gun handling. Prereq: PM165U. (1/4)

**PM201U Grounds Equipment Maintenance 2**

Covers all maintenance connected with grounds care equipment. Course content includes small engine theory, ignition and tune-up, hydraulic systems and maintenance, preventive maintenance schedules, drive trains and drive train maintenance. (1/2)

**PM209U Carbureted Fuel Systems 1**

Concentrates on carbureted fuel systems in idle, power and cruise modes. Emphasis will be on diagnosing malfunctions and improper performance. (.5/1)

**PM210U Systems Diagnosis and Repair 4**

Simulates a live repair facility for motorcycle, marine and small engine repair. Students will be expected to demonstrate repair procedures, make resource identifications, provide customer satisfaction and properly document the work they perform. (0/8)

**PM225U Machinery Servicing 3**

Allows students to recondition used farm equipment such as planters, sprayers, disks and other tillage equipment. Does not include the engine-powered part of the machine. Includes testing and diagnosis of electronic monitoring systems. Prereq: PM104U, PM114U, PM111U. (2/2)

**PM226U Combine Servicing 4**

Includes repair and reconditioning of combine and chopper units covering basic hydraulics, electrical, power train, monitor, chassis and air conditioning adjustments. Prereq: PM227U. (0/8)

**PM227U Combine Operation & Adjustment 2**

Introduces the basic theory and operation of combines and choppers with actual in-the-field adjustment and operation of machines. Prereq: PM225U. (1/2)

**PM228U Power Shift Transmissions 3**

Covers operation, theory, diagnosis and overhaul of fluid-driven equipment. Includes power shift, hydrostatic- and hydraulic-assist transmissions. Also includes torque converters. Prereq: PM111U. (1.5/3)

**PM229U Diesel Fuel Systems 4**

Covers diesel fuel systems in relation to the engine itself. Diagnosis and testing or troubleshooting take place using special testing tools. Particular fundamentals are covered in compression testing, pump timing, engine component testing and injector removal testing and repair. Prereq: PM103U. (2/4)

**PM235U Agricultural Diagnosis 13**

Allows for farm power unit projects to be brought in by students or instructors for students to work on. Learning activities include extensive testing, troubleshooting, repair, inspection and proper assembly. Also covers advanced diagnosis and overhaul of gasoline- and diesel-power units with special emphasis on student work with a minimum of instructor supervision. Prereq: All core courses, PM228U, PM229U, PM120U. (3/20)

**PM240U Ag Engines 3**

Covers the introduction to diesel engines commonly used in the ag industry. The design of engine components and subassemblies is examined with emphasis on the reasons certain design features are used. Correct procedures for testing and servicing ag engines is explained and demonstrated. (3/2)

**PM264U Advanced Electrical-Automotive 4**

Continues basic electrical-automotive. Covers automotive electrical systems with emphasis on the following circuits: exterior lighting, interior lighting, steering column electrical dash, wiper motors, automatic temperature controls, power windows, power door locks, body computers, and other electrical components. Prereq: PM287U (3/2)

**PM269U Engine Performance I 4**

Deals with computerized scopes, meters and ECM diagnostics. Oscilloscope pattern analysis will be covered with emphasis on primary and secondary patterns, plus square-wave and sine-wave patterns. ECM data analysis, i.e. sensor functions and voltage values as related to drivability and customer satisfaction, will be covered. Focuses on diagnosis and correction of performance and engine design improvements. Prereq: PM104U. (3/2)

**PM270U Engine Performance II 4**

Concentrates on diagnosis and correction of engine performance. Students will learn the fundamentals as well as new engine design improvements. (3/2)

**PM271U Automotive Diagnosis and Repair I 3**

Provides students with a live laboratory experience in automotive repair. (0/6)

**PM272U Automotive Diagnosis and Repair II 3**

Continues Automotive Diagnosis and Repair I. Prereq: PM271U. (0/6)

**PM273U Engine Design and Cooling 4**

Studies engine component and subassembly design with emphasis on the reasons certain design elements are used, and correct procedures for servicing various design elements. Also covers principles of cooling systems and components including electrical cooling fans. Testing and servicing of the system is taught. Prereq: PM102U, PM103U, PM266U, PM267U. (3/2)

**PM274U Engine Performance III 4**

Continues Engine Performance II. Learning activities will improve students' understanding of engine design improvements. Prereq: PM269U, PM270U. (3/2)

## Course Descriptions

### PM275U Suspension and Steering Systems 3

Focuses on front and rear suspension system principles of operation, system components and steering geometry as they relate to alignment and diagnosis of steering and suspension problems. Lab activities will reinforce theories in a practical, hands-on application. Prereq: PM101U, PM102U. (2/2)

### PM278U Automatic Transmissions & Transaxles

Provides a comprehensive introduction to automatic transmission theory, including hydraulic circuits, torque converters, clutches, planetary gear systems and valves. Practical hands-on labs will reinforce theories. Students will practice component disassembly and reassembly with a variety of automatic transmissions. Prereq: PM111U. (3/2)

### PM280U Steering and Suspension 2

Includes theory and operation of steering, suspension, and wheel servicing. Learning activities include diagnosis and maintenance on light- and heavy-duty trucks. (1/2)

### PM281U Suspension, Chassis, Brakes 1

Includes theory, operation, diagnosis, maintenance and repair of forks, steering, swing arms, shock absorbers, wheel bearings, axles, wheel balance, wheel training, brake and frame construction. (.5/1)

### PM282U Automotive Braking Systems 3

Focuses on brake system theory, diagnosis and repair of drum brakes. Lab exercises will reinforce lecture theories in a practical hands-on setting. (2/2)

### PM284U Auto Fuel Systems I 4

Covers fundamental design and circuit operation of carburetors including computer-controlled carburetion, fuel pumps, fuel tanks and fuel system maintenance. (2/4)

### PM286U Trailer Servicing 3

Involves servicing and minor repair to semi tractor and truck trailers. Learning activities included are electrical, power train, brakes, air conditioning and tune-up. Prereq: Completion of first-year technical courses. (1/4)

### PM287U Basic Electrical Automotive 3

Introduces student to basic fundamental electrical and electronics related to the automobile. Topics covered include voltage, amperage, resistance, Ohm's Law, and practical application. Series, parallel and series-parallel circuits are also studied. (2/2)

### PM288U Manual Drive Train & Axles 3

Introduces students to fundamental principles related to manual drive trains including an introduction to basic drive trains including clutches, manual transmissions, shafts, rear axle assemblies and gears. Students will learn operation diagnosis, repair and maintenance procedures. Lab exercises will reinforce theories in practical, hands-on settings. (2/2)

### PM805U Internship 1-5

Involves employment allowing the student practical on-the-job training with a business related to the student's instructional program. Student is required to prepare a training plan and other reports. Prereq: Permission of instructor. (0/0/4-20)

## PN: Philosophy

### PN101T Introduction to Philosophy 3

Investigates some of the fundamental issues in human existence - for example human nature; the nature of reality; the good life; how and what we know; the existence of God(s); justice and freedom; and free will and determinism - through readings and discussions of seminal philosophical texts in western or nonwestern traditions. (3/0)

### PN105T Basic Reasoning 3

Introduces both formal and informal aspects of reasoning and argument including principles of deductive reasoning, inductive reasoning, informal fallacies and critical thinking. (3/0)

### PN109T Introduction to Ethics 3

Investigates major issues and theories in western or nonwestern moral thought. The adequacies of ethical theories such as egoism, utilitarianism, virtue ethics, the ethics of care, and duty ethics will be explored through discussions of topics such as those found in medicine, the media, the environment, social justice, education, gender relations, war, business and family life. (3/0)

### PN115T Introduction to World Religions 3

Introduces the study of religions and religious phenomena through an examination of several historical and contemporary religions from around the world. Will include a study of some of the following: American Indian traditions, Hinduism, Buddhism, Judaism, Christianity, Islam, Shintoism, ancient and contemporary feminist spirituality, gnosticism, shamanism, Confucianism and Taoism. (3/0)

### PN116T Judaism, Christianity and Islam 3

Introduces the beliefs, values, and practices of Judaism, Christianity and Islam. Both historical and contemporary phenomena will be used to develop an understanding of the diversity and complexity of the religious dimension of human life. (Formerly Introduction to Religions of the West.) (3/0)

### PN117T Introduction to Religions of the East 3

Introduces some of the religious traditions and systems of belief that may be found in the East. Both historical and contemporary phenomena will be used to develop an understanding of the diversity and complexity of the religious dimension of human life. Various forms of some of the following religions will be included: Buddhism, Shintoism, Hinduism, Taoism, Jainism and Confucianism. (3/0)

### PN121T Introduction to Non-Western Philosophy 3

Introduces the philosophies of various non-western traditions. Each section will focus on major thinkers, ideas and schools of thought from a general philosophical and cultural tradition such as African, Chinese or Indian thought. Course will be historical, with an emphasis on the dialogues and developments of the major philosophies that have arisen in and shaped these cultural traditions. Prereq: PN101T, PN109T or permission of instructor. (3/0)

### PN131T Religion in the United States 3

A historical survey of religion in the United States from the colonial period to the present, with emphasis upon the increasing diversity of American religions. Religious developments will be related to the broader cultural aspects of the American experience. (3/0)

### PN900T Honors Project: Philosophy 1

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)

### PN902T Honors Project: Religion 1

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. May be taken more than once. Prereq: Permission of instructor. (1/0)



**PN998T Independent Study in Religion** 1-3  
Provides readings, papers, study and/or research under the guidance of a faculty member. Prereq: Approval of instructor and dean. (1-3/0)

**PN999T Independent Study in Philosophy** 1-3  
Provides readings, papers, study and/or research under the guidance of a faculty member. Prereq: Approval of instructor and dean. (1-3/0)

## PO: Political Science

**PO100T American Government** 3  
Studies American policy based on a close examination of the processes of decision making. Emphasis is placed on voting behavior and citizen interaction within the system. (3/0)

**PO130T International Relations** 3  
Analyzes governments in the more developed countries (MDCs) and in the less developed countries (LDCs) and the interaction of these governments in their political, economic and security dimensions. Also analyzes the sources of policy and their theoretical foundations. Problems are examined through current world concerns. (3/0)

