

AC: ACCOUNTING

	Credit hours
AC001T Principles of Accounting I	4
Approaches accounting theory and procedures from the business entity concept. Accounting principles covered include understanding the balance sheet and income statements, matching costs and revenues, working paper development, and debit-credit relationships. (4/0)	
AC002T Principles of Accounting II	4
Emphasizes partnership and corporate entities, worksheet adjustments and assessed valuation. Prereq: Principles of Accounting I. (4/0)	
AC003T Principles of Accounting III	4
Emphasizes management uses, and studies introduction to cost accounting, cost analysis, budgeting, fund flow, and statement analysis. Prereq: Principles of Accounting II. (4/0)	
AC004T Cost Accounting I	4
Relates principles and methods of handling materials, labor costs, and manufacturing expenses to the formulation of reports to management. Prereq: Principles of Accounting III. (4/0)	
AC005T Cost Accounting II	4
Emphasizes standard costing and budgeting. Prereq: AC003T. (4/0)	
AC006T Intermediate Accounting I	4
Includes a review of accounting procedures and the reporting process. Provides in-depth analysis of cash, receivable, and inventories. Prereq: AC003T. (4/0)	
AC007T Intermediate Accounting II	4
Emphasizes investment accounting, tangible and intangible assets, and liabilities. Prereq: AC006T. (4/0)	
AC009T Intermediate Accounting III	4
Covers corporation accounting, consignment and installment sales, and income correction and statement changes. Prereq: AC007T. (4/0)	
AC010T Analyzing Financial Statements	3
Covers goals, methods, and tools of analysis; analysis of profit and loss, accounts receivable, inventories, and balance sheets; the relationship of balance sheet accounts to sales; and projected statements and cash budgets. This course could prove to be difficult to students with little background in accounting (3/0)	
AC018T Income Tax	4
Studies the federal income tax law, its purposes and development, and its significance for tax planning. Emphasis is placed on the application to the individual and the single proprietorship business. Prereq: AC001T (4/0)	
AC019T Agricultural Accounting	1-4
Appraises methods of keeping farm and farm supply business records and accounts for farm and tax management and interprets capital, credit, income accounts, production records and net worth statements. Farm income tax procedures and management are also studied. (2-4/0-4)	
AC021T Computer Applications - Accounting	4
Consists of "hands-on" applications of the microcomputer to real world accounting problems. Imparts a basic knowledge of the capabilities and limitations of existing small business computers. Prereq: DP010T; AC001T or AC001V. (2/4)	
AC005U Small Business Recordkeeping	2
Designed to help the small business person keep simple cash flow, expense, and receipt records. It also includes necessary recordkeeping for basic payroll and sales tax records. The assumption is made that students have not previously had any experience with bookkeeping or recordkeeping. (2/0)	
AC006U Management Accounting	4
Presents management's viewpoint on cost analysis, budgeting, fund flow, and statement analysis. Prereq: AC001T (4/0)	
AC007U Dental Bookkeeping	3
Covers basic principles of bookkeeping from the viewpoint of the dental	

assistant. Special attention is given to patient billing, preparing for audits, peg board accounting, use of data processing services, and tax forms. (3/0)

AC009U Accounting Problems	2
Provides the student with the opportunity to secure assistance in accounting course work and provides an opportunity for more in-depth study. Time arranged. (1/2)	
AC013U Agricultural Tax Accounting	1-3
Studies Federal and State Income Tax laws that pertain to individual and ag business enterprises. Related problems and tax forms are part of this course. (1-3/0)	
AC016U Office Accounting	4
Provides an understanding of basic accounting concepts and procedures. Includes the recording of transactions, preparation of financial statements, and payroll problems. A practice set will be completed. (4/0)	
AC018U Agribusiness Accounting	1-4
Applies principles of double entry accounting to the agricultural supply industry. Involves journalizing transactions and posting to the ledger, and preparing and analyzing financial statements. (1-4/0-4)	
AC001V Accounting Fundamentals I	5
Introduces the complete accounting cycle for personal service and merchandising enterprises. Application of fundamental principles covered in laboratory practice. (5/0)	
AC002V Accounting Fundamentals II	5
Continues Accounting Fundamentals I with further study of accounting for purchases, sales, inventory, prepaid expenses, longlived assets, and accounting for owner's equity. Prereq: AC001V (5/0)	
AC003V Accounting Fundamentals III	5
Continues Accounting Fundamentals II, with emphasis on corporate organizations and an introduction to cost accounting. Prereq: AC002V. (5/0)	
AC005V Floriculture Bookkeeping	4
Studies the basic theories of accounting concepts and procedures as they apply to the floral shop. Special attention is given to recording basic transactions, credit, payroll and banking. (4/0)	
AC006V Medical Bookkeeping	3
Covers basic principles of bookkeeping from the viewpoint of the medical assistant. Areas of study include journalizing, posting to the ledgers and taking a trial balance, and preparation of financial statement. Special attention is given to patient billing, preparing for audits, peg board accounting, use of data processing services and insurance tax forms. (2/2)	
AC008V Income Tax Procedures	3
Training in the preparation of federal and state income tax returns. (3/0)	
AF: ROTC	
AF005T Introduction to the Military	1.5
Analysis of the role of the military in American society and as an element of American foreign policy. Course includes basic history of the military establishment, organization of the Department of Defense, current defense strategy and an introduction to leadership and management models to be developed further in other courses. (1.5/0)	
AF006T Foundations of Military Organizations	1.5
A "top-down" approach to military organizations with emphasis on the U.S. Army, division level and above. Course includes basic organization of the military service, to include missions and capabilities, a general break-out of branches of the Army, officer and non-commissioned officer duties and responsibilities, and a continuation of the management/leadership instruction initiated in Introduction to the Military. (1.5/0)	
AF007T Military Strategy & Tactics	1.5
An analysis of historic military battles with respect to the principles of warfare as delineated by Causewitz. Course includes individual/group projects designed to study detailed applications of tactical concepts. Leadership techniques utilized by famous "captains" are highlighted. (1.5/0)	

- AF008T Tactical Military Analysis 1.5**
An introduction to small unit tactical military leadership responsibilities with emphasis on individual and squad-level tactics. Course leadership and management of small groups are highlighted. (1.5/0)
- AF009T Intensified Basic Military Instruction 6.0**
A composite course containing essential elements of courses Intro to the Military; Foundations of Military Organ; Military Strategy and Tactics and Tactical Military Analysis. It encompasses organization of the U.S. Army, small unit operations, history of the Army, land navigation, small unit leadership and other related subjects. The course is designed for those students who wish to enter the Army ROTC Advanced program but who are precluded by time limitations from participating in the full two-year Basic Course. (6.0/0)
- AF010T Small Group Leadership 4.5**
Introduction to organizational leadership with emphasis on unit goals and standards, performance motivation, delegation and authority, and training. Course includes preparation for and conduct of student-led classes in designated subject areas. Management/leadership instruction includes the use of case studies and organizational leadership problems. (4.5/0)
- AF011T Principles of Military Operations 4.5**
Fundamentals of military planning and preparation of operations orders with application to small units. Course includes detailed examination of the organization, functioning and communications utilized by an infantry company in a tactical environment to include defense operations, offense, retrograde, fire support and airmobile operations. The course also includes a three-day field training exercise. (4.5/0)
- AF012T Military Management and Law 4.5**
Emphasis on management and leadership in large organizations. Course includes instruction in military law and the military justice system as it applies to a new lieutenant. Instruction includes a comprehensive review of the requirements of a profession and the necessity for professional ethics. The effective management of resources and organizational behavior problems are highlighted. (4.5/0)
- AF013T Administrative Management 4.5**
Course includes a comprehensive review of management and leadership instruction as related to the models of leadership presented in the Basic Course. Administrative, logistical and management duties of junior officers are highlighted. Emphasis is placed on final preparation for commissioning, and current problems in the military and society. (4.5/0)
- AG: AGRICULTURE**
- AG001T Fundamentals of Soil Science 3**
Introduces physical, chemical and biological properties of soils, their formation, classification and distribution. Prereq: CH001T. (3/0)
- AG002T Principles of Horticulture 3-4**
Explores horticulture in daily living: plant growth, environment, propagation, cultivation, pruning, protection, harvesting, quality control and selection. Also covers home grounds development and maintenance. (3-4/0)
- AG004T Introduction to Agricultural Education 1**
Reviews the agriculture teaching profession in secondary and post-secondary schools. (1/0)
- AG005T Animal Production 4**
Focuses on basic elements of the comparative characteristics and bodily functions of farm animals, their place in animal agriculture, and the production, evaluation and marketing of their products. Includes cattle for meat and milk, horses, sheep, swine and poultry. (3-4/0-2)
- AG006T Principles of Crop Production 3**
Introduces principles of plant-soil-climate relationships in crop production. (3/0)
- AG002U Forage and Oat Production 1-3**
Involves study in the technical areas of various forages and oat production, including varieties, fertility, tillage methods and various pasture and forage management methods. (1-3/0-4)
- AG003U Agribusiness Procedures 3-4**
Reviews terminology used in agribusiness, the handling of money from sales, inventory control, customer credit control, business money management and basic double-entry bookkeeping (1-4/0-4)
- AG005U Agricultural Chemicals 3**
Relates pesticide terminology, labels, uses, cost and safety, and also covers establishing herbicide test plots. (3/0)
- AG006U Career Planning Seminar .5-2**
Assists the student in managing his or her affairs as an employee. Includes "mini-courses" on current topics and also includes planning a student's courses and activities while at Kirkwood. (.5-2/0-2)
- AG010U Park Maintenance Programs 4**
Includes development and analysis of maintenance programs for buildings, campgrounds, lake areas, and related recreational facilities. (3/2)
- AG012U Employment Experience 1-6**
Offers employment or field study arranged to give students practical, on-the-job training or similar applied experience and study. (3-216)
- AG015U Park and Recreation Administration 4**
Examines the organization and administration of park employees and related programs. Budgeting and record keeping are discussed. (3/2)
- AG016U Feed Rations 2-4**
Includes selection of ingredients, types of feeds, use of feed additives to formulate proper rations for different classes of livestock. (1-4/0-8)
- AG017U Field Crop Production 1-6**
Develops and applies understandings and abilities in crop production covering management practices, plant growth factors, seed variety, tillage and harvesting practices. (1-4/0-6)
- AG018U Wildlife Reserves 4**
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. Prereq: BY113U, BY114U, BY115U. (3/2)
- AG022U Horse Nutrition 1-6**
Includes knowledge and understandings of types of feed stuffs used to fulfill required amounts of nutrients for different types of horses used under different conditions. (1-6/1-6)
- AG026U Garden Center Operations 4**
Introduces marketing, merchandising, advertising, and business analysis as they pertain to the garden center industry. A systematic approach to garden center management is developed. (3/2)
- AG027U House Plants 4**
Studies the identification of 95 interior plants and explains their cultural requirements. Both common and botanical names are presented. (3/2)
- AG029U Landscape Construction 4**
Involves the design and construction of retaining walls, patios, and walkways. Students learn area, volume, and other calculations essential to construction. (2/4)
- AG030U Basic Landscape Drawing 4**
Presents instruction in graphic communications as utilized in landscape design formal drawings and informal sketches. Use of drafting equipment and application of drafting techniques are stressed. (2/4)
- AG031U Residential Landscape Design 4**
Studies the landscape design process and functional and aesthetic organization of space and plant materials as involved in residential landscaping. (2/4)
- AG032U Recreational Area Design 4**
Studies the design of attractive and functional facilities utilized in recreational areas. Structures, equipment and procurement procedures are discussed. (2/4)
- AG034U Commercial Landscape Design 4**
Involves preparation of landscape designs for commercial and institutional

buildings. Analyzes landscaping as a business and includes specifications, bidding, and record keeping. (2/4)

AG035U Commercial Plant Production 4

Teaches production of plants for profit. Includes growing techniques, scheduling, record keeping, and cost analysis for nursery and greenhouse businesses. (3/2)

AG036U Fruit and Vegetable Production 4

Introduces the student to the production of midwestern fruit and vegetables with emphasis on cultural practices, variety selections, and storage. (3/2)

AG039U Plant Disease and Insects 4

Studies the identification and control of pests common to horticulture plant material. Chemical, biological, and cultural controls are covered. (3/2)

AG042U Weed Identification 2-4

Includes material on identification, classification and control of mid-western broadleaf and grassy weeds. Students learn to observe many individual plant characteristics as a means of identification. Much emphasis is placed on control. (1-4/0-8)

AG044U Plant Materials I 4

Develops skills in the identification and cultural requirements of 75 varieties of deciduous trees, conifers, and shrubs native to Iowa. (3/2)

AG045U Plant Materials II 4

Studies the identification and cultural requirements of 75 ornamental trees, shrubs, and vines. Prereq: AG044U. (3/2)

AG046U Plant Materials III 4

Studies the identification and cultural requirements of 75 ornamental trees and shrubs including some of the exotics and named varieties. Prereq: AG045U. (3/2)

AG047U Herbaceous Plant Material 4

Studies the identification and cultural requirements of 25 annuals, 30 perennials, and 20 bulbous plants. Includes production and marketing practices and principles of design. (2/4)

AG048U Plant Propagation 4

Introduces student to techniques used in reproducing plants through sexual and asexual methods. Seedlings, vegetative cuttings, grafts, and buddings are practiced in the laboratory. (2/4)

AG050U Horse Production I 1-6

Apply actual feeding and care of college's light horses under a practical management situation. Certain competency tests are performed related to an efficient stable master schedule and the implementation of a schedule. (0-6/2-12)

AG051U Horse Shows Management 1-6

Identifies and applies necessary requirements to prepare and show a horse for show and includes instruction in participation of setting up and conducting a horse show. (0-6/2-12)

AG053U Soil Fertility 4

Provides a working knowledge of soils and fertilizers. This course prepares a student for making proper amendments to an existing soil as a means of improving its productivity. (1-4/0-8)

AG054U Horsemanship-Balanced Seat 1-6

Studies horse care before and after riding, initial seat position, elements of the seat, posting trot, aids, turns, leads off the cantor, equitation, and coordination of the aids. (0-6/2-12)

AG056U Soil and Water Conservation 4

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. (2/4)

AG057U Turfgrass Management 4

Considers the culture of turf with emphasis placed on establishments, turf varieties, and pest identification and control. (3/2)

AG061U Principles of Ruminant Nutrition 3

Examines the anatomy and functions of ruminant digestive system along with

discussions and demonstrations of feeding requirements and efficiencies of various classes of beef cattle. Prereq: AG150U. (2/2)

AG062U Horticulture Equipment 4

Introduces the student to basic engine theory, operation and troubleshooting. Provides a working knowledge of equipment used in the horticulture industry. (2/4)

AG063U Beef Industry 2-4

Relates an overview and introduction to the beef industry and applies methods in starting cattle on feed, husbandry practices in the beef herd, and forage harvesting. (1-4/2-8)

AG064U Beef Feed Lot Management 2-4

Relates methods of starting cattle on feed and fall management of weaned calves, including branding, castration, vaccination and dehorning, and appraises feedlot budging and fall husbandry practices for the beef cow herd. Includes off-campus laboratory assignments to reinforce class presentation. (2-4/0-4)

AG065U Applied Ruminant Nutrition 2-6

Treats the selection of feed rations for specific classes of beef cattle, based on economics of ingredients and cattle net energy requirements. Students will relate the causes and effects of various feed deficiencies and will use current ration formulation techniques, such as operating a programmable calculator. (1-6/2-12)

AG067U Sheep Production 1-3

Examines the principles of sheep breeding, reproduction, feeding, marketing, and building and equipment requirements. (1-3/0-4)

AG071U Swine Breeding and Genetics 2-4

Reviews basic livestock genetics and swine heritability, and identifies swine breeds, breeding programs, swine selection and swine record systems. (1-4/2-8)

AG072U Swine Records and Management 2-6

Identifies records needed in swine production and recordkeeping techniques. Students prepare and assess budgets, income, and expense records and cash flow as they relate to swine production. (2-6/0-12)

AG073U Swine Breeding Stock Selection 2-4

Recognizes swine reproductive characteristics and their importance, and identifies type and confirmation necessary for economic production. Breeding stock selection based on visual appraisal and performance records. (2-4/0-4)

AG075U Horse Production II 1-6

Continues application of actual feeding and care of college's light horses under a practical management situation. Certain competency tests are performed related to an efficient stable master schedule and the implementation of a schedule. (0-6/2-12)

AG079U Field Crop Planning II 3

Develops land planning skills through a simulated project of renting new property. Students use a soil survey, choose a soil fertility program, and propose a partial budget and cash flow for selected crops. Prereq: AG131U. (2/2)

AG081U Dairy Production 1-3

Examines dairy selection, breeding, housing and equipment, nutrition, herd health, and husbandry practices. (1-3/0-4)

AG088U Swine Production 1-4

Examines the fundamentals of swine production for the pork producer to enable improvement of the breeding, feeding and management of his or her swine enterprise. Includes basic skills and new research ideas that will be beneficial to both the new and experienced pork producer. (1-4/0-4)

AG089U Agricultural Fertilizers 2-4

Students will examine the studies of agricultural fertilizers that are being used today on field crops, and will observe the different types of fertilizer and the different application methods. (1-3/0-6)

AG092U Beef Breeding and Reproduction 2-6

Covers applied breeding of beef cattle including evaluation of breeding

animals and developing breeding programs, and discusses tissue development of beef cattle and appraisal of performance data. (1-6/2-12)

AG094U Grain Marketing (Futures) 1-3

Develops skills and knowledge in Futures Marketing concerning grain commodities, with emphasis on pricing and services performed in the marketing system. (1-3/0)

AG103U Agricultural Finance 1-4

Identifies credit sources in agriculture-where and how to secure credit, interest rates and repayment capacities for maximum farm income. (1-4/0-4)

AG108U Shop Facilities and Equipment 2-3

Concentrates on the maintenance of physical plant and grounds of the farm equipment dealership in the areas of general carpentry, plumbing, electrical wiring and electric motors. (1-2/2-4)

AG109U Agricultural Power Unit Operation .5-12

Designed to familiarize student with KCC farm lab equipment. Students required to demonstrate working proficiency with tractors, skid steer loader spreader and livestock trailers. (.25-6/.5-12)

AG110U Business Record Systems 2-6

Includes assessing and using requisitions, purchase orders, invoices, balance sheets, and other records and forms necessary in the operation of a farm supply business. Students use several agribusiness record systems. Applied record instruction is given during the operation of the Kirkwood Ag. Service Center. (0-6/1-10)

AG111U Agricultural Service Center Retailing 2-6

Includes interpreting and processing customer requests in a courteous and businesslike manner while operating the Kirkwood Ag. Service Center. Demonstrates finding the customer's need, product knowledge, closing the sale, and handling customer objections. Also includes cash register operations and completing sales records. (0-6/1-10)

AG114U Crop Production Orientation 3

Determines acreage and location of Kirkwood's fields and test plots, plus estimation of grain and forage yields, and comparison of grain grading and marketing procedures. (2/2)

AG115U Corn Production 2

Studies and compares different types of tillage methods, seed varieties, fertilizer programs, diseases and chemical application used in modern corn production. (1-4/0-4)

AG116U Crop Enterprise, Spring 1-6

Identifies and compares different tillage methods of establishing forage and oats. In addition, the course looks at seed variety, seed rates and depths of planting, inoculation of seed, and steps in forage improvement and renovation of pastures. (0-6/2-12)

AG131U Field Crop Planning I 2-6

Analyzes Kirkwood crop production records. Students develop a crop marketing plan and evaluate the Kirkwood farm lab machinery inventory and needs. Students also attend several industry-sponsored events, such as the Agriculture Fertilizer and Chemical Dealer's Conference. (1-6/2-12)

AG137U Grain Grading and Seed Analysis 2-4

Studies principles and practices used in grading grain, including the official United States standards for grain and those factors which influence the quality of grain. (1-3/0-6)

AG150U Livestock Nutrition 2-4

Course deals with basic feeds and feeding of swine and beef cattle. Class is intended for beginning students. (1-4/0-4)

AG152U Land Use and Conservation 3

Studies conservation practices, such as terraces, contours and rotations in production agriculture. The course also studies soil types and their capacity to produce field crops. (2/2)

AG157U Inventory Control Procedures 2-6

Relates inventory control procedures, using the mini-computer and the visi-records. Reviews merchandise pick up and delivery; physical and perpetual

inventory and warehousing. Students apply inventory practices while operating the Kirkwood Ag. Service Center. (0-6/1-10)

AG159U Swine Nutrition and Feeding 2-4

Covers swine ration formulation, feed techniques and feed manufacturing. Treats the selection of feed rations for specific classes and ages of swine. (2-4/0-4)

AG179U Advanced Evaluation and Selection 2-4

Further develops students' potential in judging of livestock. Farm laboratory livestock and livestock farms will serve as a means for applying classroom knowledge. Students will also apply knowledge in various field trips to livestock exhibitions to judge and give reasons for their judgement. The course may be repeated for credit with instructor's consent. Prerequisite: AG230U. (0-4/0-8)

AG200U Animal Health Products 2-4

Concentrates on products used to control diseases and parasites in animals. This course deals with product recommendations, basic principles of disease prevention and control, and effect of weather and environment on disease and disease symptoms. (1-4/0-4)

AG201U Horse Physiology and Hoof Care 1-6

Discusses and identifies the conformation of the horse, the respiratory, digestive, nervous and circulatory systems, plus skeletal and muscle structure. Also provides instruction on the care and condition of horses' legs and feet. (0-6/2-12)

AG203 Horsemanship 1-6

Continues Horsemanship, Fall, with emphasis placed on advanced riding styles and techniques. (0-3/2-6)

AG204U Horse Breeding 1-6

Covers the physiology of breeding, brood mare selection and care, and stallion management. Also breeding techniques, including artificial insemination. (0-6/2-12)

AG205U Farmstead Planning and Mechanization 3

Includes the principles of farmstead planning and arrangement, particularly toward site selection, traffic and predominant selection factors. Emphasis will be placed on distance from water and other services. (2/2)

AG206U Greenhouse Practices 4

Studies growing techniques used in commercial greenhouse plant production. Involves the design of greenhouses, their environmental control systems and cultural practices. (3/2)

AG207U Agricultural Service Center Management 2-6

Covers job descriptions, housekeeping procedures, customer and employee communication guidelines, and other management procedures for a Farm Supply Center. Emphasis is placed on each student's aptitude in completing all job station assignments while operating the Kirkwood Ag. Supply Center. (0-6/1-10)

AG210U Fundamentals of Horse Training 1-6

Provides instructions for obtaining the abilities and skills of training various breeds and types of horses. (0-6/2-12)

AG211U Horse Judging Competition 1-6

Provides instruction in judging an intercollegiate horse judging contest. Students apply knowledge by competing in various intercollegiate horse judging contests. Students justify their placing by giving oral reasons in workout and official judging contests. Prereq: AG327U, AG325U, AG324U. (0-5/0-8)

AG212U Stable Management, Fall 1-6

Designed to provide understanding and abilities in the organization, business aspects, and operation of horse stables. Areas of study include records, care and health of horses in the management of stables. (0-6/2-12)

AG213U Livestock Marketing 1-6

Analyzes livestock marketing procedures including types of markets, prices, marketing costs, grading, consumer demand, marketing regulations, and terminology. (0-6/2-12)

AG215U Farm Machinery Management 3
Examines the matching of proper size farm tillage equipment to farm acreage. Includes fuel usage, calculation of field efficiencies, matching equipment to power and replacement. (2/2)

AG216U Stable Management 1-6
Relates stable facilities, equipment, records, and money management. (0-6/2-12)

AG218U Special Projects: Agronomy 1-6
Includes an agreed to development plan for an applied problem solution. Students and instructor meet on a weekly preplanned schedule for discussion, observation, and evaluation of the project development. (0-6/2-12)

AG219U Special Projects: Animal Science 1-6
Includes an agreed to development plan for an applied problem solution. Students and instructor meet on a weekly preplanned schedule for discussion, observation, and evaluation of the project development. (0-6/2-12)

AG220U Special Projects: Horse Science 1-6
Includes an agreed to development plan for an applied problem solution. Students and instructor meet on a weekly preplanned schedule for discussion, observation, and evaluation of the project development. (0-6/2-12)

AG221U Special Projects: Agribusiness 1-9
Includes an agreed to development plan for an applied problem solution. Students and instructor meet on a weekly preplanned schedule for discussion, observation, and evaluation of the project development. (0-6/0-6)

AG222U Special Projects: Horticulture 1-6
Involves individualized study programs or projects supervised by instructional staff. Students resolve special interests/needs through research, experimentation, or other related methods. (0/2-12)

AG223U Principles of Farrier Science 1-6
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. (0-6/0-12)

AG228U Training Management 1-6
Provides instruction in management of the specialized training of various breeds and types of horses. Prereq: AG210U. (0-6/2-12)

AG229U Extended Horsemanship Techniques 1-6
Continues Horsemanship with emphasis on riding styles with basic principles and fundamentals in schooling. (0-6/2-12)