**PO140T Comparative Governments** 3  
Studies the systems of government of several countries taking into consideration citizen participation and policy-making processes. Includes basic theories, methods and concepts of comparative study. Examines similarities and differences of political structures including political parties and executive and legislative institutions. (3/0)

**PO999T Independent Study: Political Science** 1-3  
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Permission of instructor and assistant dean. (1-3/0)

## PT: Personal Development

**PT001U College Prep Writing** 3  
Provides students with basic skills instruction in a traditional group setting. The curriculum includes two hours of reading and one hour of writing per week. (3/0)

**PT002U College Prep Math** 3  
Provides students with basic skills instruction in a traditional group setting. The curriculum includes two hours of math and one hour of study skills per week. (3/0)

**PT010U Academic Preparation for Agricultural Sciences** 1  
Provides individualized computer-assisted instruction in math, reading, writing and critical thinking skills to academically prepare students for enrollment in agricultural sciences programs. Prereq: Approval of instructor. (0/2)

**PT013U Academic Preparation for Business** 1  
Provides individualized computer-assisted instruction in math, reading, writing and critical thinking skills to academically prepare students for enrollment in business programs. Prereq: Approval of instructor. (0/2)

**PT014U Academic Preparation for Health Sciences** 1  
Provides individualized computer-assisted instruction in math, reading, writing, and critical thinking skills to academically prepare students for enrollment in health sciences programs. Prereq: Approval of instructor. (0/2)

**PT015U Academic Preparation for Culinary Arts** 1.0  
Provides individualized computer/assisted instruction in math, reading, writing, and critical thinking skills to academically prepare students for enrollment in the culinary arts program. (0/2)

**PT016U Academic Preparation for Industrial Technologies** 1-3  
Provides individualized computer-assisted instruction in math, reading, writing and critical thinking skills to academically prepare students for enrollment in industrial technologies programs. Prereq: Approval of instructor. (0/2-6)

**PT017U Academic Preparation for Construction Tech, Arch Drafting & Carpentry** 1  
Provides individualized computer-assisted instruction in math, reading, writing, and critical thinking skills to academically prepare students for enrollment in the construction technology, architectural technology, and carpentry programs. (0/2)

**PT018D Academic Preparation for Liberal Arts** 1-3  
Provides individualized computer-assisted instruction in math, reading, writing and critical thinking skills to academically prepare students for enrollment in liberal arts programs. Prereq: Approval of instructor. (0/2-6)

**PT020D P. A. Reading - Writing (Lec/Lab)** 2  
Intended for students who need to build their basic skills in reading and writing. Class format includes group lectures as well as individualized lab work. Topics covered include sentence structure, punctuation, paragraph development, vocabulary, comprehension and textbook reading. Typical assignments require the student to read and write to strengthen basic skills in these areas. (1/2)

**PT022D Pharmacy Tech. Prep** 1  
Prepares students for the Pharmacy Tech. program through individual instruction in reading, writing and math. (0/2)

**PT030D P. A. Reading** 1-2  
Designed to measure the student's present reading skills and from that measurement provide an individualized program for the improvement of skills. The course is divided into three main areas: pronunciation, vocabulary and comprehension. The reading materials utilized are related to the student's interests. (0/2-4)

**PT036U College Prep Reading** 3  
Introduces college level reading strategies including identifying and analyzing factual statements; topic and supporting details; analogies; figurative language; recognizing, using, developing and outlining relationships; and critical reading strategies. Prereq: ASSET reading placement test. (3/0)

**PT040D P. A. Writing** 1-2  
Designed to assess a student's writing strengths and weaknesses. The student receives instruction on an individualized basis in the areas of skill needs while building on skills already mastered. The course is divided into two parts: knowledge about language and experience using the language. The course helps prepare the student to take Elements of Writing and may also be supplemental support for those students enrolled in Composition I, Composition II, Communications Skills and/or other writing courses. (0/2-4)

**PT050D P. A. Study Skills** 1  
Includes instruction and practice in the following areas: time scheduling and management, using textbooks, systematic study attack methods, notetaking, concentration and retention, test-taking, and listening skills. This class is eight weeks in length. (1/0)

**PT070D P. A. Math** 1-2  
Individualized course of instruction in basic math. Topics include: whole numbers, fractions, decimals, ratio and proportion, and percent. Additional topics may include pre-algebra, metric system and technical math. (0/2-4)

## Course Descriptions

### **PT075D P. A. Math - Review 1-2**

Topics may include whole numbers, decimals, fractions, ratio and proportion, and percent. (1-2/0)

### **PT079D P. A. Metrology Support 1**

Parallels the nursing department's metrology course. Includes extensive math review as well as the metric and apothecaries' systems and administration of oral, liquid, insulin and intravenous medications. (1/0)

### **PT080D P. A. Pre-Algebra 3**

Introduces basic algebra concepts and reviews basic math. Includes fractions, decimals, proportions and percents. Introduces integers, exponents, simple equations and graphing. (3/0)

### **PT085D P. A. Pre-Algebra - Review 1-2**

Topics may include integers, solving simple equations, exponents and graphing. (1-2/0)

### **PT089D P. A. Algebra Support 1-2**

Individualized course to provide support for students taking Pre-Algebra, Beginning Algebra, Intermediate Algebra, College Algebra or Pre-Calculus courses. (0/2-4)

### **PT092D Supported Education 1-5**

Designed to assess individual student needs and determine support services needed by the student to successfully complete other courses of study. Implements specific courses of action and develops an individual education plan for the student. Includes instruction and strategies on how to effectively utilize services. Format is both small-group and individualized instruction.

### **PT094D Supported Education - VITAL 3**

Provides academic support, accommodations and strategies VITAL students need to successfully complete the Kirkwood course of study. Develops an individualized education plan and accommodations plan designed to develop effective study skills and self-advocacy skills. Monitors students' progress in Kirkwood courses. Format is primarily individualized instruction. Prereq: Concurrent enrollment in VITAL (0/6)

### **PT095D Basic Writing 3**

Provides group instruction in basic writing skills: writing to communicate with the reader, sentence and paragraph structure, proofreading for spelling, grammar, and punctuation errors. Students in this course should not have previous or concurrent enrollment in Elements in Writing, Composition I and II, College Writing or Communication Skills I or II. (3/0)

### **PT096D Basic Essay Writing 1**

Introduces students to the concept of writing papers using the five paragraph organization approach. Students in this course should not have previous or concurrent enrollment in Elements of Writing, Composition I & II, College Writing, or Communication Skills I or II. (0/2)

### **PT099D Academic Resources Lab 1-2**

Provides students with individual instruction in such areas as: notetaking, study skills, test taking techniques, basic reading, comprehension and math skills. The course will show students how to effectively use available college resources. (0/2-4)

### **PT100T Human Potential Lab 1**

Provides students an opportunity to become involved in group interaction in an atmosphere that assists in the formation of a realistic, positive self-concept. Emphasis is on the personal growth of the individual and the development of attributes important in establishing harmonious interpersonal relationships. (.5/1.5)

### **PT104T Assertive Behavior Training 1**

Introduces the assertiveness model for communication and behavior. Identification of individual communication problems and practice in assertive communication in small groups are the focus of this course. (.5/1.5)

### **PT106U How to be Successful in College 3**

Helps students explore and design and implement a college life plan and develop skills to stick with the plan. Class time will be spent in discussion — both large and small group. Students are expected to be daily contributors and active participants in their learning. Journal writing, case studies, lectures and periodic quizzes are also a part of the course activity.

### **PT108T Career Decision Making 2**

Provides an understanding of the process of career development and making a career direction by extending students' knowledge of career choices and then assisting in decision strategies. The student works in cooperation with the instructor. (0/2-4)

### **PT112T Stress Management 1**

Studies causes and symptoms of stress (positive and negative), stress management, stress reduction, self-talk and self-esteem. (.5/1.5)

### **PT117U Strategies for Greater Success: Job Seeking Skills 1**

Assists students who will be seeking an internship, or part-time or full-time employment. The areas that will be covered include how to research the job market and companies; writing resumes and cover letters; improving job interviewing techniques; and how to utilize Kirkwood's job search assistance services. (1/0)

### **PT119U PA College Prep (Computer Skills) 1**

Provides basic computer skills instruction to students enrolled in the College Prep block. Focuses on basic keyboard knowledge and command functions.

### **PT120D Math Bridging for Business 1-3**

Introduces students to the requisite math operations and problem solving skills needed for success in Business programs. Prereq: ASSET math test (0/2-6)

### **PT122D Math Bridging for Agricultural Technologies 1-3**

Introduces students to the requisite math operations and problem solving skills needed for success in Agricultural Technology programs. Prereq: ASSET math test (0/2-6)

### **PT124D Math Bridging for Health Sciences 1-3**

Introduces students to the requisite math operations and problem solving skills needed for success in Health Sciences programs. Prereq: ASSET math test (0/2-6)

### **PT126D Math Bridging for Industrial Technology 1-3**

Introduces students to the requisite math operations and problem solving skills needed for success in Industrial Technology programs. Prereq: ASSET math test (0/2-6)

### **PT130U Introduction to Mathematics 2**

Includes a review of basic arithmetic operations. Provides positive and negative integers, ratios, proportions, exponents, radicals, scientific notation, and practical applications of metric conversions for two credit hours. Prereq: Math placement test. (2/0)

### **PT134U Transition Network Training 1**

Transitions first year, first semester Student Support Service students into the postsecondary environment via an Internet forum. Students will learn about available support services, appropriate social and study skills, and how to use the internet. (1/0)

**PT135U Introduction to Mathematics** 3  
Includes a review of basic arithmetic operations. Provides positive and negative integers, ratios, proportions, exponents, radicals, scientific notation, and practical applications of metric conversions. Also includes introductory algebra concepts, functions, inequalities, binary number system and solving first-degree equations. Includes introductory algebra concepts, functions, inequalities, binary number system and solving first-degree equations. Prereq: Math placement test. (3/0)

**PT136U Teacher Proficiency Test Preparation** 1  
Provide individualized instruction to prepare student to pass the teacher preparation proficiency test. (0/2)

**PT999T Career Exploration: Independent Study** 1-2  
An individualized career process that focuses first on broadening the individual's knowledge of personal skills, talents, interests and strengths. The individual is then assisted in matching these to a career direction by extending his/her knowledge of career choices and then assisting in decision strategies. The student chooses one or two of the five modules offered, with the assistance and approval of the instructor. (1/2-4)

## RC: Respiratory Therapist

**RC204U Introduction to Respiratory Care** 2.5  
Provides the theory, equipment operation and application with laboratory exercises in airway management techniques, humidity therapy, and bland aerosol therapy. Coreq: HS150U, PT130U.(1.5/2)

**RC205U Respiratory Care I** 3.0  
Provides the theory, equipment operation and application with laboratory exercises in oxygen and other gas therapy; aerosol drug therapy with an introduction to respiratory pharmacology and airway clearance modalities. Prereq: HS110U, HS111U, HS112U, RC204U. (2.0/2.0)

**RC206U Respiratory Physiology** 4  
Provides the essential concepts of cardiopulmonary anatomy and physiology with emphasis on pulmonary homeostasis. Prereq: HS150U. (4/0)

**RC305U Respiratory Care II** 6  
Explores the theory, equipment operation and application with laboratory exercises in adult and pediatric/neonatal mechanical ventilation, IPPB, and arterial blood gas analysis. Examines the effect of mechanical ventilation on acid base balance. Laboratory emphasis on the operation and application of adult and pediatric/neonatal ventilators. Prereq: RC205U. (4/4)

**RC306U Respiratory Pathology I** 2  
Provides an introduction to the study of disease with emphasis on terminology and basic disease processes. Examines common infectious diseases, acute and chronic respiratory diseases, and cardiovascular disorders. Concentrates on etiology, pathophysiology, signs and symptoms. Provides an overview of respiratory care of the surgical patient as well as specific management of traumatic chest injury and head trauma. Prereq: RC206U (2/0)

**RC307U Pulmonary Function Testing** 1.5  
Provides theory and operation of equipment in pulmonary function testing with interpretation of test results. Laboratory exercises include gathering data from bedside spirometry, measuring weaning parameters as well as standard pulmonary function laboratory testing. Prereq: RC206U. (1/1)

**RC405U Respiratory Care III** 2.5  
Surveys the theory and application of specialized diagnostic procedures, equipment and monitoring techniques in pulmonary medicine, and critical care. Includes bronchoscopy, oximetry, capnography and transcutaneous monitoring. Explores the elements of pulmonary rehabilitation with laboratory exercises in breathing retraining. Examines the theory and operation of pleural drainage systems. Prereq: RC305U. (2/1)

**RC406U Respiratory Pathology II** 2  
Offers an in-depth study of pulmonary disorders relating the respiratory therapist's role in diagnosis, treatment, pharmacologic management and support; provides practice in gathering appropriate information and making prompt and correct patient care decisions. Prereq: RC306U. (2/0)

**RC407U Perinatology** 2  
Explores fetal growth and development, assessment of the high-risk newborn and respiratory care of the perinatal/pediatric patient. Reviews specific medical/surgical pathology in the newborn and pediatric patient. Prereq: RC306U. (2/0)

**RC605U Respiratory Care Applications** 2  
Culminates the learning activities of the previous five semesters of study in respiratory care. Integrates the theory and application of respiratory care to focus on case management, clinical problem solving and clinical simulation. Case discussions will selectively cover the spectrum of cardiopulmonary disorders for both pediatric and adult patients. Prereq: RC406U, RC407U. (1/2)

**RC831U Respiratory Care Clinic I** 2.5  
Provides the student with clinical practice to demonstrate proficiency in physical assessment, O<sub>2</sub> therapy, airway care and IPPB skills. Students will observe and practice mechanical ventilation and arterial blood gas analysis skills. Coreq: RC205U. (0/1/6)

**RC853U Respiratory Care Clinic II** 6.5  
Provides the student an opportunity to maintain proficiency in RC I Clinic skills and demonstrate proficiency in ventilation and arterial blood gas analysis. Provides an opportunity to practice pediatric respiratory care, hemodynamic monitoring, and demonstrate proficiency in pulmonary function testing. Will observe diagnostic techniques in ECG, cardiac catheterization lab and bronchoscopy lab. Prereq: RC831U. (0/1/18)

**RC864U Respiratory Care Clinic III** 2-6  
Provides an opportunity for students to maintain proficiency in skills developed in RC Clinics I & II, demonstrate proficiency in pediatric/perinatal respiratory care, practice clinical education techniques and observe management skills. Prereq: RC853U. (0/0/6-18)

## RN: Physical Education

**RN130T Sports Participation I - Volleyball** 1  
Designed to give credit for knowledge and skills gained through varsity sports volleyball participation. Students may earn one credit per year for each sport they participate in up to a maximum of four credits. (1/0)

**RN131T Sports Participation II - Volleyball** 1  
Designed to give credit for knowledge and skills gained through varsity sports volleyball participation. Students may earn one credit per year for each sport they participate in up to a maximum of four credits. Prereq: RN130T. (1/0)

## Course Descriptions

### **RN132T Sports Participation I - Men's Basketball 1**

Designed to give credit for knowledge and skills gained through varsity sports basketball participation. Students may earn one credit per year for each sport they participate in up to a maximum of four credits. (1/0)

### **RN133T Sports Participation II - Men's Basketball 1**

Designed to give credit for knowledge and skills gained through varsity sports basketball participation. Students may earn one credit per year for each sport they participate in up to a maximum of four credits. Prereq: RN132T. (1/0)

### **RN134T Sports Participation I - Women's Basketball 1**

Designed to give credit for knowledge and skills gained through varsity sports basketball participation. Students may earn one credit per year for each sport they participate in up to a maximum of four credits. (1/0)

### **RN135T Sports Participation II - Women's Basketball 1**

Designed to give credit for knowledge and skills gained through varsity sports basketball participation. Students may earn one credit per year for each sport they participate in up to a maximum of four credits. Prereq: RN134T. (1/0)

### **RN136T Sports Participation I - Softball 1**

Designed to give credit for knowledge and skills gained through varsity sports softball participation. Students may earn one credit per year for each sport they participate in up to a maximum of four credits. (1/0)

### **RN137T Sports Participation II - Softball 1**

Designed to give credit for knowledge and skills gained through varsity sports softball participation. Students may earn one credit per year for each sport they participate in up to a maximum of four credits. Prereq: RN136T. (1/0)

### **RN138T Sports Participation I - Baseball 1**

Designed to give credit for knowledge and skills gained through varsity sports baseball participation. Students may earn one credit per year for each sport they participate in up to a maximum of four credits. (1/0)

### **RN139T Sports Participation II - Baseball 1**

Designed to give credit for knowledge and skills gained through varsity sports baseball participation. Students may earn one credit per year for each sport they participate in up to a maximum of four credits. Prereq: RN138T. (1/0)

### **RN140T Sports Participation I - Golf 1**

Designed to give credit for knowledge and skills gained through varsity sports golf participation. Students may earn one credit per year for each sport they participate in up to a maximum of four credits. (1/0)

### **RN141T Sports Participation II - Golf 1**

Designed to give credit for knowledge and skills gained through varsity sports golf participation. Students may earn one credit per year for each sport they participate in up to a maximum of four credits. Prereq: RN140T. (1/0)

### **RN150T Introduction to Physical Education 2**

An overview of the foundations, philosophies, history and principles of physical education. (2/0)

### **RN151T Sports Psychology 2**

Assists students in understanding some of the basic concepts of sports psychology. Consists of improving human skill, enhancing group effort and understanding the reduction of stress. Encompasses some of the diverse topic areas important to both psychologists in general and those focused on athletic feats. (2/0)

### **RN155T Prevention and Care of Athletic Injuries 1**

Introduces conditioning programs and training methods that tend to prevent athletic injuries. Provides basic skills in injury evaluation and acquaints the student with treatment procedures while providing practical experience in taping techniques. (5/1)

### **RN156T Theory of Coaching Softball 2**

Studies the theory and practice of coaching softball. Emphasis on skill development and playing strategy with consideration given to rules and teaching pedagogy so that the game may be effectively coached. (2/0)

### **RN157T Theory of Coaching Baseball 2**

Introduces the coaching profession with specific emphasis on baseball fundamentals, strategy, organization, public relations and coaching psychology. (2/0)

### **RN158T Theory of Coaching Basketball 2**

Introduces the coaching profession with specific emphasis on basketball fundamentals, strategy, organization, public relations and coaching psychology. (2/0)

### **RN165T Techniques of Teaching Individual and Dual Sports 2**

Teaches the techniques required in a variety of sports, i.e. racquetball, tennis and golf, as well as teaching methodologies involved. Observation of physical education classes at the elementary, junior and senior high level is an integral part of the course. (1/2)

### **RN167T Techniques of Teaching Team Sports 2**

Teaches the techniques required in a variety of sports, i.e. basketball, softball and volleyball, as well as teaching methodologies involved. Observation of physical education classes at the elementary, junior and senior high level is an integral part of the course. (1/2)

### **RN172T Beginning Tennis 1**

Introduces the basic skills (forehand, backhand, service), strategy and rules of tennis. (0/2)

### **RN173T Fundamentals of Golf 1**

Develops the basic skills necessary for a beginning golfer. (0/2)

### **RN174T Volleyball Techniques 1**

Instructs students in the basic rules and fundamentals of volleyball including on-court participation. (0/2)

### **RN182T Karate/Self Defense 1**

Provides an introduction to karate and self-defense via basic attack and defense techniques, prearranged sparring, forms and developing an appropriate physical awareness and philosophical attitude. (0/2)

### **RN199T Beginning Racquetball 1**

Introduces students to the rules, strategies and shots involved in the game. (0/2)

### **RN213T Weight Conditioning I 1**

Provides the student with the basics of weight conditioning as well as a general workout opportunity. (0/2)

### **RN214T Weight Conditioning II 1**

Provides further experiences in weight conditioning such as circuit training and variation in the training regime. (0/2)

## SI: Sign Language Interpreter Training

### SI101T American Sign Language I 4

Provides a beginning interactive course to promote comfort and knowledge in using grammar, syntax, vocabulary, fingerspelling, semantics and non-manual behaviors of American Sign Language in professional, social, and every day normal conversational situations. Receptive and expressive skills are emphasized. Course is taught in American Sign Language and has a "no voice" policy. (4/0)

### SI102T American Sign Language II 4

Allows continued development of American Sign Language grammar, syntax, vocabulary, fingerspelling, semantics and non-manual behaviors. Emphasis given to comprehension, production skills and use of language in a cultural context. Course is taught in American Sign Language and has a "no voice" policy. This course applies toward satisfaction of Historical/Cultural core for an A.A. degree. Prereq: SI101T. (4/0)