AG230U Livestock Evaluation and Selection 1-4
Relates the selection of meat animals based on their physical appearance. Students describe the parts of the animal, terminology and reasons for selection. Also reviews livestock production efficiency standards. (1-4/0-4)

AG231U Pet Grooming 2-5
Students acquire basic skills necessary for entry-level employment. Various breeds and types of animals are used; emphasis on poodle, schnauzer, and small, mixed breed dogs. Recordkeeping, state laws, customer relations and problem solving as related to the pet grooming industry are covered. (0-4/1-5)

AG233U Swine Facilities and Equipment 2-4
Identifies and evaluates swine production facilities and equipment. Also included is a discussion of basic heating, ventilation and manure-handling systems. (2-4/0-4)

AG234U Small Animal Behavior 1-6
Studies dog and cats' nervous mechanism, including senses, reflexes and conditioned reflexes, instincts, needs, drives, hormones, and their effect on behavior. The course also studies how small animals learn and how to condition small animals for training. Students must provide a dog for obedience training. (1-6/0-6)

AG235U Small Animal Health 1-6
Includes state and federal laws regarding dogs and cats; anatomy and physiology, causes and preventions of common dog and cat diseases;

veterinarian relationships; and determination of pulse, respiration, and temperature. (0-6/0-12)

AG236U Kennel Management 1-6
Small animal observation techniques, nutrition, grooming and conditioning are areas of study. Also covers small animal health terms, and budgeting and records. (0-6/0-12)

AG237U Special Projects-Animal Health 1,2,3,4,5,6,9
Includes an agreed to development plan for an applied problem solution. Students and instructor meet on a weekly preplanned schedule for discussion, observation, and evaluation of the project development. (1-4/2-18)

AG239U Horse Industry Problems 1-12
A supervised, independent study course. The student, in consultation with the instructor, designs the horse industry competencies to be learned. Students generally attain these competencies off-campus in various horse industry businesses. Prereq: approval of coordinator and/or department head. (0/2-24)

AG249U Beef and Dairy Cattle Artificial Insemination 2
Develops skills of artificial insemination, heat detection and supportive background knowledge for beef and dairy herds, and discusses recommended nutrition, management and genetics. (1/2)

AG250U Beef Cow/Calf Production 2-4
Covers participation in calving, including proper nutrition, health, husbandry and solving O.B. problems. Also includes records, identification, and a review of pasture management. Involves off-campus lab assignments. (2-4/0-6)

AG251U Soybean Production 1-3
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 soybean production. (1-3/0-8)

AG252U Plant Material Maintenance 4
Studies pruning, fertilizing, staking, and other maintenance practices utilized in tree and shrub care. Emphasis is placed on proper planting and transplanting procedures. (2/4)

AG254U Grounds Management Problems 4
Analyzes grounds maintenance needs and management problems for recreational and commercial grounds. The campus laboratory is utilized as a study project. (2/4)

AG263U Agricultural Career Orientation .5-2
Joins all first-year Agricultural Technologies Department students for the purpose of further understanding their present or pending career choices. Most career information presented is related to Kirkwood Community College. (.5-2/0-2)

AG266U Agricultural Leadership 1-3
Develops skills in using parliamentary procedure, business meeting agendas, techniques of delegation, communications module, organizational structure and listening skills. Determining cooperative activities, organizational funding, committee functions and leading discussion groups. (1-2/0-2)

AG268U Interior Plants 1-3
Identifies commonly grown houseplants and their cultural requirements. Includes propagation techniques. (1-3/0-4)

AG269U Greenhouse Production 1-3
Studies the growing of bedding and potted plants in the greenhouse environment. Factors that effect profit and loss are stressed. (1-3/0-4)

AG271U Swine Diseases Seminar 1-3
Relates causes and prevention of swine diseases of economic importance in Iowa and swine diseases of current importance. Current state and federal health regulations are also covered. This course is generally taught by a veterinarian. (1-3/0)

AG272U Horse Breeds 1-4
Recognizes the major and minor horse breeds and their uses. Students identify the different breeds as to their breed characteristics, origins and capabilities, type and conformation. (1-4/0-4)

- AG274U Horticulture Pesticide Application 1-3**
Involves herbicides, insecticides, and fungicides used to prevent and/or correct problems associated with plant growth. (1-3/0-4)
- AG276U Residential Planting Design 1-3**
Studies native and ornamental trees and shrubs. Involves basic drawing and design principles. (1-3/0-4)
- AG277U Native Trees and Shrubs 1-3**
Focuses on identifying native trees and shrubs of Iowa. Cultural requirements are stressed. (1-3/0-4)
- AG278U Ornamental Trees and Shrubs 1-3**
Involves the identification and cultural requirements of woody plant material commonly used in landscape plantings. (1-3/0-4)
- AG279U Rural Facilities Maintenance 1-3**
Compares principles and economics of farm and farm supply building construction. Emphasis on planning and maintenance. (1-4/0)
- AG280U Horse Diseases Seminar 1-2**
Relates causes and prevention of horse diseases of economic importance in Iowa and horse diseases of current importance. Current state and federal health regulations are described. This course is generally taught by a veterinarian. (1-2/0)
- AG282U Agricultural Service Center Operations 1-12**
Affords students an opportunity to work at their individual pace in the Kirkwood Ag Service Center, a supply-type store run within the Agribusiness and Natural Resources Department. Students may take the appropriate number of credits to meet their personal career needs. Students will spend 24 hours per credit hour taken working in the store. (1-12/2-24)
- AG284U Crop Harvesting and Drying 3**
Prepares students to operate the Kirkwood graindrying system. Students will also describe corndrying systems and determine grain shrink, assess harvest losses, corn and soybean yields, and adjust crops to moisture percent. (2/2)
- AG289U Horse Project 2-6**
Includes an agreed to development plan for an applied problem solution. Students and instructor meet on a weekly preplanned schedule for discussion, observation, and evaluation of the project development. (1-3/2-12)
- AG290U Orientation to Horse Production 1-12**
Relates basic information on horse production and identifies basic horse terminology and horse industry happenings. The course also describes basic approved practices in horse nutrition, health, stable operations, breeds and selection, and is designed for the student with little or no experience with horses. (1-12/2-12)
- AG291U Agricultural Education Placement 1-4**
Assists students in planning their total course selection in the Agribusiness and Natural Resources Department. Assesses the student's past education and work experience, technical agriculture competence, and general education abilities. (1-4/2-4)
- AG293U Orientation to the Animal Health Industry 2-5**
Includes an agreed to development plan for an applied problem solution. Students and instructor meet on a weekly preplanned schedule for discussion, observation, and evaluation of the project development. (2/2-10)
- AG294U Laboratory Techniques - Animal Health 1-4**
Practices common livestock laboratory procedures. Some examples are: identify worms and worm eggs in animal feces using a microscope; examine blood microscopically to identify blood parasites; collect a blood sample and perform blood cell counts; and prepare aerobic and anaerobic bacteria cultures. Prereq: BY030T or equivalent. (0-4/0-8)
- AG295U Beef Husbandry 4**
Provides the basic principles of raising beef at different stages. Identifies the breeds and selecting breeding and feeder stock. Students develop basic fundamental skills in handling and working with beef operations. (3/2)
- AG296U Swine Husbandry 4**
Provides the basic principles of raising swine at different stages. Identifies the breeds and selecting breeding stock. Students develop basic fundamental skills in handling and working with basic swine operations. (3/2)
- AG297U Horse Husbandry 4**
Provides the basic information about occupational opportunities and principles of horse selection. The student studies and applies horse care and basic riding principles. (3/2)
- AG298U Basic Soils 4**
Introduces the student to the basic soil terms and principles of soil. The student applies the soil factors in determining soil tests. (3/2)
- AG299U Agricultural Careers 4**
Provides the student information about careers that are farm oriented positions. The student examines each farm position carefully. Student becomes familiar with basic guidance procedures in getting a job. (3/2)
- AG300U Animal Feeding 4**
Studies the basic principles of animal feeding in the animal species; beef, horse, and swine. Determines the nutrient requirements for all species and their different stages of growth. (3/2)
- AG301U Basic Small Grain Principles 4**
Studies the various areas in small grains including forages and oats production. Covers the basic principles of producing small grains. (3/2)
- AG302U Basic Corn Principles 4**
Provides the basic information about growing corn by analyzing the different methods used for having a successful corn crop, such as comparing seed varieties, tillage methods and crop fertilizer and chemical programs. (3/2)
- AG303U Machinery Operations 4**
Involves participation in operating and maintaining different types of farm machinery. The student operates farm tractors, planting, and tillage equipment. (3/2)
- AG304U Basic Soybean Principles 4**
Provides the basic information about growing soybeans by analyzing the different methods used for having a successful soybean crop. Compares seed varieties, tillage methods, and chemical programs. (3/2)
- AG305U Soil Conservation 4**
Provides an overview of Iowa's soil resources and analyzes various erosion threats. Students learn surveying techniques, native prairie grass establishments techniques and related items. (3/2)
- AG306U Plant Material Production 4**
Involves greenhouse growing techniques, house plant identification and care and basic plant production methods. (3/2)
- AG307U Horticulture Practices 4**
Acquaints students with outdoor horticultural activities such as Iowa wildflower identification, landscape construction, and fruit and vegetable production activities. Emphasis is placed on laboratory activities. (3/2)
- AG308U Park Practices 4**
Presents a variety of subjects intended for the preparation of parks and recreation employees. Includes wild plant identification and basic maintenance skills. (3/2)
- AG309U Natural Resources Appreciation 4**
Surveys the non-living natural resources of Iowa. Examines how park and recreation agencies integrate these resources into their overall programs. (3/2)
- AG310U Golf Course Maintenance 4**
Involves actual supervised experience on local golf course with related technical information presented weekly. Emphasis is placed on fall maintenance and renovation practices. (1/6)
- AG311U Employment Practicum 1-6**
Offers employment arranged to give students 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. The student is *not* paid during employment. Prereq: a student must have completed one quarter of animal health courses prior to enrollment. (0-2/0-6)