### SI122T Social Aspects of Deaf Culture 3

Introduces aspects of diversity within the deaf community in America, Canada and internationally. Students become familiar with social structure, the history of deafness, the history of the American deaf community, including the evolution of education of the deaf. Students will become familiar with legislation which impacts the deaf in America. Discusses definition of deafness and impact on culture. (Satisfies college Diversity requirement for Associate of Arts Degree). (3/0)

### SI125T Signing Systems in the Educational Setting 3

Provides an opportunity to learn Signing Exact English II and Signed English with a focus on transliterating in educational settings. Students learn the rules of usage and they build speed in words/signs per minute. Students explore the history and relationships of different sign modes. (3/0)

### SI131T Introduction to Interpreting 3

Provides a history of interpreting as well as an overview of interpreting as a profession. Topics include the interpreting environment, professional ethics and certification, interpreting in educational and community settings, and the physical, psychological and health aspects of interpreting. The influence of the cultural context on the success of the interpreting process is explored. Students are introduced to pantomime and its use in language expression in a visual mode. (3/0)

### SI141T Sign Skills Lab I 2

Provides additional practice in fundamental skills in conjunction with American Sign Language I. Students engage in various activities including the use of professional videotapes. Required for majors and recommended for non-majors. (0/4)

### SI155T Process Analysis 4

Emphasizes pre-interpreting skills and the receptive process of interpreting sign to voice. Students learn to process visual and auditory information. Students learn to observe and to reflect meaning by vocalizing in the interpreter role. Students study classifiers in depth. Strong emphasis is on the use of correct standard English. Students build vocabulary in the English language and there is less emphasis on signing. Prereq: SI101T, SI113T. (4/0)

### SI170T Professional Issues 2

Provides skills necessary in interpersonal relationships in the work place as an interpreter. Topics include stress management, conflict management, self-esteem as an interpreter, interpreting as a business, and ethical behavior. Prereq: SI113T. (2/0)

### SI201T American Sign Language III 3

Expands on previously learned grammar, syntax, sentence structure, and vocabulary in more depth. Emphasizes expressive skills: students learn to tell stories and use the language in a variety of settings. This course applies toward satisfaction of historical/cultural core for an A.A. degree. Prereq: SI102T. (3/0)

### SI202T American Sign Language IV 3

Focuses on an expanded awareness of the behaviors, values and issues in deaf culture through slang, varying levels of formality and socially appropriate language usage. Emphasizes receptive skills: students learn to read signed stories and poetry. This course applies toward satisfaction of historical/cultural core for an A.A. degree. Prereq: SI201T. (3/0)

### SI231T Interpreting I 4

Emphasizes three aspects of interpreting: American Sign Language, transliterating and voicing. Students learn to analyze texts in increasing complexity and rates of speed, interpret them in American Sign Language and transliterate into Conceptually Accurate Signed English. Focus of the class is on sign-to-voice and voice-to-sign. Most assignments will be produced in a manual mode. Journaling is used to help students in the learning process. Prereq: SI155T, SI202T. (4/0)

### SI232T Interpreting II 3

Focuses on continued skills development in transliterating and voicing which students learned in Interpreting I. Students will progress to a higher level in cognitive processing as it relates to transliterating and voicing. Oral interpreting, theater interpreting and an experience in Deaf Theater are introduced to broaden the students' experience. Course focuses on Conceptually Accurate Signed English. Prereq: SI231T, SI202T. (3/0)

### SI241T Sign Skills Lab II 2

Provides continued practice in developing skills in conjunction with American Sign Language II. Students engage in various activities including the use of professional videotapes. Required for majors and recommended for non-majors. Prereq: SI101T. (0/4)

### SI270T Special Settings 2

Explores voicing and interpreting guidelines for various interpreting settings including educational, legal, medical, mental health, religious, platform and rehabilitation. Course also develops understanding of communication techniques used in deaf-blind interpreting. Ethical considerations and dilemmas are explored for each setting. Prereq: SI231T. (2/0)

### SI800T Practicum & Seminar 6

Application of concepts and skills learned in the classroom in community and/or educational interpreting situations under the guidance of a mentor interpreter. This on-the-job experience occurs as the final phase of the program. In the seminar portion of the course, students discuss roles and responsibilities of the interpreter, current professional topics, and application of the Code of Ethics. Students will keep log, journals, and develop a portfolio. Prereq: completion of ASL IV (SI202T) with a grade of "C" or better. Completion of Interpreting I (SI231T) with a grade of "C" or better. Approval of coordinator and/or faculty. (2/0/0/16)

### SI900T Honors Project: Sign Language 1

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. Prereq: Permission of instructor. (1/0)

## SL: Human Services

### SL101T Human Services Careers Orientation 3

Introduces the value base of human services and evaluates problems that can be encountered in working with people when these values conflict with client needs. Introduces the framework of the human services approach, specifically formation of individual values, systems analysis, problem solving and conflict resolution. Concepts of systems analysis are accompanied by applications of these concepts to problems. (3/0)

### SL110T Human Service Policy and Programs 3

Investigates the relationship between social service programs and related social issues in the context of cultural conditions. Introduces historical trends in human services and acquaints students with current human services available to various client groups. Prereq: SL101T. (3/0)

### SL120T Observation Skills 3

Focuses on learning the distinction between inference and behavior, and recording behaviors in a systematic way. This also includes learning the importance of environment as an influence on human behavior. Closely related competencies to be addressed are writing behavioral objectives and contracts. Prereq: SL101T. (3/0)

### SL131T Basic Problem Solving Skills 3

Includes an overview of various intervention techniques. Students learn principles of communication, interviewing and conflict resolution and then practice the techniques in role played videotape situations. Prereq: SL101T. (3/0)

### SL300T Psychosocial Rehabilitation 3

Focuses on the rehabilitation model, values and techniques for working with persons with mental illness. Student will develop knowledge and basic skills necessary for rehabilitation goal planning, functional assessment, programming and developing support systems, and community resources. Prereq: A.A., A.S. or B.A. in Human Services or Disabilities Services and/or experience in the field and consent of coordinator. (3/0)

### SL800T Human Services Field Experience and Seminar 3-6

Places the student in a Human Services agency for 220 hours. The experience is discussed as a seminar, the purpose of which is to maximize the experience by gaining insights from the other students and the instructor. These insights should enable the students to objectify his or her experience. Prereq: Completion of Human Service classes. (1/0/0/8-20)

### SL810T Psychosocial Rehabilitation Field Experience and Seminar 3

Students will work in an agency with people with mental illness and apply the skills and techniques learned in the psychosocial rehabilitation course. Students will meet in seminar class to discuss experiences and gain insights from the instructor and other students. Prereq: SL300T and consent of coordinator. (0/0/0/12).

## ST: Surgical Technology

### ST101U Surgical Technology I 6.5

Provides an introduction to the knowledge and skills required for surgical technologists. (4.5/4)

### ST201U Surgical Technology II 4

Provides basic case preparation and surgical procedures necessary to begin operating room experience. Prereq: ST101U. (3/2)

### ST301U Surgical Technology III 5

Provides the culminating required skills before entering the field of surgical technology. Prereq: ST201U, ST821U. (4/2)

### ST821U Surgical Technology Clinic I 2

Provides hands-on, first-level clinical experience in operating room. Prereq: ST201U. (0/0/6)

### ST832U Surgical Technology Clinic II 11

Provides an extensive hands-on clinical experience in all entry-level skills for the surgical technologist. Prereq: ST201U, ST821U. (0/0/33)

## SY: Sociology

### SY100T Introduction to Sociology 3

Surveys the basic principles, concepts, research strategies and empirical findings representative of the field today. The course examines the range of sociological thought, identifies areas of specialization within the discipline and establishes a basis for further study in the field. (3/0)

### SY110T Marriage and the Family 3

Explores the contemporary family institutions by studying the family as an ideological, demographic, historic, economic and legal entity. The marital life cycle is documented through current research. Marital dissolution and remarriage are also examined. The course emphasizes the continuities and discontinuities in the family experience of individuals and the society as a whole. (3/0)

### SY120T Social Problems 3

Examines objective social conditions that have been defined as social problems. Problems are viewed as consequences of given types of social organization. Social causation is emphasized. The course focuses on gaining factual and theoretical knowledge to build better explanations for the existence and persistence of social problems. (3/0)

### SY901T Honors Project: Sociology 1

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. Prereq: Permission of instructor (1/0)

### SY999T Independent Study: Sociology 1-3

Provides readings, papers, basic research or other projects under the individual guidance of a staff member. Prereq: Permission of instructor. (1-3/0)

## TA: Physical Therapist Assistant

### TA101U OTA/PTA Language 1

Includes an orientation to the vocabulary of medicine, with emphasis on terminology related to therapies. (1/0)

### TA102U Introduction to PTA 1

Provides an overview of the physical therapy profession and the role of the physical therapist assistant. The course introduces emotional aspects of disability, communication strategies and the patient management process in physical therapy. Ethical and legal issues and the role of the APTA are presented. Additional discussion topics include cultural diversity, self-assessment, stress and time management, and the clinical education process. (1/0)

### TA200U Fundamentals of PTA 3

Introduction to patient care activities for the PTA including positioning and draping, posture, and body mechanics. Perambulation activities are covered including exercise, functional activities and fitting assistive devices. Gait training and negotiation of architectural barriers is addressed. Prereq: TA102U. (2/2)

### TA201U PTA Modalities I 2

Prepares the student to use therapeutic modalities for patient/client management. Specific modalities covered include superficial heat and cold, deep heat, edema management, soft tissue massage, light therapy and introduction to electrical stimulation. For each modality, discussion includes physiological mechanism, indicates, contraindications, precautions as well as technique of application. Prereq: TA101U. (1/2)

### TA203U Developmental Processes 3

Presents normal physical and psychosocial development processes that affect an individual throughout the life span. Emphasis on integration of physical, psychosocial, cognitive, social and cultural aspects of development. Clinic observation experience is included. Prereq: HS110U, PC100T and TA101U. (2.5/1.5)

### TA305U PTA Modalities II 3

Continued study of modalities used for patient/client management. Specific modalities covered include biofeedback, electrical stimulation (for management of pain, edema and muscle dysfunction), wound care techniques, spinal traction and hydrotherapy. For each modality, discussion includes physiological mechanism, indications, contraindications, precautions as well as technique of application. Prereq: TA201U, HS159U, TA101U. (2/2)

### TA307U PTA Assessment Procedures 3

Introduction to assessment skills performed by the PTA. Theory and application of goniometry, manual muscle testing and other assessment techniques is covered. Laboratory demonstration and practice of each skill is included. Prereq: TA101U, TA200U, HS159U and HS165U. (2/2)

### TA405U Therapeutic Exercise 3

Provides application of patient management skills to a variety of general medical conditions. Therapeutic exercise directed to specific impairments is covered, as well as special considerations for a variety of diagnoses. Clinical problem solving, patient progression, patient and family education is also addressed. Prereq: BI150T, BI151T or HS150U and HS159U and all previous technical courses. (2/2)

### TA406U Orthopedics 4

Provides a review of normal musculoskeletal anatomy. Each body joint is discussed as it relates to normal function, dysfunction and treatment strategies. Options for management of basic orthopedic surgeries, injuries and dysfunction are presented. Prereq: BI150T, BI151T or HS150U and HS159U. (2/2)

### TA407U OTA/PTA Management 2

Includes the basic principles of management including levels of authority and responsibility, supervisory process, performance appraisals, and policies and procedures. State and professional association regulations and legal/ethical issues are discussed. Reimbursement systems and their impact on health care are explored. Resume writing, interviewing and employability skills are covered. Prereq: All previous OTA or PTA technical courses. (2/0)

### TA408U Neurology 4

Provides an overview of the human nervous system with regard to anatomy, neurodevelopment and function. Clinical neuropathologies, therapeutic analysis and program planning are discussed. Pediatric considerations as well as adult neurological problems are included. Exercise theories covered include PNF, NDT, Brunnstrom, motor learning, etc. Prereq: BI150T, BI151T or HS150U and HS159U and all previous PTA technical courses. (3/2)

### TA505U PTA Seminar 1

Focuses on the role of the physical therapist assistant in helping the patient/client achieve optimal health, mobility and independence. Case study presentations are included to help refine clinical problem solving skills. Review of rules and regulations governing PTA practice in Iowa and the licensure application process is covered. (1/0)

### TA831U PTA Clinic I 1.5

Initial hands-on clinical experience. Skills learned in Health Skills, Fundamentals, Modalities I and Kinesiology are applied to direct patient care in selected clinical settings. Prereq: All previous PTA technical courses. (0/0/4.5)

### TA842U PTA Clinic II 1.5

Includes application of new concepts and skills learned in previous PTA course work while providing direct patient care in selected clinical settings. Prereq: All previous PTA technical courses. (0/0/4.5)

### TA853U PTA Clinic III 6-12

Full-time clinical experience, which includes application of all previous concepts and skills. Students develop proficiency in previously learned skills while providing direct patient care in selected clinical settings. (0/0/18-36)

### TA901T Honors Project: Physical Therapy 1

Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Requires approval of supervising professor and dean. Prereq: Permission of instructor (1/0)

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A.A., Iowa Central Community College, B.A.,  
M.S., University of Northern Iowa

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B.S.N., Nursing University of Iowa; M.S.,  
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B.S., Delaware Valley College of Science and  
Agriculture

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B.S., Wright State University; M.S., Iowa State  
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Professor, Horticulture  
A.A.S., Kirkwood Community College; B.A.,  
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A.A., Mount St. Claire College; B.A., M.A.,  
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University of Iowa

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A.A., Marshalltown Community College; B.A.,  
Northwest Missouri State University; M.A.,  
Northeast Missouri State University

**John D. Barber**

Instructor, Plumbing Technician  
A.A.S., Indian Hills Community College

**Diane L. Bean**

Instructor, Mathematics  
B.S., Nebraska Wesleyan University; M.S.,  
University of Iowa

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Assistant Professor/Coordinator, LAN  
Management  
A.A.S., Kirkwood Community College

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Professor/Coordinator, Information Systems  
Management/Information Processing  
B.S., Central Missouri State University

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Professor, Auto Collision Repair  
Diploma, Kirkwood Community College

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Professor/Counselor  
B.A., Mount Mercy College; M.A., University  
of Iowa

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Instructor, Food Service Program  
B.A., Kalamazoo College; M.A., Western  
Michigan University

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A.A., Iowa Central Community College, B.A.,  
M.A., University of Northern Iowa

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Director, Grants/Federal Programs  
B.A., University of Iowa; M.A., University of  
Loyola

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A.A., Kirkwood Community College; B.A.,  
M.A., University of Iowa

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B.A., University of Iowa

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Dean, Agricultural Science  
B.S., M.S., Iowa State University

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B.A., Indiana University; M.A., University of  
Iowa

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B.A., Knox College; M.L.S., University of Iowa

**Leland D. Bowen**

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B.S.N., Mount Mercy College, M.S., Old  
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Technology  
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Assistant Professor, Agriculture Technology  
A.A., Ellsworth Community College; B.S.,  
M.S., Iowa State University

**Jennifer Meehan-Brennom**

Instructor, Psychology;  
Sociology Distance Ed AT/AW  
B.A., Coe College; M.A., University of  
Northern Iowa; Ph.D., Iowa State University

**H. Kenneth Bronkhorst**

Professor/Coordinator, Respiratory Therapist  
B.A. Northwestern College  
M.B.A. University of Iowa

**Philip E. Brown**

Instructor, Temporary English  
B.A., Drake University; M.A.; Purdue  
University; M.A., University of Iowa

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Center Manager, AgKnowledge  
B.S., M.S., Iowa State University

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B.A., M.A., University of Northern Iowa

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Professor,  
Industrial Maintenance Technology  
A.A.S., Kirkwood Community College

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Dean of Students  
B.S., M.A., Northeast Missouri State  
University

**Eric R. Burrough, D.V.M.**

Instructor/Coordinator,  
Animal Health Technology,  
D.V.M., Iowa State University

**Hope E. Burwell**

Associate Professor, English  
B.G.S., Teacher Education Program, M.A.,  
University of Iowa; M.A., Bread Loaf School  
of English

**Hannah L.M. Byrne**

Instructor/Jones County Alt. H.S.  
A.A., Cottey College; B.A., University of  
Northern Iowa

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Instructor, Accounting  
B.A., Charleston Southern University, M.S.,  
M.B.A., Dominican University

**Steven E. Carpenter**  
Public Information Services Director  
B.S., Northwest Missouri State University;  
M.A., University of Iowa

**Debbie S. Carrico**  
Instructor/Coordinator, Pre-Engineering  
B.S., M.S., University of Notre Dame

**Terry L. Chapman**  
Assistant Professor, Agricultural Production  
Management  
A.A.S., Hawkeye Community College; B.S.,  
Western Illinois University

**Linda S. Christian**  
Professor, Developmental Mathematics  
B.S., Eastern Illinois University

**Brenda S. Clark**  
Instructor, Biology  
B.A., Central College, M.A., Western Illinois,  
Ph.D., Oklahoma State University

**Shaunda L. Clark**  
Assistant Professor/Coordinator,  
Dental Hygiene  
A.A.S., Parkland College; B.S., Illinois State  
University

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Assistant Professor, Speech  
B.A., Azusa Pacific University; M.A., Regent  
University

**Cindy S. Cochran**  
Instructor, Speech Communication  
B.A., M.A., University of Iowa

**James A. Cochran**  
Instructor/Coordinator, Math/Math Lab  
A.A., Marshalltown Community College; B.A.,  
University of Northern Iowa; M.A., Viterbo  
College

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Director, Network Services

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Dean, Industrial Technologies  
B.S., University of North Dakota; M.A., Ph.D.,  
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Professor, Accounting  
B.S., Southern Illinois University; M.B.A.,  
University of Iowa

**Jeffrey M. Cucinotta**  
Instructor, Sign Language Interpreter Training

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Professor, Accounting  
B.A., M.A., University of Northern Iowa

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Instructor, Industrial Maintenance Technol-  
ogy  
A.A.S., Kirkwood Community College

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Professor, Mathematics  
B.A., M.A., University of Iowa

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Professor, Food Service Program  
Diploma, Des Moines Area Community  
College

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Assistant Professor, Business/Computers  
B.S., M.S., San Diego State

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Assistant Professor, Computer  
A.A.S., City College/Chicago Olive-  
Harvey; B.L.S., University of Iowa; B.S., Iowa  
Wesleyan College

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Vice President, Educational Services  
B.S., Mount Mercy College; M.A., Ph.D.,  
University of Iowa

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Professor, Sociology  
B.A., Salve Regina – The Newport College;  
M.A., University of the State of New York

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Instructor, Floral Careers  
Certificate, Kirkwood Community College

**Gary N. Donnermeyer**  
Associate Professor, Biology  
B.S., M.S., University of Wisconsin

**David L. Dozark**  
Professor, Chemistry  
B.A., M.A., University of Northern Iowa; Ph.D.,  
University of Iowa

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Dean, Math/Science  
B.S., Iowa State University; M.S. University of  
Illinois

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Professor, Veterinary Technician/Small  
Animal Services  
A.A.S., Kirkwood Community College; B.A.,  
Coe College

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Instructor, New Directions Alternative High  
School  
B.A., M.A., University of Iowa

**Richard J. Edwards**  
Professor, Reading/Writing  
B.A., M.A., Ed.S., University of Iowa

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Coordinator, Correspondence Program  
B.S., M.S., Eastern Illinois University

**Dawn M. Eitel**  
Instructor/Coordinator, Medical Assisting  
A.A.S., Kirkwood Community College

**Susan B. English**  
Professor, English  
B.A., Western Illinois University; M.A.,  
University of Iowa

**Mary Lou Erlacher**  
Area 10 Work Based Learning Director  
B.A., University of Iowa

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Director, Environmental Training Center  
B.A., Bemidji State University

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Professor/Director, Instrumental Music  
B.M.Ed., Fort Hays State University; M.M.Ed.,  
Wichita State University; Ph.D., University of  
Oklahoma

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Professor, Respiratory Therapist  
A.A.S., Kirkwood Community College; B.A.,  
University of Iowa