- AG312U Advanced Futures Marketing 2-4**
Covers advanced information on the futures marketing system from a hedging standpoint. In addition, forward contracting as a price protection for farm commodities is explained. (2-4/0-4)
- AG313U Crop Monitoring/Scouting Techniques 1-3**
Develops crop observation techniques and identifies symptoms of insect damage, weed and herbicide problems. Utilizes the concept of economic threshold in recommending control rescues. (1-3/0-6)
- AG314U Agricultural Organization/Relationships 3**
This course relates job scheduling, employer psychology, stress management, values clarifying, entrepreneurship, and job communications. These areas of study are applied to the job situation. Case studies and practical applications are used. (2/2)
- AG315U Influencing American Agriculture 2-3**
Identifies the purposes of specific rural organizations and political groups. Relates methods of influencing these organizations and their impact on American agriculture. (1-3/0-4)
- AG316U Chauffeur's Licensure 1**
Students obtain their chauffeur's licenses at the completion of this course. (0-1/0-2)
- AG317U The Care and Understanding of the Equine Leg 1-3**
Provides instruction on the care and condition of the horse's legs and hooves. (1-3/2-6)
- AG318U Special Projects-Horse Nutrition 1-6**
Designed as a self-planned, individualized instruction course for student work in the area of equine nutrition under the evaluation of an instructor. (0-6/2-12)
- AG319U Special Projects-Equine Job Shadow 1-6**
Employs planned project work in an individual area of the horse industry by observation and/or participation on a limited basis. (0-6/2-12)
- AG320U Special Projects-Horse Sale 1-3**
Designed as a self-planned, individualized instruction course for students working in the area of equine horse sales under the evaluation of an instructor. (1-3/2-6)
- AG321U Principles of Training 1-3**
Demonstrates training principles utilizing guest trainers and field trips to training stables. Prereq: AG210U. (1-3/2-6)
- AG322U Computer Applications-Agriculture 1-6**
Designed for students in the AAS program who will be required by job description to have practical knowledge in writing programs and analyzing records. Heavy emphasis is placed on ability to interpret results from enterprise analysis, efficiency, and financial programs. The students learn to modify programs to meet specific criteria and write programs that will meet the needs of a specific area. Prereq: DP010T. (1-6/2-12)
- AG323U Equine Facility Maintenance 2-4**
Designed as a basic maintenance course related to equine facilities. Includes repair and upkeep of stables and related structures, wiring, and water supply. (0-4/0-8)
- AG324U Advanced Horse Judging 1-3**
Further develops students' potential in judging of horses. Farm laboratory horses and horse farms serve as a means for applying classroom knowledge. Students are required to give oral reasons to justify their live placing decisions. (1-3/2-6)
- AG325U Basic Horse Judging 1-3**
Provides instruction in the different parts of a horse and a basic introduction to the different breeds and their correlating conformation. (1-3/2-6)
- AG326U Western Horsemanship 1-6**
Provides applied instruction in developing the western rider and horse. Balanced seat approach is stressed with rider's role in controlling action and movement of the horse. (0-6/1-12)
- AG327U Introduction to Horse Judging 1-3**
A basic introductory course that provides the student with the foundation to become more familiar with horse judging such as parts and conformation of the horse. (1-3/2-6)
- AG328U Advanced Western Horsemanship 1-6**
Continues application of instruction in developing the western rider and horse. Balanced seat approach is stressed with rider's role in controlling action and movement of the horse. (0-6/1-12)
- AG329U Special Projects-Professional Horse Judging 1-3**
Provides instruction to students on how to judge professionally in local and approved horse shows. Students actually judge horse show as professional and amateur judges. (1-3/2-6)
- AG330U Park Planting Design 4**
Studies the landscape design process as it pertains to parks and recreational areas. Functional and aesthetic organization of space and plant materials is explained. (2/4)
- AG331U Swine Farrowing and Nursery Management 2-4**
Involves students in actual care and operation of farrowing and weaning facilities. Also develops skills in parturition and infant pig care and management. Develops skills in farrowing-nursery records and analysis. (2-4/0-4)
- AG332U Swine Production and Marketing 2-4**
Explores various swine marketing opportunities and practices and develops management skills in production of and management of finishing market swine. (2-4/0-4)
- AG333U Swine Enterprise Management 2-4**
Assists students in preparation of budgets, income and expense records, and cash flow as they relate to swine production. Explores management techniques related to the above practices. (2-4/0-4)
- AG334U Swine Reproduction and Management 2-4**
Discusses reproductive function of male and female breeding stock, breeding programs, breeding systems including artificial insemination and appropriate management techniques. (2-4/0-4)
- AG335U Swine Health Programs 2-4**
Course deals with swine health management from a prevention as well as a clinical approach. (2-4/0-4)
- AG336U Beef Enterprise Planning 2-4**
Combines the skills of previous management courses into developing an entire financial and production system for a total farming operation; involves some work with various data processing equipment. Prereq: AG337U. (2-4/0-4)
- AG337U Beef Science Management 2-4**
Develops students' decision-making abilities in financial cash flow, budgeting analysis of beef enterprises with an emphasis on genetics. Involves some work with various data processing equipment. Includes off-campus laboratory assignments. Prereq: 6 cr. hrs. of beef production courses. (2-4/0-4)
- AG338U Alternate Farm Energy Systems 3**
Explores heating, ventilation, waste handling and other farm production support functions with the idea of increased economic and environmental protective efficiency. (2/2)
- AG339U Farm Land Acquisition 1-4**
Relates farm appraisal methods, financial leverage, and methods of financing and purchasing a farm. (1-4/0-4)
- AG340U Swine Orientation 1**
Introduces students to their career choices and develops a course of study to reach their goals. (1/0)
- AG341U Livestock Anatomy and Physiology 3**
Deals with anatomy and physiology of farm livestock. Includes the study of animal hormonal control; nervous, skeletal, muscular, and cardiovascular systems. (2/2)

- AG342U Agricultural Genetics 3**
Deals with biology of heredity as it relates to farm livestock and crops, especially the study of mechanisms of heredity transmission and variation of organismal characteristics. (2/2)
- AG343U Beef Orientation 1**
Assists the beef major student in planning courses and activities while at Kirkwood. Develops an appreciation and understanding of the beef industry. (1/0)
- AG344U Swine Facility Management 3**
Prepares swine production students to understand, evaluate, and properly plan for efficient operation of a swine production facility complex. Includes flow management for feed, waste, and animals. Includes understanding of complex support systems such as electrical, ventilation, heating, and waste handling. (2/2)
- AG345U Crop Orientation 1**
Introduces students to their career choices and develops a program of study to reach their goals. (1/0)
- AG013V Plant Identification and Care 3**
Studies identification and cultural requirements of green, flowering, and bedding plants commonly sold in the retail flower shop. (3/0)
- AG014V Plant Growth 3**
Studies the environmental factors of light intensity, temperature, moisture, and aeration needed to produce optimum growth. Sexual and asexual propagation, bulb and root growth, chemicals, and bedding plant production and sales are also covered. (2/2)
- AG016V Floriculture Seminar 1**
Introduces the student 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 which is managed by the students. (1/0)
- AG017V Basics of Plant Growth 3**
Introduces plant parts and explains their functions. Sexual and asexual propagation are explained as well as soils and plant nutrition. (3/0)
- AG018V Diagnosing Plant Disorders 2**
Introduces plant disorders caused by environmental, soil, nutrient, disease and insect problems. Use of chemicals is presented as well as the relevant safety factors involved. (2/0)
- AM: ADMINISTRATION AND MANAGEMENT**
- AM001T Agricultural Finance 3**
Reflects the rapid growth of the off-farm agribusiness sectors and emphasizes general principles associated with the evaluation of management and the use of capital. An understanding of agricultural finance should help the banker in satisfying the credit needs of modern agriculture. (3/0)
- AM002T Principles of Finance 3**
Includes basic methods and principles concerning such topics as financing, working capital and fixed capital needs, stocks and bonds, the marketing of securities and the operation of financial institutions. Recommended: Principles of Accounting III. (3/0)
- AM003T Business Internship 1-12**
Provides an opportunity to receive practical experience through on-the-job training in an approved business establishment. Valuable learning experiences are structured by the program coordinator and the training sponsor. (0/3-36)
- AM005T Introduction to Management 4**
Covers basic concepts, behavior, practices and principles applied to the functions of planning, organizing and controlling the business enterprise. The course will include readings of leading management theorists. Prereq: Sophomore standing. (4/0)
- AM029T Bank Management 3**
Presents new trends which have emerged in the philosophy and practice of management. The study and application of the principles outlined provide new and experienced bankers with a working knowledge of bank management. (3/0)
- AM030T Installment Credit 3**
Presents the techniques of installment lending. Emphasis is placed on establishing the credit, obtaining and checking information, servicing the loan, and collecting the amounts due. Each phase of a bank's installment credit operation is carefully scrutinized. Other topics discussed are inventory financing, special loan programs, business development and advertising, and the public relations aspect of installment lending. (3/0)
- AM031T Supervision and Personnel Administration 3**
Is designed to enable students to understand human relations at the management level and the methods of getting things done through people. Basic principles and current practices of personnel administration are studied. (3/0)
- AM032T Introduction to Business 4**
Surveys American business and the environment in which it operates; a study of the economic, social, and political influences, and business organization functions and responsibilities. (4/0)
- AM080T Bank Investments 3**
Analyzes the nature of primary reserves and loanable funds and how their uses are determined. (3/0)
- AM081T Personal Finance 3**
Approaches the financial problems of families. Explores decision making relative to acquiring and allocating income. Focuses on management of consumer credit, savings and investment, insurance, home ownership and estate planning. (3/0)
- AM082T Law and Banking 3**
Introduces basic American law, presenting the rules of law which 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)
- AM083T Elements of Farm Management 3-4**
Applies farm accounts, economic principles and budgeting to the organization and management of a farm business including risk and uncertainty, precautions and adjustments, size of business, capital acquisition and control, as well as crop, livestock, machinery and labor management considerations. (3-4/0)
- AM084T Bank Cards 3**
Presents an overview of the bank card industry with the dual objectives of helping the student understand the role of the bank card in the economy as well as the basic operational problems involved in the successful management of a bank card plan. This course also discusses the evolution of credit cards into electronic funds transfer, legal developments affecting credit cards, and the regulatory environment. (3/0)
- AM086T Business and Society 4**
Examines the role of business as world society's institution for creating the goods and services which fulfill society's needs. It examines at length the two major inducement systems of business formation and operation; i.e., government systems and profit systems. Students taking the course will get involved in political, cultural and economic variables of world societies as these variables are related to the function of business in creating goods and services. (4/0)
- AM087T Credit Administration 3**
This course, directed toward the executive level, concerns itself with factors influencing and determining loan policy. It is not a "how" and "whether to" guide to grant credit, but a discussion of methods of credit investigation and analysis, credit techniques, specific credit problems, and regular as well as unusual types of loans. (3/0)

- AM088T International Banking 3**
International Banking is an overview introduction to a vast field for those working in international departments as well as for those involved in the domestic activities of their banks. The essential objective of the course is to present the basic framework and fundamentals of international banking: how money is transferred from one country to another, how trade is financed, and other topics. (3/0)
- AM089T Negotiations 3**
Describes techniques of negotiation, organization and operation of the procurement team, and the preparation and conduct of negotiations of contracts and contract modifications by the team concept. Mock negotiations are conducted by the class using case studies. (3/0)
- AM090T Cost and Price Analysis 3**
Covers basic concepts in the analysis of contract pricing for initial awards, changes and terminations by cost and price analysis techniques; cost estimating; pricing arrangements by contract type; analysis of direct and indirect costs; mathematical, statistical, and other quantitative analysis pricing techniques; weighted guidelines and return on investment profit objectives; cost principles and accounting standards; and preparation for negotiation. (3/0)
- AM091T Federal Regulation of Banking 3**
Provides a comprehensive treatment of the "why" and "what" of federal bank supervision. Some of the topics covered are agencies regulating banks, bank charters, bank reports, and examinations. Emphasis is on supervision rather than the role of the federal government as it directly influences the operations of banks. (3/0)
- AM092T 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)
- AM093T Branch Management Program-Series I 3**
Designed to present a comprehensive overview of the branch function and the manager's role in its operation. Separate modules on branch operations and the branch lending function provide a complete introduction to the functional aspects of the branch management position. (3/0)
- AM094T Management Fundamentals 3**
Introduces students to the skills and techniques that all managers need, whether they work in banking or in other types of businesses. The text focuses on the basic management functions of planning, organizing, staffing, leading, and controlling, and it discusses a variety of management theories and approaches. (3/0)
- AM095T Inside Commercial Banking 3**
An advanced introduction to the banking system, this course provides a topical look at the changing role of banks. Emphasis is conceptual rather than operational. Designed to familiarize the student with the broader issues facing the banking industry, it includes changes necessitated by technological advances, recent legislation, and new approaches to global banking. (3/0)
- AM096T Corporate Banking 3**
A common sense approach to understanding the lending environment within a bank, this course provides the new or less-experienced commercial lender with a firm grasp of the sequential nature of the lending process, giving bankers a solid foundation on which to construct sound lending practices. Emphasis is practical and technical rather than theoretical. (3/0)
- AM800T Independent Study in Business 1-4**
Taken concurrently with a standard course in the student's area of speciality. 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 quarter in which the work is to be done. Prereq: Consent of instructor and department head before registering. (1-4/0)
- AM001U Merchandise Analysis and Control 3**
Deals with techniques and procedures of determining profits, pricing of goods, inventories and merchandise control. Some of the problems faced by merchandisers are presented, analyzed and solved. Prereq: Basic Mathematics. (3/0)
- AM003U Business Practices 3**
Covers common practices and procedures involved with the daily business operations in the vehicular mechanics' industry. Included are employee productivity/relations, inventory control, warranties, service procedures, and the legal ramifications of negligence, liability, torts, artisan's liens, as applied to mechanics performing service functions and dealing with the public. (3/0)
- AM004U Agricultural Foremanship 2-4**
Designed to provide students with the opportunity to study and apply skills of supervision and personnel management in agribusiness. Projects will be developed according to the student's enterprise. Management techniques will be stressed. (1-4/0-4)
- AM005U Front End Management 3**
Teaches proper cash register operation and checkout procedures for the modern supermarket. Emphasis is placed on checker training, supervision, and control of the checkout function. (3/0)
- AM012U Food Store Management 5**
Offers a comprehensive study of problem areas encountered in food marketing management. Policies and procedures in retail and wholesale food distribution are considered, and decision making or problem solving is explored through the use of case problems situations. (5/0)
- AM019U Office Administration 3-4**
Students develop knowledge and competencies in several functions of office administration, including file automation; the organization, structure, and planning of office work; controlling office work activities; office forms, procedures, and policies; and maintenance of a conducive working environment. Students may earn the fourth credit by completing a related project. (3/0-2)
- AM020U Retail Management 4**
Studies managerial principles as they apply to retailing and analyzes the functions of planning, organizing and controlling in relationship to managerial policy and human relations. Decision-making skills are developed. Prereq: Sophomore standing. (4/0)
- AM022U Principles of Supervision 3-4**
Introduces the functions of management: planning, organizing, staffing, directing, and controlling. The aspects of technical, conceptual, and human skills are reviewed with the perspective of gaining a beginning understanding of the many characteristics, skills and responsibilities of a mature supervisor. (3-4/0)
- AM023U Management and Medical Ethics 3**
Provides an introduction to supervisory techniques, interviewing for jobs, budgeting, services, methods for making change, job descriptions, defining roles and organization. Includes ethical practices, relationship between ethics and law, legal processes, malpractice. PSRO's and liability. (3/0)
- AM025U Introduction to Agricultural Business 3-4**
Describes the farm supply business organization, personnel policies, insurance, income and expense budgets. Field trips are a major part of this course. (2-4/0-4)
- AM029U Wage and Salary Administration 2**
Designed to provide a rational approach to the various elements of a compensation program: job description, job evaluations, salary surveys and administration policies. (1-2/0-2)
- AM031U Management Information Systems 3**
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. (3/0)
- AM032U Production Quality Control 3**
Covers the principles and techniques of effective quality control systems in the office and in production. Sampling techniques and methods of determining specifications and tolerances are practiced during the course. (3/0)
- AM033U Dental Office Management I 3**
Provides instruction for the student relative to dental business office management, traffic flow in office design, appointment control, office policies, job in-

interviews, ethical conduct and proper terminology used in office procedures. (3/0)