**Kay A. Forest**  
Instructor, Computer/Office Applications  
B.A., University of Northern Iowa

**Jerry A. Fottrall**  
Professor, Computer Programming  
B.A., University of Iowa

**Lynn S. Fraker**  
Benton County Director  
Diploma, Kirkwood Community College;  
B.S., University of Iowa

**Dominick F. Franco**  
Professor, English  
B.A., Trinity College; M.A., University of Iowa

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Director, Bookstore/Central Receiving  
B.A., University of Northern Iowa

**Wendy E. Geertz**  
Professor/Coordinator Legal Assistant  
Program  
B.A., Grinnell College; J.D., University of Iowa

**Linette M. Geissler**  
Professor/Coordinator, Floral Careers  
Diploma, Kirkwood Community College

**Mary Jane German**  
Assistant Professor/Coordinator Food Service  
B.S., University of Nebraska; M.S., Utah State  
University

**Mary B. Gesing**

Assistant Professor, Counselor  
B.A., Wichita State University; M.A.,  
University of Iowa

**Nancy L. Glab**

Dean, Health Science  
A.A.S., Northeast Iowa Community College;  
B.S., M.S., University of Dubuque

**Barbara D. Goings**

Instructor, Interior Design/Marketing  
B.S., M.S., Iowa State University

**Dennis W. Green**

Manager, KCCK-FM  
B.A., University of Iowa

**Megan M. Green**

Assistant Professor, Horse Science  
A.A.S., Kirkwood Community College; B.S.,  
William Woods University

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Assistant Professor/Coordinator Surgical  
Technology  
B.S., Morningside College

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Professor, Photography  
A.A.S., Kirkwood Community College; B.A.,  
M.A., University of Iowa

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Professor/Coordinator, PC Technician  
B.S., University of Illinois; M.A., University of  
Iowa

**Betty Haar, RHIT**

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Technology  
BS, Upper Iowa University, Fayette

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Technology  
B.A., Luther College; B.S., Washington  
University

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Executive Director, International Programs  
B.S., University of London, England

**Daniel L. Hall**

Professor, Automotive Technology  
Diploma, Hawkeye Community College; B.A.,  
University of Iowa

**David M. Hall**

Instructor, Anatomy and Physiology  
B.A., M.A., Ph.D., University of Iowa

**David Douglas Hall**

Professor, Art  
B.A., Long Beach City College; M.A., M.F.A.,  
University of Iowa

**David J. Halverson**

Director of Equine Operations and Events

**Heidi A. Hansel**

Instructor/Coordinator, Accounting  
B.B.A., M.S., Iowa State University

**Bonnie L. Hansen**

Professor/Counselor  
B.A., University of Northern Iowa; M.A.,  
University of Iowa

**Pamela J. Hanson**

Professor/Coordinator, Dental Assisting  
Diploma, A.A.S., Kirkwood  
Community College; B.S., University of Iowa

**Susan A. Harthun**

Assistant Professor, Mathematics  
B.A., M.A., University of Northern Iowa

**Lydia B. Hartunian**

Instructor, Humanities  
B.A., M.A., City University of New York

**Barbara C. Harvey**

Instructor, Biology/Environmental Biology  
B.S., M.A., University of Northern Iowa

**Julia A. Haseleu**

Assistant Professor, Psychology  
B.S., University of Wisconsin; M.A., Ph.D.,  
Miami University

**Paul D. Hauser**

Professor, English  
A.A., Marshalltown Community College; B.A.,  
M.A., Ph.D., University of Iowa

**Susanna L. Hawn**

Director of Planning Giving  
B.F.A., University of Iowa

**Richard A. Heath**

Instructor, Spanish  
B.A., University of Kansas; M.A., Indiana  
University

**Lisa M. Hebl**

Instructor, Dental Hygiene  
B.S., University of Iowa

**Keith R. Hench**

Assistant Professor, Science  
B.S., Lock Haven University;  
M.S., Indiana University of Pennsylvania

**John L. Henik**

Dean, Business and Information Technology  
B.S., Iowa State University; M.A., University of  
Iowa

**Traci L. Hennings**

Manager, Child Care Center  
B.S., University of Iowa; M.A., Iowa State  
University

**Todd C. Hesseltine**

Instructor, Automotive Technology  
A.A.S., Kirkwood Community College

**Robert C. Heyer**

Professor, Chemistry  
B.S., M.S., Ph.D., Northern Illinois University

**Charles J. Hinz**

Dean, Development Education  
B.S., Loras College; M.A., University of Iowa

**Debra L. Hoppman**

Instructor, New Directions Alternative High  
School  
A.A., North Iowa Area Community College;  
B.A., University of Northern Iowa

**Margaret L. Hurst**

Instructor, ECHO Alternative High School  
B.A., M.A., University of Iowa

**Thomas E. Hyde**

Associate Professor, Computer Aided  
Drafting  
A.A.S., Kirkwood Community College

**James E. Hynek**

Professor/Coordinator, International  
Agricultural Production Management and  
GPS/GIS Technology  
B.S., M.S., Iowa State University

**Gorden L. Jacobsen**

Professor, Auto Collision Repair  
Diploma, Kirkwood Community College

**Peter D. Jauhainen**

Assistant Professor, Religion/Humanities  
B.A., Wheaton College; M.Div., Princeton  
Theological Seminary; Ph.D., University of  
Iowa

**Terri L. Long Jedlicka**

Instructor, Learning Services  
A.A., Kirkwood Community College; B.A.,  
M.A., University of Northern Iowa

**Kimberly Werling Johnson**

Director, Training & Outreach Services  
A.A.S., Kirkwood Community College; B.B.A.,  
University of Iowa

**Richard J. Johnson,**

Assistant Professor, English  
B.A., M.A., University of Iowa

**Gary J. Jorgenson**

Assistant Professor, Automotive Technology  
Diploma, NICC

**Peggy A. Julius**

Director, Enrollment Management  
B.S., Iowa State University; M.B.A., University  
of Iowa

**Arlin W. Karsten, D.V.M.**

Assistant Professor, Animal Science  
B.S., D.V.M., Iowa State University

**Christine L. Keith**

Instructor, Computer Programming  
B.A., B.S., Brock University, Canada

**David A. Keller**

Assistant Professor, Mathematics  
B.A., Simpson College; M.S., Colorado State  
University

## Administrative Staff & Faculty

**Linda A. Kennedy**

Instructor, Surgical Technology  
Certificate, Marshalltown Community College

**Scott A. Ketelsen**

Director, Marketing Services  
B.A., University of Northern Iowa

**Phillip D. Koopman**

Instructor, Mathematics  
B.A., Coe College, M.A., University of Iowa

**Patrick E. Keyes**

Professor, English  
B.A., M.A., University of Illinois

**Arthur Khaw**

Associate Professor/Coordinator  
Workplace Communication  
B.A., Flinders University, Australia; M.S.,  
Fort Hays State University; Ed.S.,  
Western Illinois University

**Barbara A. Kious**

Instructor, Occupational Therapy Assistant  
B.A., Kansas Wesleyan University; M.S.,  
Texas Women's University

**Bobbie R. Klopp**

Professor, Speech  
A.A., Lon Morris College; B.A., Centenary  
College of Louisiana; M.F.A., University of  
Iowa

**Rose K. Kodet**

Professor/Coordinator  
Communication Media/PR  
B.S., Mankato State University; M.A.,  
Drake University

**Sheryl L. Konen**

Professor/Coordinator, Interior Design  
B.A., University of Iowa

**Sandra J. Kotowski**

Instructor, Dental Lab Technology  
A.A.S., Kirkwood Community College

**Susan C. Kratz**

Professor, English  
B.A., M.A., University of Iowa

**Linda K. Krog**

Assistant Professor/Coordinator, Sign  
Language Interpreter Training Program  
B.S., University of Wisconsin; M.S.,  
Winona State University

**Johanna Kruckeberg**

Professor, Anatomy/Physiology/Biology  
B.A., Augustana College; M.S.,  
University of Illinois

**Barry A. Kucera**

Assistant Professor, Carpentry

**Bernard P. Lake**

Instructor, Marketing/Management  
B.A.A., University of Iowa; B.S., Mount Mercy  
College; M.B.A., Nova University

**Mary Lou Lauer**

Associate Professor, Microbiology  
B.S., Ohio State University; M.A.,  
Northeast Missouri State University; Ph.D.,  
University of Iowa

**Mary Jane Leary**

Professor, Speech  
B.S., University of Wisconsin; M.A., University  
of Iowa

**John M. Lewis**

Professor, Mechanical Engineering Design  
Technology  
A.A.S., Kirkwood Community College; B.A.,  
Coe College

**Clayton G. Lifo**

Professor, Management  
A.A., B.S., University of Maryland

**Wendy J. Lingo**

Counselor  
B.S., University of Northern Iowa; M.Ed.,  
Wayne State College

**Andrew D. Livin**

Instructor, CNC Machining  
A.A.S., Kirkwood Community College

**Jorge A. Lopez**

Associate Professor, Architectural Technology  
B.A., M.A., Washington University;

**James B. Loukota**

Director, Auxiliary Services  
A.A., Kirkwood Community College; B.S.,  
University of Nevada, Las Vegas; M.B.A.,  
University of Iowa

**Michael C. Lyons**

Assistant Professor,  
Human Anatomy & Physiology  
B.A., Simpson College, M.A., Drake University

**Wendell D. Maakestad**

Director, Distance Learning  
A.A., Ellsworth Community College; B.A.,  
University of Northern Iowa; M.A., University  
of Iowa

**Donna L. Madsen**

Professor, Computer/Office Applications  
B.A., M.A., University of Northern Iowa

**Bridget M. Malone**

Assistant Professor, Spanish  
B.A., M.A., University of Iowa

**Constance S. Marberry**

Assistant Professor, Mathematics  
B.A., Bowdoin College; M.A., Trenton State  
College; M.A., Ed.D., University of Iowa

**Connie M. Mays**

International Programs Director  
B.A., Wichita State University

**Jon K. McAlister**

Instructor  
B.A., Boise State University; M.A., University  
of Iowa

**Karen L. McCaa**

Counselor  
B.A., Eastern Illinois University; M.Ed.,  
University of Tennessee

**Daryl L. McCall**

Instructor, Electronics Engineering Technol-  
ogy  
A.A.S., Cincinnati State Technical &  
Community College; B.S., M.S., Ohio  
University

**James L. McClure**

Professor, English  
B.A., M.A., University of Kansas; M.A.,  
University of Iowa

**Richard C. McCord**

Assistant Professor, Philosophy  
B.A., Middle Tennessee State University;  
M.A., University of Memphis; Ph.D.,  
University of Nebraska

**Douglas G. McDonald**

Director, Plant Services

**Devonee D. McDonald**

Professor, English  
B.A., Mount Mercy College; M.A., University  
of Iowa

**David R. McMahon**

Instructor, History  
B.A., Northwest Missouri State University,  
M.A., Creighton University

**Jean M. McMenimen**

Assistant Professor, Education Careers  
B.A., College of St. Benedict; M.A., University  
of Iowa

**Dale E. McNeeley**

Professor/Coordinator, Agriculture Business/  
Production Management/ Horse Science/  
Agricultural Transfer  
B.S., Iowa State University

**Patricia Claney Meade**

Professor, Dental Assisting  
Diploma, Lakeland Medical-Dental Academy;  
A.A.S., Kirkwood Community College; B.S.,  
University of Iowa

**James A. Meisheid**

Professor, Horticulture  
B.S., Iowa State University

**Saul Mekies**

Associate Professor, Economics  
B.A., Central Connecticut State University;  
M.A., University of Connecticut

**Dixie L. Mercer**

Instructor, Computer/Office Application  
B.S., Southern Illinois University; M.A.,  
University of Northern Iowa

**Michelle L. Minton**

Assistant Professor/Coordinator  
B.S., St. Ambrose University; B.A., University  
of Northern Iowa

**Darrel D. Millard**

Professor/Coordinator, International Business/Management Development/Marketing  
B.A., M.A., University of Northern Iowa

**John Eric Miller**

Instructor, Sociology  
B.A., Knox College; M.A., University of Iowa

**Betty L. Mitchell**

Professor/Coordinator, Dental Lab Technology  
Diploma, Kirkwood Community College;  
B.S., University of Iowa

**Cheryle W. Mitvalsky**

Vice President, Resource Development  
B.A., University of Iowa

**Jane R. Montgomery**

Assistant Professor/Coordinator, Computer Programming AS/400 Certificate, Sir Sandford Fleming College;  
A.A.S., Kirkwood Community College

**Terrence J. Moran**

Vice President, Instruction  
B.A., Loras College; M.A., Ph.D., University of Iowa

**Shawna L. Moss**

Assistant Professor, Horticulture  
B.L.A., Iowa State University

**Stephen A. Mrstik**

Assistant Professor, Water Environmental Technology  
A.A., North Iowa Area Community College;  
A.A.S., Kirkwood Community College

**Kim S. Muhl**

Professor, Physical Education/Recreation  
B.A., William Penn College; M.A., Cumberland College

**Stephen C. Murphy**

Instructor/Coordinator, Computer Programming  
B.S., Mount Mercy College; M.S., University of Iowa; M.S., Montana State University

**Janice K. Murray**

Director, Administrative Computing  
A.A., Kirkwood Community College

**Lois M. Nanke**

Vice President, Administration  
A.A.S., B.S., Empire State College of State University of New York; M.Ed., State University of New York at Buffalo

**Sergio Naranjo**

Instructor, Psychology  
B.A., University of Iowa; M.A., Ph.D., Central Michigan University

**Kevin L. Nebergall**

Professor, English  
B.A., M.A., Central Missouri State University

**Kay L. Nebergall**

Director, High School Completion/Adult Basic Education  
B.A., Clarke College; M.A., University of Northern Iowa

**Jeffrey M. Elkins Nesheim**

Director, Internet Technology  
B.A., M.S., Iowa State University

**David J. Newmister**

Instructor, Electronics Engineering Technology  
B.S., Purdue University; M.B.A., University of Iowa

**Norman R. Nielsen**

President  
A.A., Webster City Junior College; B.A., Buena Vista College; M.A., Iowa State University; Ph.D., University of Iowa

**Melanie R.K. Nollsch**

Assistant Professor/Coordinator, Early Childhood Education  
B.S., Iowa State University; M.Ed., Drake University

**Frederick A. Ochs, III**

Instructor, Temporary Geology/Chemistry  
B.S., University of Wisconsin; M.S., University of Michigan

**Maria H. Oehler**

Instructor, Biology  
B.A., University of Iowa; M.S., Iowa State University

**Jim A. Off**

Assistant Professor, Construction Technology  
B.S., Mankato State University; B.B.A., Golden Gate University; M.A., University of Northern Iowa

**Jean M. Ohlen**

Professor, Nursing  
Diploma, Mercy/St. Luke's Hospital; School of Nursing; B.S.N., Coe College; M.S.N., University of Iowa

**Steven J. Ovel**

Executive Director, Government Relations  
B.S., Iowa State University

**David Steven Owen**

Instructor, Political Science  
B.S., College of Wales; M.A., University of Essex, England; Ph.D., University of Kansas

**Dennis R. Owen**

Professor, Industrial Maintenance Technology  
A.A.S., Kirkwood Community College

**Gregory D. Parks**

Professor, Graphic Communications Technology

**Marion J. Patterson**

Assistant Professor/Coordinator, Social Science/Career Option  
B.S., Plymouth State College; B.A., Coe College; M.S., University of Idaho

**Michele D. Payne**

Director, Learning Initiatives  
B.A., M.A., University of Iowa

**Mark E. Pelzer**

Professor, Economics  
B.B.A., M.A., University of Iowa

**Michael S. Penrod**

Assistant Professor/Coordinator, Criminal Justice  
B.S., Northeast Missouri State University; M.S., Central Missouri State University

**Martha Perez-Bendorf**

Assistant Professor, Spanish  
M.A., University of Iowa

**Phyllis S. Peterson**

Enrollment Services Director  
B.S., Iowa State University; M.A., Ed.S., Northeast Missouri State University; Ph.D., University of Iowa

**Lefkios A. Petevis**

Associate Professor, Mathematics  
B.S., Southern Illinois University; M.S., Southeast Missouri University

**Olga B. Petrova**

Instructor, English  
Diploma, Russian State Pedagogical University; M.A., University of Northern Iowa; Ph.D., University of Iowa

**Beverley J. Philpott**

Associate Professor, Medical Assisting  
Diploma, Kirkwood Community College; B.S., University of Nottingham, England

**Trace D. Pickering**

Instructor, Learning Services  
B.A., Simpson College; M.A., University of Iowa

**Morris M. Pounds**

Professor/Counselor  
A.S., Southeastern Community College; B.S., Iowa State University; M.A., Northeast Missouri State University

**Stephen E. Price**

Instructor, English  
B.A., M.A., University of Iowa

**Todd R. Prusha**

Director, Operation  
B.A., University of Iowa; M.A., Coe College

**Mathew J. Pustz**

Instructor, Humanities  
B.A., Knox College; Ph.D., University of Iowa

## Administrative Staff & Faculty

**Nancy J. Rash**  
Washington County Director  
B.S., Iowa State University; M.S., University of Kansas

**Curtis G. Rawson**  
Professor/Coordinator, Computer Programming  
B.S., University of Iowa;

**Keith M. Reins**  
Assistant Professor, English  
B.A., University of Northern Iowa; M.A., University of Iowa

**Mary L. Rhiner**  
Professor, Food Service Program  
B.S., Iowa State University; M.A., University of Iowa

**Dennis E. Ringgenberg**  
Instructor, Welding

**Carol Roemig-Heusinkveld**  
Professor/Counselor  
B.S., M.A., University of Iowa

**Gregory E. Roth**  
Instructor, Criminal Justice  
B.A., Mount Mercy; M.A., Minnesota State University Mankato

**Karen E. Ryan**  
Associate Professor, Physical Therapist Assistant  
A.A., College of St. Catherine

**Lisa J. Ryan**  
Instructor, Health Information Technology  
A.A.S., Indian Hills Community College

**Thomas A. Sabotta**  
Director, Institutional Research  
B.S., Winona State University; M.A., Ph.D., University of Iowa

**Nicholas A. Sagan**  
Assistant Professor, Biology/Anatomy/Physiology  
B.S., Iowa State University; M.S., University of Central Arkansas

**Kenneth Paul Saladin**  
Assistant Professor, Horticulture  
B.S., M.S., University of Illinois

**Raymond J. Salucka**  
Assistant Professor, Director/Vocal Music  
B.M.Ed., University of Dubuque; M.M.Ed., University of Missouri

**Scott H. Samuelson**  
Instructor, Philosophy/Humanities  
B.A., Grinnell College; M.A., Ph.D., Emory University

**Nancy J. Sauerman**  
Professor, Psychology  
B.A., University of Iowa; M.A., University of Texas

**Catherine M. Schaff-Stump**  
Assistant Professor, English  
B.A., M.A., Iowa State University; Ph.D., University of Iowa

**Renee J. Schlueter**  
Assistant Professor, English  
B.A., Truman State University; M.A., Ph.D., Saint Louis University

**Victor L. Schmidt**  
Instructor, HVAC Technology  
A.A.S., A.A., North Iowa Area Community College; B.S., Iowa State University

**Kimberly A. Schultz**  
Assistant Professor/Coordinator  
Administrative Assistant  
B.A., University of Iowa; M.S., Northwest Missouri State University

**Linda L. Schuppener**  
Assistant Professor, English  
M.F.A., Ph.D., M.A., University of Iowa

**Jill M. Scott**  
Associate Professor, Genetics/Biology  
B.S., Oregon State University; Ph.D., Purdue University

**Joseph P. Sedlacek**  
Professor, Mathematics  
A.A., Kirkwood Community College; B.Ed., Northeast Missouri State University; M.A., University of Iowa

**Elizabeth A. Selk**  
Director, Heritage Area Agency  
A.A., Kirkwood Community College; B.S., University of Iowa; M.S., Iowa State University

**Robert A. Sessions**  
Professor, Philosophy & Humanities  
B.A., Drake University; M.A., Ph.D., University of Michigan

**Cathleen M. Sheller**  
Assistant Professor, Pre-Computer Science/Computer Education  
B.S., Mount Mercy College; M.A., University of Iowa