AM034U Dental Office Management II 3

Provides instruction for the student relative to dental business office management, handling mail, supplies, invoices, filing and storage, case management, financial arrangements and taxes. (3/0)

AM035U Introduction to Industrial Engineering 2

Considers management uses of industrial engineering techniques to plan, control and evaluate manufacturing projects. Also covers appropriation control, scheduling networks and economic lot sizes. (2/0)

AM036U Traffic and Transportation I 3

Examines the history of transportation. Provides an introduction to classification of freight and the principles of freight rates and tariffs. (3/0)

AM037U Traffic and Transportation II 3

Covers shipping documents and their applications, freight claims, tariff circulars, construction and filing of tariffs. Also introduces freight rates and tariffs in practical application. Prereq: AM036U. (3/0)

AM038U Traffic and Transportation III 3

Continues study in freight rates and tariffs, terminal facilities and switching, demurrage, reconsignment, stop-off, transit, routing, warehousing and distribution, materials handling and packaging. Prereq: AM037U. (3/0)

AM039U Traffic and Transportation IV 3

Covers rates, import-export rates and procedures, further in-depth study of rates and routes, milling-in-transit, loss and damage, overcharges and undercharges. Prereq: AM038U. (3/0)

AM040U Traffic and Transportation V 3

Reviews classification and rate committee procedures, tariff and rate interpretations, and provides an introduction to the Interstate Commerce Act. Prereq: AM039U. (3/0)

AM041U Traffic and Transportation VI 3

Studies the Interstate Commerce Act and other acts pertaining to transportation, plus the rules of practice before the Interstate Commerce Commission. Prereq: AM040U. (3/0)

AM042U Decision Making 3

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 synectics approach to problem solving. (3/0)

AM044U Work Simplification 1

Designed for everyone in business, industry and education interested in the philosophy of work simplification. (.5-1/0-1)

AM047U Principles of Personnel Management 4

Includes managerial philosophy of personnel administration, emphasizing study of the personnel functions of recruiting, interviewing, selecting, placement, training, and evaluating. (4/0)

AM048U General Production and Inventory Control 3

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. (3/0)

AM049U Labor Relations 4

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 that occurs in live bargaining. Issues in the maintenance of union-free working environments are also discussed. (4/0)

AM050U Results Oriented Management (MBO) 3

Students compare managerial philosophies of task and people orientation and develop a goal-oriented strategy to satisfy both philosophies. The Management by Objectives approach is stressed in classroom projects, case studies, and exercises. Several other approaches are also examined in the perspective of anticipated results the approach would achieve. (3/0)

AM051U Principles of Safety 4

OSHA safety standards for offices, public buildings, and industrial plants are compared. Students are trained to conduct their own inspections and to develop safety plans and programs. Certified cardio-pulmonary resuscitation (CPR) training is provided as well as a fire safety demonstration. (4/0)

AM052U Food Service Management I 4

Provides experiences in mid-management supervisory skills. Studies food service promotions and advertising, employment policies and procedures, scheduling, and other related management studies. (0/8)

AM053U Food Service Management II 4

Continues study of mid-management supervisory skills. Studies include meal/menu planning, buying, receiving, office accounting procedures, and cost control techniques. Prereq: AM052U. (0/8)

AM054U Public Administration 3

Designed to give the student a basic understanding of principles and concepts underlying the generic field of public administration in federal, state and local government; line-staff, plan of control responsibility, accountability. (3/0)

AM055U Current Topics in Management 1-2

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. A short-term course. (1-2/0-2)

AM058U 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. (.5-1/0-1)

AM059U Parts Room Management 1-8

Practices purchasing, invoicing, transporting, billing, inventorying, storing, displaying and advertising as they relate to an Ag Supply Parts Department, as well as records and record-keeping systems and sales. (1-8/0-16)

AM062U Organizational Communications 3

Based on a unified communications concept and built around the technical principles common to oral, written, and visual communications. Includes aspects of listening, interviewing, writing, reading, speaking, briefing, conducting meetings, and visual communications display techniques. (3/0)

AM064U Interstate Commerce Law and Practice I 3

Prepares the student for the Interstate Commerce Commission's examination to practice, or the Number 4 examination of the American Society of Traffic and Transportation in: a) basic concepts, b) structure of the act, c) operating authority, and d) exemptions. (3/0)

AM065U Property Management 3

Examines a highly specialized but rapidly growing sector of the real estate profession. The course provides an overview of the field, and deals with specific practices and problems in management of various properties. Designed for those who want a comprehensive introduction to the challenging field of property management and who wish to gain new, practical information. (3/0)

AM067U Organizational Behavior 3

Students explore 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)

AM068U Interstate Commerce Law and Practice II 3

Prepares the student for the Interstate Commerce Commission's examination to practice, or the Number 4 examination of the American Society of Traffic and Transportation in: a) causes of action, b) civil liability, c) statute of limitations, d) the I.C.C., e) statutory provisions, f) economics, and g) tariff interpretations. Prereq: AM064U. (3/0)

AM069U Interstate Commerce Law and Practice III 3

Prepares the student for the Interstate Commerce Commission's examination

to practice, or the Number 4 examination of the American Society of Traffic and Transportation in: a) leading cases, b) rules of evidence, c) code of ethics, d) rules of practice, e) drafting the complaint, and f) judicial review. AM068U. (3/0)

AM074U Savings Account 2
Focuses on the legal nature of savings accounts, types of savings account ownership, and ways to handle problems unique to savings accounts. Other competitive forms of investments are also reviewed. (2/0)

AM075U Food Service Management III 4
Continues experiences in mid-management supervisory skills with applied techniques demonstrated in program's production/dining facilities. Prereq: AM053U. (0/8)

AM076U Time Management Seminar 1
Introduces concepts and identifies techniques of personal and office-related time management skills. (1/0)

AM077U Age of Robotics 1
Students will examine firsthand the operation of a robotic assembly line. Topics in the seminar also include a brief history of robotics development, their impact upon the workplace, programming and maintenance considerations, and implications for the future. (1/0)

AM078U Time and Motion Study 1
Normally offered as a one- or two-day seminar. Students are trained to conduct studies in their own place of business to determine current rates of efficiency of current work processes in order to develop or improve work standards. (.5-1/0-1)

AM079U Performance Appraisal 1
Normally taught as a one- or two-day workshop. Students learn how to help employees set their performance standards and objectives and to achieve them. Students learn employee appraisal and evaluation policies, programs, processes, and forms, and to conduct the appraisal interview. (.5-1/1-0)

AM080U Word Processing for Managers 3
Covers the principles of a word processing center. Deals with information a manager needs concerning the operation, equipment needs and maintenance of a word processing center. (3/0)

AM081U Professional Profile 2
Students prepare themselves for job entry or promotion by the preparation of a resume, the practice of job interviewing skills, and the application of other techniques that may enhance career progression. (2/0)

AM082U Risk Management 1
Normally offered as a one- or two-day seminar. Students are taught how to calculate personal and organizational risks and to select from alternative risk reducing options, particularly insurance programs, in order to reduce risk to acceptable levels. (.5-1/0-1)

AM083U Introduction to Savings and Loan Associations 2
Introduces the role of savings associations in the modern business world. Savings associations' historical development, present day organization, competition, and future direction are presented. (2/0)

AM084U 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 AML's, GPM's, and other alternative mortgage loans. (2/0)

AM085U Savings Accounts Administration 2
Details savings accounts procedures and discusses decedent accounts, dormant accounts, savings account loans, and garnishments. Examines insurance limits and coverage. Enrolling students need a firm background in savings services. (2/0)

AM086U Financial Institutions 2
Examines the fundamental operations of our country's major depository financial institutions as well as the economic influence of the Federal Reserve System. (2/0)

AM087U Savings Association Operations 2
Covers the major operating areas of savings associations. Examines how regulatory changes affect operations and problems associated with savings accounts, mortgage loans, and other investments. Delves into branch operations, the impact of computers, marketing, and human resource management. (2/0)

AM088U Teller Operations 2
Examines specific operations of the teller function, including check negotiability and acceptability, savings account ownership, insurance of accounts, basic computations, and accounting and emergency procedures. (2/0)

AM089U Applied Organizational Study 3
Students examine organizational structure to learn structural logic and improve upon their own workplace organization. Students also learn the relationships of line and staff and how authority and responsibility are delegated to create the most effective interdepartmental efficiency and effectiveness. (3/0)

AM090U Intermediate Supervision 3
Students exercise several of the functional skills of the supervisor learned in AM022U Principles of Supervision. Role-playing and troubleshooting constitute a large portion of the course. Students examine and attempt to develop management philosophies and styles appropriate to the workplace. Prereq: AM022U or approved equivalent. (2/2)

AM091U Advanced Supervision 3
Students examine their supervisory role in coping with and creating change and develop strategies for managing departmental and interdepartmental conflicts with superiors and subordinates. Students analyze current supervisory problems and issues. Prereq: AM090U. (3/0)

AM092U Employee Training and Development 4
Studies various approaches to organizational and departmental Human Resources Development functions. Students design a departmental training plan for their own or a fictitious organization. Employee orientation and on-the-job training techniques are developed. Also, each student participates in a role-playing situation as a trainer. (4/0)

AM093U 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 them. Time wasters are identified, and tips and techniques for maximum time utilization are developed. (.5-1/0-1)

AM094U Productivity Improvement 3
Students examine organizational policies and programs which promote high productivity rates. Specific case studies of companies, such as automobile and steel manufacturing in Japan, are applied to American business, industrial, and governmental situations. Students develop departmental productivity strategies to measure and improve personal and subordinate productivity. (3/0)

AM095U Leadership Styles 3-4
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. (3-4/0)

AT: ART

AT001T Art Appreciation 4
Provides an overview of art from a historical contemporary and aesthetic frame of reference. Recommended for non-art majors. (4/0)

AT002T Art History: Pre-fifteenth Century 4
Studies architecture, sculpture and painting from pre-history to Rome. (4/0)

AT003T Art History: Fifteenth Century to Nineteenth Century 4
Studies architecture, sculpture and painting from the medieval period through the eighteenth century. (4/0)

AT004T Art History: Twentieth Century	4	AT024T Fundamentals of Sculpture I	2
Studies architecture, sculpture and painting in the nineteenth and twentieth centuries. (4/0)		Introduces carving, modeling and casting. (0/4)	
AT005T Fundamentals of Ceramics I	2	AT025T Fundamentals of Sculpture II	2
Introduces high-fire, hard-built and wheel-thrown pottery, and fundamental glaze and clay experimentation. (0/4)		Continues Sculpture I, with emphasis on welding and combining media in the sculpture area. Explores form and color as they relate to sculpture. Prereq: AT024T or permission of instructor. (0/4)	
AT006T Fundamentals of Ceramics II	2	AT026T Fundamentals of Sculpture III	2
Continues Ceramics I. Prereq: AT005T or permission of instructor. (0/4)		Emphasizes advanced techniques and form with a concern for applying construction methods in a major sculpture project. Prereq: AT025T. (0/4)	
AT007T Fundamentals of Ceramics III	2	AT032T Art America (TV Course)	2-4
Continues Ceramics I and II with emphasis on form, throwing, and advanced glaze techniques. Prereq: AT006T or permission of instructor. (0/4)		Emphasizes key concepts in the development of a fine arts tradition in America. Traces the history of American fine art from colonial times to the present, with a focus on painting, sculpture, architecture and photography.	
AT008T Fundamentals of Design I	2	AT034T Humanities through the Arts	4
Introduces basic design concepts utilizing contemporary concepts of the visual experience. (0/4)		Approaches humanities through a study of seven major arts: film, drama, music, literature, painting, sculpture and architecture. (4/0)	
AT009T Fundamentals of Design II	2	AT036T Color Photography	3
Continues Design I. Explores problems of design form and structure. Prereq: AT008T or permission of instructor. (0/4)		Examines the skills required in processing and printing color photographs and develops the aesthetics unique to the color photograph. Prereq: JO103T. (2/2)	
AT010T Fundamentals of Design III	2	AT800T Independent Study - Ceramics	1-8
Continues Design I and II with emphasis on the third dimension, motion and space. Prereq: AT009T or permission of instructor. (0/4)		Students work under instructor supervision to develop advanced skills in ceramics. Prereq: AT005T. (0-2/0-10)	
AT011T Fundamentals of Drawing I	2	AT801T Independent Study in Studio Art	1-8
Practices basic elements of perspective drawing, analytical drawing and figure drawing. (0/4)		Students work under instructor's supervision to develop advanced skills in studio areas. Prereq: permission of instructor. (0/2-16)	
AT012T Fundamentals of Drawing II	2	AT002U Decorative Accessories	2
Continues Drawing I. Analysis of subject matter and accurate descriptive visual drawing. Prereq: AT011T or permission of instructor. (0/4)		An analysis of the selling points, and use and coordination of accessories in the home. Knowledge is developed in artwork, flowers, table arrangements, porcelain and ceramics, and lighting and lighting theory. (2/0)	
AT013T Fundamentals of Drawing III	2	AT003U Survey of Interiors I	3
Emphasis is placed on the figure, using the various media of drawing. Prereq: AT012T or permission of instructor. (0/4)		Surveys the development of architecture, ornament, decorative arts, interiors and furniture styles from prehistoric times to the 1800's. Projects require students to create their interpretations of a traditional interior through use of furniture, accessory selection, and a color materials board. (3/0)	
AT014T Fundamentals of Lettering	2	AT004U Fashion Analysis and Coordination	2
Studies basic letter forms and the use of reed pens, problems in page design, and manuscript writing. (0/4)		Studies the elements of art and visual perception for application of design to merchandising, and the aesthetic application of selection and coordination of clothing and accessories. (2/0)	
AT015T Fundamentals of Painting I	2	AT006U Survey of Interiors II	2
Introduces oil painting. (0/4)		Surveys the historical detail and interrelationships among architecture, home furnishings and the decorative arts of eighteenth century traditional styles of Europe and America. Prereq: AT003U. (2/0)	
AT016T Fundamentals of Painting II	2	AT007U Design Relationships	2
Continues Painting I. Includes oil and various water color methods. Prereq: AT015T or permission of instructor. (0/4)		Covers the basic fundamentals of interior design. A study of the principles and elements of design and visual perception, and their relationship and application to home furnishings. (2/0)	
AT017T Fundamentals of Painting III	2	AT008U Color in Interiors	2
Continues Painting I and II with emphasis on composition and color. Prereq: AT016T or permission of instructor. (0/4)		A study of the principles and psychology of color and their application to designing environments. Includes a study of the characteristics of paints and pigments for residential decorating. Also includes lab projects in color planning, coordination and execution, oriented to sales and customer decorating services. Prereq: AT003U, AT006U, AT004U. (2/0)	
AT018T Creative Photography I	2	AT009U Interior Plant Design	1-3
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. (0/4)		A course in developing plant material designs for small containers such as terrariums and dish gardens, as well as major installations in atriums and other indoor gardens. (1-3/0-2)	
AT019T Intermediate Photography	3	AT012U Design I	3
Continues development of skills in black and white picture-making techniques, as well as the development of a visual vocabulary necessary in understanding the aesthetics of black and white photography. Prereq: JO103T. (2/2)		Allows students opportunities to visit jewelry establishments to study and view various designs for rings, brooches, necklaces. The student will photograph various pieces of jewelry that will be studied and discussed in	
AT021T Fundamentals of Printmaking I	2		
Introduces wood cut, engraving, dry point and silk screen techniques in contemporary and traditional methods of art reproduction. (0/4)			
AT022T Fundamentals of Printmaking II	2		
Introduces basic methods of intaglio printing and etching. Prereq: AT021T or permission of instructor. (0/4)			
AT023T Fundamentals of Printmaking III	2		
Continues Fundamentals of Printmaking I and II with emphasis on advanced composition and technical methods. Prereq: AT022T. (0/4)			

seminars in relation to esthetic qualities. The student may also collect jewelry catalogs, that may be used for study purposes. Through the use of photography, jewelry catalogs, and visits to jewelry business, the students will collect materials for study and seminar-type discussion. (3/0)

AT013U Design II 3

Gives the student experience in design development. After study and evaluation of the designs, the student will select three that he/she will complete into final drawings in black and white. Prereq: AT012U Design I. (2/2)

AT014U Advanced Study: Design 8

Provides advanced designing using several techniques to communicate to a jeweler, customer, advertising agency, public and/or manufacturers. This course also includes cost estimates, material characteristics and recommendations. (3/10)

AT015U Survey of Interiors III 2

Studies the foundations, characteristics, and philosophy of nineteenth century and twentieth century design in the architecture and homes of the world. Covers the leading modern designers and their contributions in buildings and furnishings. Starts from the Industrial-Machine Age of Victorian to the contemporary time range, including the Specialty Arts. Prereq: AT006U. (2/0)

AT016U Gem Identification Nat./Mfg. 3

Develops knowledge and skills required to identify colored gems in their rough and finished forms and shapes. Covers the manufacturing process and compares synthetic gems to the natural. (3/0)

AT001V Floral Designing I 5

Introduces basic floral design principles including geometric design of arrangements, corsages, Christmas arrangements, memorial flowers, and potted plants. Includes identification and care of cut flowers and foliage, use of tools and supplies, pricing and floral gift expediting. (1/8)

AT002V Floral Designing II 2

Studies advanced floral design for cut flowers, corsages, funeral and memorial arrangements. Pricing and expediting floral gifts are discussed. Prereq: AT001V. (0/4)

AT003V Floral Designing III 2

Studies those aspects of floral design that involve wedding arrangements, artificial flowers, and advanced cut flower arranging. Prereq: AT002V. (0/4)

AT004V Floral Designing IV 1.5

Involves advanced floral and wedding designing including interpretive design work. Introduces current design trends and floral industry influences. Prereq: AT003V. (0/3)

AT008V Floral Design - Special Projects 1

Involves the planning, pricing, and designing of special design projects. Prereq: AT003V. (0/2)

BY: BIOLOGICAL SCIENCE

BY019T General Botany I 4

Studies the general anatomy and physiological processes of plants. Initial studies are of plant cells, followed by a study of the vegetative organs and finally, the reproductive organs. Such physiological processes as photosynthesis, transpiration, absorption, conduction, respiration, pollination, and fertilization accompany the anatomical studies. Prereq: BY030T (3/2)

BY020T General Botany II 4

Continues the work started in General Botany I. A survey of the plant kingdom from bacteria through the seed-bearing plants. General principles of plant taxonomy and ecology are emphasized throughout the course. (3/2)

BY030T Principles of Biology 4

Stresses the organization of plant and animal life at the molecular and cellular level: microscopic techniques, origin of life, cellular structure and function, plant and animal development and genetics. (3/3)

BY031T Biology of Organisms 4

Emphasizes animal structure and function. Covers dissection of two representative vertebrates (the frog and fetal pig). Includes a study of the osmoregulatory, transport, digestive, skeletal, muscular, nervous, en-

docrine, and reproductive systems, as well as the evolutionary significance of each. Prereq: BY030T or departmental approval. (3/3)

BY032T Environmental Biology 4

Emphasizes living systems and their environmental interactions. Includes a study of basic ecological concepts, energy, nutrient and mineral cycling, animal behavior and population and community ecology. Includes several field trips to terrestrial and aquatic habitats and a specialized applied ecological project. Prereq: BY030T or one quarter of Man and the Environment and departmental approval (3/3)

BY034T Invertebrate Zoology I 4

Surveys the classification, diversity, morphology, physiology, development, behavior, ecology and evolutionary relationships of the major invertebrate phyla. Emphasis will be on living forms, both freshwater and marine. Field work will stress adaptations and ecological relationships. Prereq: BY030T, (BY031T may be taken concurrently) or consent of instructor. (3/2)

BY035T Invertebrate Zoology II 4

A continuation of Invertebrate Zoology I. Groups covered will include mollusks, annelida, arthropoda, echinodermata, in addition to numerous minor phyla. Laboratory work will stress both morphology and physiology, in addition to ecological distribution. Prereq: BY034T. (3/2)

BY036T Vertebrate Zoology I 4

Introduces the principles of vertebrate zoology, emphasizing such topics as vertebrate morphology; taxonomy and systematics; evolution, phlogenic relationships and diversity. Fishes, amphibians and reptiles are covered. Laboratory work supplements the lectures. Prereq: BY030T, (BY031T may be taken concurrently) or consent of instructor. (3/2)

BY037T Vertebrate Zoology II 4

A continuation of Vertebrate Zoology I with emphasis on birds and mammals. Ecological relationships and population dynamics also are stressed. Field trips, as well as in-lab experiences, supplement the material in this course. Prereq: BY036T. (3/2)

BY039T Human Anatomy and Physiology I 4

Designed primarily for the medically-oriented student in health occupations and prospective majors in pharmacy, medical technology, baccalaureate degree nursing, zoology and other natural science fields. Integrates the study of mammalian anatomy and physiology with emphasis on structure and function of the human body. Gross and microscopic aspects of the interdependency of the functional body systems are stressed. Includes the study of the body as a whole, its organization and appearance of the cells and tissues as basic structural-physiological units. Emphasis will begin with a study of basic body structure, in addition to a concentrated study of body fluids, blood, R-E systems, and the endocrine system with applications to homeostasis. Lab work is based on current topics of study. (3/3)

BY040T Human Anatomy and Physiology II 4

Further studies of the structure and function of systems such as nervous, skeletal, muscular and cardiovascular are continued. Laboratories are designed to show basic phenomena such, as cardiology, muscle response and acid-base balance as well as dissection to integrate overall structure. Prereq: BY039T. (3/3)

BY041T Human Anatomy and Physiology III 4

Studies of the structure and function of systems such as respiratory, digestive, excretory and reproductive are continued. Laboratory work is based on current topics of study with emphasis on homeostasis. Lectures and laboratories are designed to complement each other. Prereq: BY040T. (3/3)

BY042T Microbiology I 5

Emphasizes pathogenic bacteria and viruses: their morphology, cultural characteristics and pathogenicity along with epidemiology, transmission, diagnostic test and an introduction to immunology. Laboratory emphasis on culturing, identification, staining, sterilization, disinfection and asepsis. (4/2)

BY043T Microbiology II 4

Continues Microbiology I with continued emphasis on immunology,

diagnostic test, viruses and viral diseases and with studies in the rickettsia and fungi. Prereq: BY042T or instructor permission. (2/4)

BY047T Introductory Genetics 4

Introduces the mechanisms of inheritance, the molecular basis of inheritance, and the concepts of mutation and potential change. The lecture approach will present material from the classical (historical) position. Provides an introduction in the laboratory to genetics procedures, sample and problem matings, and other investigative techniques considered of major importance in such a course. (3/2)

BY048T Introducing Biology (TV Course) 3

Covers a wide range of topics from atoms and molecules through human ecology. Examples of some of the topics covered include the cell, plant nutrition, animal behavior, basic genetics and evolutionary theory. The course will be presented in 36 half-hour segments. (3)

BY800T Independent Study in Biology 1

Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairman before registering. (Hours arranged).