**Jeffrey Sherman**  
Instructor, Sociology  
B.A. Bemiji State University; M.A. Western Illinois University

**Arthur P. Sibold**  
Instructor, PC Programming  
B.A., Vanderbilt University

**Steven N. Sickels**  
Librarian  
B.A., Drake University; M.L.S., Emporia State University

**Dale R. Simon**  
Executive Dean, Iowa City Campus  
B.S., Minot State University; M.A., Ph.D., University of Iowa; Certified Public Accountant

**Susan D. Simon**  
Professor/Coordinator Disabilities Service Careers  
B.A., Brooklyn College; M.A., University of Wisconsin; M.A. University of Iowa

**Susan J. Skoglund**  
Associate Professor, French  
B.A., M.A., University of Iowa

**Jane H. Slach**  
Associate Professor, Dental Assisting  
A.A. Certificate, Kirkwood Community College

**Gale K. Smetana**  
Instructor, Communications Media/PR  
B.S., Northwest Missouri State University; M.A., Wichita State University

**Conifer J. Smith**  
Instructor, Art  
B.F.A., University of Iowa; M.F.A., Iowa State University

**Marilee A. Smith**  
Professor/Coordinator Legal Administrative Assistant/Office Assistant  
Diploma, Kirkwood Community College; B.A., University of Northern Iowa

**Nancy L. Smith**  
Instructor, LAN Management  
B.B.A., Mount Mercy College

**Jane R. Snook**  
Resource Center Director  
A.A., McLennan Community College; B.S., M.S., Baylor University

**Andreas H. Soemadi**  
Instructor, Mathematics  
B.S., M.S., Texas Tech University

**Laura L. Sohl-Cryer**  
Assistant Professor, Speech  
A.A., Iowa Lakes Community College; B.A., M.A., University of Northern Iowa

**William C. Stephens**  
Instructor, Cultural Anthropology  
B.A., University of Texas; M.A., Ph.D., University of Oregon

**Carolyn L.H. Stephenson**  
Assistant Professor, Psychology  
B.A., M.Ed., University of Northern Iowa

**Cheryann M. Stewart**  
Assistant Professor, Agriculture Business Technologies  
B.S., University of Connecticut

**David L. Stotelmyre**  
Professor, CNC Machining Technology  
Diploma, Kirkwood Community College

**Brooke L. Strahn-Koller**  
Instructor, Temporary Sociology  
B.A., M.A., Western Illinois University

**Mary L. Strong**  
Professor, Nursing  
A.D.N., North Iowa Area Community  
College; B.S.N., Coe College; M.S., University  
of Iowa

**Stephen D. Stulken**  
Professor, Construction Technology  
B.A., M.A., University of Northern Iowa

**Sharon A. Swanson**  
Professor/Coordinator, Apparel  
Merchandising  
B.A., M.A., University of Northern Iowa

**Kory M. Swart**  
Instructor, Mathematics  
B.A., M.A., University of Northern Iowa

**Barrie G. Swinbank**  
Professor, Agricultural Production Manage-  
ment  
A.A.S., Certificate, Kirkwood Community  
College; B.S., Iowa State University

**John W. Symington**  
Instructor, LAN Management/PC Technology  
B.A., Hastings College; M.A., Specialist in  
Education, Kearney State College

**Marianne J. Taylor**  
Associate Professor, English  
B.A., Bucknell University; M.A., University of  
California

**William J. Taylor**  
Technical Support Services Director  
B.A., University of Iowa

**Jack L. Terndrup**  
Professor/Coordinator Education Careers  
B.S., M.A., Eastern Illinois University

**Orville L. Thein**  
Director, Telecommunications Services

**John P. Thomas**  
Associate Professor, Horticulture  
A.A., Iowa Lakes Community College; A.A.S.,  
Kirkwood Community College; B.S., Iowa  
State University

**Margaret C. Thomas**  
Associate Professor/Coordinator Physical  
Therapist Assistant  
B.S., Loras College; Certificate, M.A.,  
University of Iowa

**Carol L. Thompson**  
Marion Center Director  
B.A., Cornell College

**Christine M. Thompson**  
Instructor, Learning Center  
A.A., Kirkwood Community College; B.A.,  
University of Northern Iowa

**James E. Thompson**  
Instructor, LAN Management  
B.A., University of Northern Iowa; B.S., M.S.,  
University of Iowa

**Fred R. Tibbits**  
Professor, Computer Programming  
A.A., Indian Hills Community College

**Mary B. Tobin**  
Assistant Professor, Nursing  
B.S.N., Iowa Wesleyan College; M.A.,  
University of Iowa

**Mircea M. Tomus**  
Associate Professor, English  
M.A., University of Cluj, Rumania; Ph.D.,  
University of Iowa

**Richard L. Underwood**  
Professor, Speech  
B.A., M.A., Purdue University

**Kathleen J. VanSteenhuysen**  
Dean, Social Science  
B.A., Clarke College; M.A., Georgetown  
University

**Robert B. Walker**  
Instructor, Marketing/Banking and Finance  
B.P., Miami University; M.B.A., University of  
Iowa

**Douglas D. Watson**  
Professor, Communication Electronics  
B.S., M.S., Iowa State University

**John F. Weglarz**  
Professor, Mathematics  
B.S., M.S., Illinois State University

**Jon L. Weih**  
Johnson County Director  
B.A., M.A., University of Northern Iowa

**Joel E. Wells**  
Professor, Manufacturing Technology  
A.A.S., Kirkwood Community College; B.A.,  
Mount Mercy College; M.A., University of  
Iowa; Ph.D., Iowa State University

**Michael R. Williams**  
Professor, Computer Programming  
A.A., Mason City Junior College

**Arron W. Wings**  
Librarian  
J.D., University of Nebraska; M.A., University  
of Iowa

**Ann M. Woodward**  
Professor, Nursing  
Diploma, St. Anthony College of Nursing;  
B.S.N., University of Iowa

**John E. Wortman**  
Professor, History  
B.A., M.A., University of Iowa

**Amy M. Wyss**  
Assistant Professor, Culinary Arts  
A.A., Kendall College

**Geneva M. Yarne**  
Librarian  
B.A., M.A., University of Iowa

**Allison York**  
Dean, English  
B.A., M.A., University of Iowa

**Robinson M. Yost**  
Instructor, History  
B.A., Centenary College of Louisiana;  
M.A., Ph.D., Iowa State University

**James W. Zach**  
Professor, Diesel Power Technology  
A.A.S., Kirkwood Community College

**Lynne C. Zeman**  
Instructor, Science  
B.S., University of Nebraska; M.S., University  
of Iowa

**Ann K. Zerkel**  
Professor, English  
B.A., M.A., Ed.S., University of Iowa

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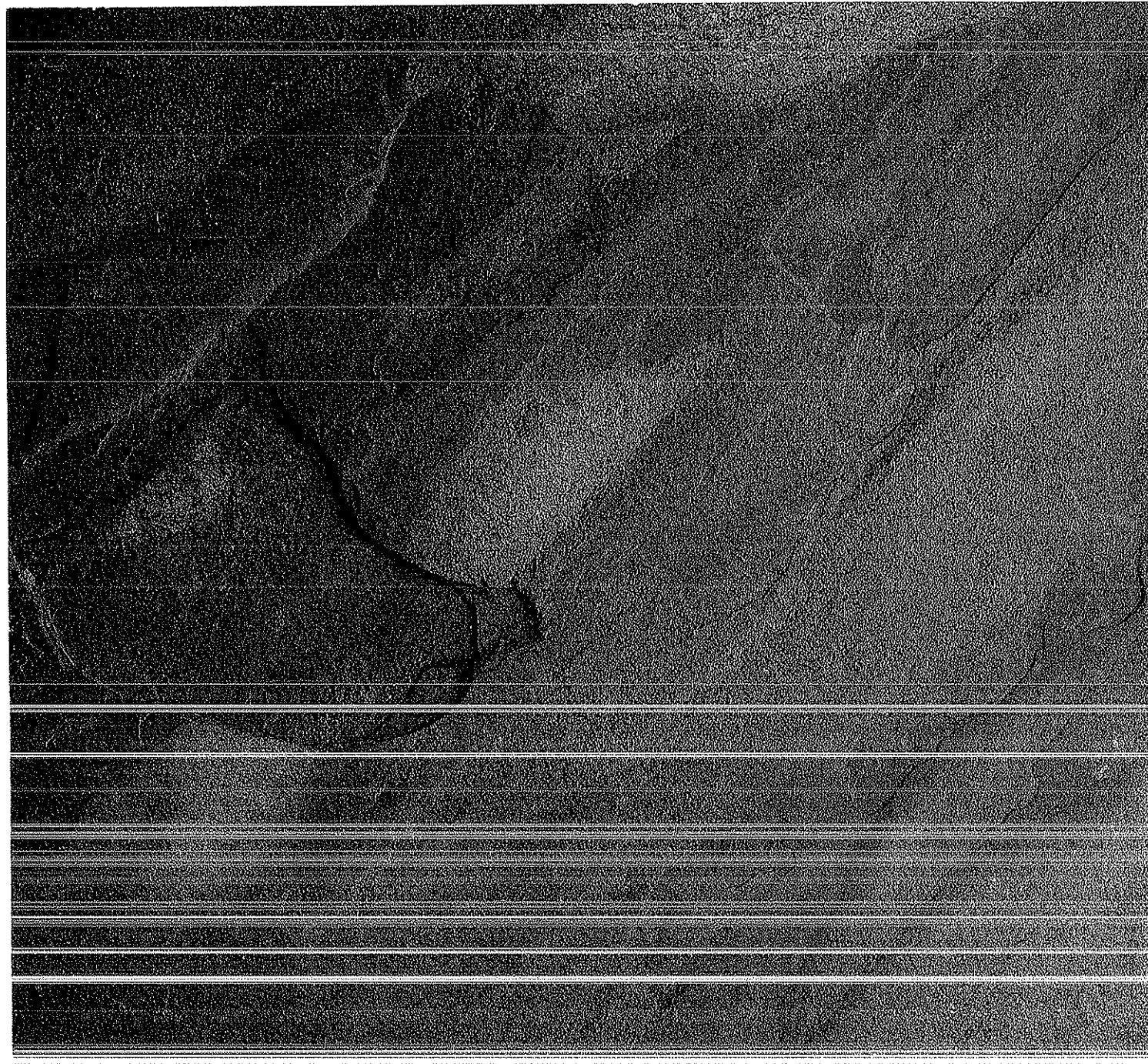
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