BY001U Dental Anatomy II, (DLT) 2

Continues the study of dental anatomy through waxing techniques in restoring individual characteristics of each tooth in the permanent dentition as it relates to prosthetic dentistry. (1/2)

BY002U Dental Anatomy I, (DLT) 3

Introduces terminology, identification, description and individual characteristics of the teeth and surrounding structures found in human dentition. Includes the drawing of various views of individual teeth, and the formulation of required surfaces in wax on stone casts. (2/2)

BY003U Oral Anatomy 2

Specifies the anatomical and physiological features, structures and function of the human head that must be considered in the fabrication of dental prosthesis. (2/0)

BY006U Basic Anatomy and Physiology 4

Designed and required for students enrolled only in the following health occupation careers: Nursing Education, Orthopaedic Physicians Assistant, Medical Assistant, Medical Secretary, and Occupational Therapy Assistant. A systems approach to human structure and function is covered in one quarter. (3/2)

BY009U Homeostatic Physiology 4

Designed specifically for associate degree nursing students. Major emphasis is on integrating mechanisms of the nervous, muscular, endocrine, cardiovascular, respiratory, digestive and excretory systems used in maintaining homeostasis and their deviations in pathophysiology. Lectures, discussions and demonstrations are used in the course. Prereq: BY006U or equivalent. (4/0)

BY011U Functional Anatomy 4

Designed only for Occupational Therapy and Orthopaedic Physicians Assistant students for a detailed presentation of applications of functional neurology, skeletal and muscular structure and function, and regional functional anatomy of the limbs and back. Course will include lectures, group study, seminars and discussions. Prereq: BY006U or equivalent. (4/0)

BY013U Respiratory Physiology 4

A detailed study of human cardiovascular and respiratory functions for respiratory therapy students. The makeup functions, control and interdependency of the two systems in other organ systems is stressed. Concepts are applied to clinical situations. Prereq: BY006U. (4/0)

BY109U Oral Microbiology 2.5

Designed to provide the student with the basic principles of dental office asepsis, and of the biological hazards of an infectious and noninfectious nature that occur in the dental office. Includes the morphology and physiology of bacteria and viruses, selected microbial diseases and their transmission and prevention, the biological hazards of mercury, splatter and aerosols, the special patient (the heart patient and patients with infectious

disease), principles of sterilization and disinfection, and general office asepsis with emphasis on the prevention of cross contamination. (2/1)

BY110U Dental Anatomy 3

Examines the structure, function and form of the teeth, individual teeth and their supportive structures. (3/0)

BY111U Head and Neck Anatomy 3

Examines general plan of the body as an integrated whole. Emphasis is on the structure and function of the head and neck. (3/0)

BY112U Introduction to Pathology 4

Covers basic concepts and terminology associated with major cellular, metabolic, genetic and general systems disorders, and specific disorders associated with human body systems. The course is specifically designed for students enrolled in the Medical Records Technology program. Prereq: BY006U and BY009U. (4/0)

BY113U Aquatic Wildlife 2

Studies the identification of fish, amphibians, and reptiles native to Iowa. Emphasis is placed on habitat requirements and management concerns. (2/0)

BY114U Avian Wildlife 4

Includes training in identification and management of nesting and game birds of the upper-midwest. Environmental requirements and relationships are included. (4/0)

BY115U Mammalian Wildlife 4

Provides training in identification and management of upper midwest mammals. Environmental requirements and relationships are stressed. (4/0)

BY116U Iowa Trees and Shrubs 4

Emphasizes identification and care of Iowa plant material found in native and landscaping environments. (3/2)

BY117U Wildlife Conservation 4

Introduces the student to avian, aquatic, and mammalian wildlife species. Students learn to identify individual species as well as develop an appreciation for needed conservation practices. (3/2)

CE: COOPERATIVE EDUCATION

CE001T Cooperative Education Experience 1-8

Offers a structured work experience providing career education on the job for Arts and Science students in a field related to their major academic interest. Prereq: Instructor approval. Must be taken with CE002T. May be repeated for credit. (0/3-24)

CE003T Cooperative Education Preparation 0-1

Designed to complete individual needs prior to a cooperative education work experience. Testing, interviewing, and objective setting will be involved as needed by each individual. (0/2)

CE004T Career Decision Making 3

Designed to provide a grasp of the process of making a career decision. This is to be accomplished by identifying the individual's desires, relating these to the requirements of various career fields, and developing an understanding of the trade-offs involved in making a career decision. (3/0)

CE600T Coop Education Special Topics 1-4

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 CE001T. (0/4-14)

CH: CHEMISTRY/NUTRITION

CH007T Nutrition 4

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. (4/0)

CH001T Principles of Chemistry 3,4

Designed for students who have not taken high school chemistry or those with otherwise deficient backgrounds. It covers the basis of inorganic chemistry. Topics include: introduction to measurement, atomic structure, chemical bonding, chemical reactions, kinetic molecular theory, chemical periodicity, and acids, bases and salts. The course may be taken as lecture only or lecture and laboratory.

CH002T Fundamentals of Organic Chemistry 4

Provides a survey of organic chemistry as a continuation of Principles of Chemistry, and is designed to give the student an introduction to the structures of organic compounds, nomenclature, physical and chemical properties, and organic reactions. Based primarily on the functional group approach. Prereq: Either high school chemistry or CH001T. (3/2)

CH003T Fundamentals of Biochemistry 4

Continues Fundamentals of Organic Chemistry to provide a survey of the chemistry of living organisms, including basic chemistry of carbohydrates, lipids, proteins and nucleic acids, and an introduction to metabolism. Prereq: CH002T, or CH008T, or departmental approval. The three courses CH001T, CH002T, and CH003T are a normal sequence for students in nursing. (3/2)

CH005T General Chemistry I 5

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: CH001T or high school chemistry, and a working knowledge of algebra. (4/2)

CH006T General Chemistry II 5

Studies colligative properties along with thermodynamics and kinetics, chemical equilibrium, electrochemistry, acids, bases and complexions, and an introduction to organic chemistry. Prereq: CH005T. (4/2)

CH004T Quantitative Analysis 6

Introduces methods of chemical analysis stressing gravimetric, volumetric and spectrophotometric approaches. Emphasis is placed on fundamentals of measurement, treatment of data, and error analysis. Prereq: CH006T. (3/6)

CH008T Organic Chemistry I 4

Introduces theory and practice of organic chemistry with emphasis on structure and nomenclature. Areas stressed are chemical bonding, functional groups, various types of isomerism, aromaticity, resonance, tautomerism and spectral interpretation. The lab includes the use of U.V.-visible, and I.R. spectrophotometers. Prereq: CH006T or departmental approval. (3/3)

CH009T Organic Chemistry II 4

Continues Organic I with emphasis on organic reactions and reaction mechanisms. The lab includes the preparation of several organic compounds. Prereq: CH008T. (0/3)

CH010T Organic Chemistry III 4

Continues organic reactions and reaction mechanisms followed by a brief introduction to biochemistry. Prereq: CH009T. (3/3)

CH800T 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)

CM: COMMUNICATION**CM007D Building Speech Confidence 1**

Designed around a taped, two-step process to provide a formal desensitization. The "systematic desensitization" consists of two steps: muscle relaxation and visualization. A combination of individual and group interaction will provide experiences in role playing, rehearsal and assertive behavior.

CM101T Composition I 4

Develops expository writing with emphasis on organization, supporting details, style, vocabulary, and library research skills. Mechanical accuracy required. Students should take this course before finishing 45 hours (Required of all students for an A.A. or A.S. degree.) (4/0)

CM102T Composition II 4

Further develops students ability in writing. Teaches careful and responsible use of research tools and requires analysis of reading materials, audiences and self when communicating content material. Tests student ability to use fair and logical techniques of persuasion and to analyze critically readings in literature. (4/0)

CM106T Effective Reading and Study 3

Provides instruction in college study skills, including techniques for improving concentration, comprehension and retention of information from textbooks, graphic materials, lectures and seminars. Skills in using a library for research and in taking tests are also taught. Includes diagnostic testing of each student's reading and listening skills. (3/0)

CM111T Creative Writing 4

Offers students an opportunity to be creative in writing literary art forms of fiction, poetry and drama, and emphasizes structure, form and style. Also analyzes the publications market. Prereq: CM101T or consent of instructor. (4/0)

CM112T Speeded Reading Laboratory 1

Offers individualized work to increase reading speeds for students with no serious deficiencies in comprehension or vocabulary skills. Under the guidance of the instructor, students work independently using mechanical reading accelerators with self-corrected workbooks to develop the range of reading rates needed for efficient reading. (0/2)

CM117T Composition II: Technical Writing 4

Deals with objective precision in the writing of business correspondence, technical briefs, proposals and articles. Especially recommended for students in law enforcement, management, science, or pre-law. Prereq: CM101T or equivalent. (4/0)

CM201T Public Communication 4

Studies the fundamentals of speaking, emphasizing the development of speaking skills. (4/0)

CM202T Group Communication 3

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

CM204T Speech Communication 4

Studies basic communication fundamentals, including communication process, interpersonal relationship, small group interaction, and public speaking. Practical experience in one-to-one, small group, and speaker-audience communication. (4/0)

CM212T Bank Letters and Reports 3

Designed for those bank officers, supervisors and employees who dictate or review correspondence. A review of letter forms that emphasizes fundamental principles underlying modern correspondence and examines different kinds of bank letters. (3/0)

CM213T Interpretative Reading 2

Develops skills in the oral presentation of literature. Students will learn to interpret prose, poetry and dramatic literature through bodily action, voice and facial expression. (2/0)

CM214T Media Lab 3

General introduction to media hardware and related software. Examines radio, TV, audio-visual and print technology. Students use equipment in lab setting. (2/2)

CM306T Radio and TV Presentation 2

Develops skills in announcing, speaking and performing before microphones and cameras. Considers various styles and presentation techniques. (2/0)

CM316T Special Projects 1-3

Provides opportunity to carry out a media project under professional direction. Advanced students are required to organize and direct a three-credit-hour project. Other students may work in supporting roles of the production and earn one credit. Instructor permission required. (Independent 3-9 hours per week)

- CM317T Internship 4-8**
Provides on-the-job training in the media field. Prereq: consent of instructor. (20 hours per week)
- CM318T Broadcast Writing 3**
Develops competency in broadcast writing, with emphasis on news and commercial styles. (3/0)
- CM319T Legal and Ethical Issues 2**
Deals with various legal and ethical issues affecting the media. Libel, privacy, obscenity, privilege, access, copyright and other contemporary issues involving the First Amendment are included. Also included is a section dealing with the duties and responsibilities of the media practitioner in contemporary society. Prereq: J0101T or instructor permission. (2/0)
- CM320T Introduction to Audio-Visual Production 2**
Students use production hardware such as 35 mm cameras, tape recorders, slide projectors and overhead projectors to produce training, promotional and entertainment programs. Pre-production planning, scripting and budgeting are covered. Of interest to the hobbyist as well as the career media student. Prereq: CM214T. (2/0)
- CM321T Introduction to TV Production 2**
Presents basic principles, procedures and techniques of television production. Emphasis is on studio production, with students learning how to design and light a set, select and deal with live talent, operate cameras, serve as floor manager, director and producer. Remote production and editing techniques will also be introduced. Prereq: CM214T. (2/0)
- CM322T Introduction to Audio Production 2**
Teaches audio recording, editing, duplicating and mixing, use of sound effects, live talent and pre-recorded music. Students work in the on-campus production studio and in the field to produce audio packages targeted at a variety of audiences. Includes work with radio and A-V formats. Prereq: CM214T. (2/0)
- CM323T Advanced Production 2-3**
Students work 4-6 hours a week in Media Services or KCCK-FM under the direction of professional media staff. Lab assignments vary, depending upon the workload in these areas. May be repeated three times. Prereq: Corresponding introductory course or permission of instructor. (0/4-6)
- CM800T Independent Study-Writing 1-4**
Provides opportunity for independent writing projects under the guidance of a faculty member. Prereq: CM101T and prior approval of instructor and department head. (0/2-8)
- CM801T Independent Study in Speech 1-4**
Provides readings and research opportunities under the guidance of a staff member. Prereq: Consent of the instructor and department chairman before registering. (1-4/0)
- CM001U Business Communications 4**
Develops skills and knowledge needed for effective oral and written communication in business, including training in listening and job-seeking techniques. (4/0)
- CM002U Communication Skills I 2-3**
Reviews communicative usage and mechanics of standard expression. Students apply communication skills through oral and written composition exercises. Offered for students enrolled in several occupational programs, three to five periods each week depending on the program. (2-3/0-2)
- CM003U Communication Skills II 3**
Offers additional practice and application of skills acquired in Communication Skills I, with application to the student's individual vocational needs. Emphasis will be on developing of oral skills in career situations. Prereq: CM002U. (2-3/0-2)
- CM004U Technical Reporting 3-4**
Studies principles of organization and interpretation as they apply to preparing technical reports. Research and descriptive writing skills needed for both informal and formal reports will be emphasized. Prereq: CM003U. (3-4/0-3)
- CM005U Oral Communications 3**
Stresses the necessity of proper communications. This particular course concentrates on public speaking, demonstrations and leading group discussions. (2/2)
- CM007U Medical Communications 4**
Provides skills in oral and written reporting that include chart and treatment auditing techniques. Prereq: TH002U. (4/0)
- CO: CORRECTIONS**
- CO002T Introduction to Community Corrections 3**
Studies the correctional process as applied in the community by means of juvenile and adult probation and parole. (3/0)
- CO004T Penology 4**
Surveys the history of penal institutions, examines the theories and practices relating to penal institutions, and explores prison reform in relation to various objectives of modern penology. (4/0)
- CO006T Race Relations in the Criminal Justice System 4**
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. (4/0)
- CS: CONSTRUCTION**
- CS001T Agricultural Construction Materials and Procedures 1-3**
Selection of building materials and their application to agricultural construction. (1-3/0-2)
- CS002U Facility Construction 4**
Includes basic knowledge and skill development in concrete, carpentry, plumbing, and electricity. Horticulture applications are stressed. (2/4)
- CS033U Estimating 3**
Designed for architectural draftsmen. The course includes the techniques of estimating and quantity survey. (3/0)
- CS034U Presentations 2**
Includes instruction in color, proportion and delineation. Offered for architectural draftsmen. (2/0)
- CS035U Construction Materials 3**
Covers study of building codes, construction standards, wood, concrete, steel and unit masonry. (3/0)
- CS036U Construction Methods 3**
Covers study of floor ceiling systems, masonry walls, foundation systems and sound control. (3/0)
- CS055U Greenhouse Facilities and Equipment 1-4**
Studies construction and operating plastic, fiberglass and glass in small and large greenhouse structures. Heating, cooling, watering and ventilating systems will be evaluated for efficiency and effectiveness. (1-4/0-4)
- CS056U Farm Facility Maintenance 4**
Provides an opportunity for students to do maintenance on buildings and their support services, including heating, water systems and electrical systems. (2/4)
- CS057U Rural Concrete and Masonry 3**
Concrete forming, placing, curing and mix design are discussed. Concrete block construction and basic masonry skills are taught. (2/2)
- CS058U Rural Plumbing 3**
Deals with water and fluid piping and fittings. Plumbing fixtures along with threading, sweating and flaring make up course work. (2/2)
- CS059U Rural Carpentry 3**
Primary maintenance skills are taught along with discussion on frame construction, fasteners, fixtures, and construction materials. (2/2)

CS060U Rural Electricity 3

Two-way, three-way, four-way switch circuitry is taught. Class includes work with EMT and discussion of AC electrical power including motors. (2/2)

CS062U Ag Carpentry 4

Introduces the student to the basic carpentry skills. Identification and safe use of hand and power tools. This course employs the student to demonstrate the correct use of hand and power tools. (3/2)

CS070U Principles of Surveying and Construction 3

Designed to provide real estate personnel with basic knowledge of how to assess the physical characteristics of residential and commercial properties to be listed - land, structures, and electro-mechanical systems. Also included is familiarization with blueprint reading. (2/2)

CS005V Greenhouse Construction 1

Studies design and construction of greenhouses and other related growing structures, including floor plants and environmental equipment needed for optimum plant growth. (2.5/0)

DA: DANCE**DA001T Fundamentals of Modern Dance 2**

Introduces basic modern dance technique and choreography. Students practice standard movements and locomotor patterns and are introduced to creative concepts. (0/4).

DN: DENTAL**DN001U Dental Materials 4**

Gives students an opportunity to acquire a basic understanding of the various types of dental materials, their uses and their manipulating techniques. (2/4)

DN002U Procelain Techniques 4.5

Covers basic principles of design, fabrication and staining of restorations of porcelain, or porcelain to metal, including operation and maintenance of related equipment and use of supplies. Prereq: BY002U and BY001U. (1/7)

DN003U Orthodontics (DLT) 3

Studies irregularities of teeth and the fabrication of appliances as prescribed by the dentist to correct those irregularities. Prereq: BY002U, BY001U. (.5/4.5)

DN004U Dental Terminology 2.5

Includes ability of student to dissect words used in dental terminology as to roots, prefixes and suffixes. Also includes a brief introduction to dental history, ethics and jurisprudence, work authorization and professional organizations associated with the dental laboratory field. (2/1)

DN005U Dental Equipment I 1

Studies proper arrangement, care and maintenance, safety procedures and availability of common types of dental equipment used within the first quarter. Includes some operation. (.5/1)

DN006U Clinical Experience and Seminar I (DLT) 12

Utilizes dental laboratories or dental offices to gain practical experience relating to instructional and manipulative skills learned in the classroom. (0/32)

DN007U Clinical Experience II and Seminar (DLT) 12

Continuation of Clinical Experience I. (0/32)

DN008U Metal Design, Color and Contour 3

Through the use of various dental materials, students develop skills related to metal design, color and contour by in-depth study. (1/4)

DN009U Precision Attachments Partials (DLT) 4

Studies principles and design of various types of intracoronal retention for removable partial dentures, including actual construction of removable partial dentures, incorporating precision attachments. (1/6)

DN010U Cast Metal Base Dentures 2

Continues complete denture construction involving the design and construction of complete dentures with cast metal bases (ticonium). (.5/3)

DN020U Laboratory Management (DLT) 3

Study in surveying potential sites for new dental laboratories, their design, bookkeeping and cost analysis, and all facets dealing with the establishment and operation of a dental laboratory. (3/0)

DN021U Denture Techniques I (DLT) 6.5

Provides an introduction to the outline and study of procedures related to denture construction. Involves the fabrication of temporary removable partial dentures and complete dentures. (3/7)

DN022U Denture Techniques II (DLT) 6

Adventures into the aesthetics, phonetics and function associated with complete dentures. Working with a special advanced articulator and advanced work in tooth arrangements. (2/8)

DN023U Articulators and Articulation 2

Introduces the study of mechanical devices used to simulate the movements of oral anatomy with relation to the construction of dental prosthesis. (1/2)

DN024U Cast Inlay and Crown (DLT) 5

Applies the techniques of pouring casts, mounting techniques, recognition of gingival margin preparations, preparation and trimming of individual dies, and the actual construction of inlays and crowns. (2/6)

DN025U Crown and Bridge (DLT) 10

Studies types, designs and procedures used in constructing fixed partial dentures, including actual construction of various types of fixed partial dentures. (4/12)

DN026U Partial Denture Techniques I (DLT) 4.5

Examines the principles and theories of survey, design and blockout techniques for simple removable partial dentures, and actual construction of cobalt-chrome removable partial dentures. (1/7)

DN027U Partial Denture Techniques II (DLT) 5

An advanced study in the design and fabrication of special types of removable partial dentures. (2/6)

DN028U Specialized Study: Orthodontics 6.5

Allows the student and instructor to prepare a contract for individualized study in orthodontics. This contract will include the phase of orthodontics that the student and instructor feel is necessary to make the student knowledgeable and competent in this field of laboratory work. Prereq: Previous modules related to this subject: (0/13)

DN029U Specialized Study: Fixed Bridges 6.5

Allows the student and instructor to prepare a contract for individualized study in fixed bridges. This contract will include the phases of fixed bridgework that the student and instructor feel is necessary to make the student knowledgeable and competent in this area of laboratory work. (0/13)

DN030U Specialized Study: Ceramics 6.5

Allows the student and instructor to prepare a contract for individualized study in ceramics. This contract will include the phases of porcelain that the student and instructor feel are necessary to make the student knowledgeable and competent in this field of laboratory work. (0/13)

DN031U Specialized Study: Removable Bridges 6.5

Allows the student and instructor to prepare a contract for individualized study in removable bridges. This contract will include the phase of removable partials that the student and instructor feel is necessary to make the student knowledgeable and competent in this field of laboratory work. (0/13)

DN032U Specialized Study: Full Dentures 6.5

Allows the student and instructor to prepare a contract for individualized study in full dentures. This contract will include the phases of full dentures that the student and instructor feel are necessary to make the student knowledgeable and competent in this field of laboratory work. (0/13)

DN101U Dental Orientation 2

Provides information necessary to build a complete and knowledgeable foundation upon which to anchor a meaningful career as a dental assistant, including dental terminology, understanding of dental assistant certification and a thorough study of state practice acts. (2/0)

- DN102U Dental Materials 3.5**
Includes the chemical and physical composition of the basic groups of dental materials. The laboratory phase offers clinical demonstration of the use of each material and individualized manipulative practice. (3/1)
- DN103U Dental Assisting 5**
Provides the student with the basic principles of chairside assisting. It includes the identification, use and maintenance of equipment and instruments; sterilization and disinfection techniques, instrument transfer, oral evacuation and oral diagnosis procedures. Background material and chairside techniques concerning operative functions, crown and bridge work, and prosthetics will be included. (4/2)
- DN109U Lab Practicum I (DA) 4.5**
Assigns each student to clinical areas at the College of Dentistry in Iowa City and Veterans Hospital to provide practical experience in the various departments of operative, crown and bridge, pedodontics, periodontics, endodontics, oral surgery, radiology and orthodontics. An overview of dental assisting in all areas of dentistry. (1/6.5)
- DN110U Lab Practicum II (DA) 7.5**
Continues Lab Practicum I at the College of Dentistry in Iowa City. (1/13)
- DN111U DA Clinic I 3.5**
Applies knowledge and skills in a dental office on internship to include: chairside procedures, business office procedures and dental laboratory procedures. (.5/9)
- DN112U DA Clinic II 3.5**
Continues Clinic I in a private dental office. (.5/9)
- DN113U Dental Radiography I 2.5**
Presents a basic background of the production of dental x-rays, hazards and safety. Emphasis is given to exposing, processing and mounting dental films. (2/1)
- DN114U Dental Radiography II 1.5**
Continues Dental Radiography I with emphasis on exposure angulation, evaluation of films and corrective measures. (1/1)
- DN115U Dental Lab Assisting 4.5**
Provides practice and application of laboratory skills commonly performed in a private dental office, such as pouring and trimming of study casts, construction of bite-blocks, soldering and construction of removable acrylic appliances. (2/5)
- DN120U Dental Therapeutics 2.5**
Provides instruction in obtaining and recording vital signs. Discusses systemic diseases, conditions and potential emergencies, in addition to medications used in dentistry and for emergencies. Prereq: DN103U. (2/1)
- DN121U Disease and Prevention 3.5**
Presents concepts of prevention through an understanding of oral disorders, problems and treatments, control of bacterial plaque formation and methods of oral hygiene instruction for patients. (3/1)
- DN133U Dental Assisting-Set A 8**
Includes Dental Orientation (DN101U); Dental Anatomy (BY110U), and Head and Neck Anatomy (BY111U) for off-campus students.
- DN134U Dental Assisting-Set B 8**
Includes Dental Materials (DN102U) and Dental Laboratory Assisting (DN115U) for off-campus students.
- DN135U Dental Assisting-Set C 5**
Includes Dental Assisting (DN103U) for off-campus students.
- DN136U Dental Assisting-Set D 4**
Includes Dental Radiography I and II (DN113U, DN114U) for off-campus students.
- DN137U Dental Assisting-Set E 5.5**
Includes the Dental Speciality Course (DN141U); for off-campus students.
- DN138U Dental Assisting-Set F 8**
Includes Oral Microbiology (BY109U), Dental Therapeutics (DN120U), and Disease and Prevention (DN121U) for off-campus students.
- DN139U Dental Assisting-Set G 9**
Includes Dental Office Management I and II (AM033U, AM034U), and Dental Bookkeeping (AC007U) for off-campus students.
- DN140U Dental Assisting-Set H 24**
Includes Lab Practicum I & II (DN109U & DN110U), Clinic I & II, (DN111U & DN112U), Advanced Practicum (DN143U), and Health Occupations Leadership (MS067U) for off-campus students. (30-40)
- DN141U Dental Specialities 5.5**
Presents specialty areas of dentistry, pedodontics, endodontics, orthodontics, periodontics, oral surgery and sterile procedures. Includes procedures, instruments and current concepts of assisting in these areas. (5/1)
- DN142U Dental Assistant Seminar 1**
Is designed to provide guidance for employed dental assistants making application for the off-campus dental assistant diploma program. Includes supplemental instruction based on a student's needs, and assistance in preparation of project performance. This course is required for all students enrolled in course sets.
- DN143U Advanced Practicum 3**
Enhances proficiencies in intra-oral functions. Prereq: DN109U. (1/3.5)
- DN164U Dental Equipment II 1**
Studies proper arrangement, care, maintenance, and safety procedures and availability related to dental equipment used within the second and third quarters. Applies knowledge and skills by completing simple repairs on dental equipment. (.5/1)
- DN165U Dental Equipment III 1**
Studies proper arrangement, care and maintenance, safety procedures and availability related to the dental equipment used in the 5th, 6th and 7th quarters. Applies knowledge and skills by completing simple repairs on dental equipment. (.5/1)
- DN168U Advanced Practicum II 5**
Provides students with clinical proficiency in skills introduced in Advanced Practicum I. Students have more patient contact in each of the skills and are faced with abnormal and unusual conditions rather than normal conditions covered in Adv. Practicum I. Prereq: DN143U. (1/8)
- DN169U Occlusion 2**
Students learn in-depth information about the principles of occlusion and apply these principles by understanding and using a three-dimensional articulator. (1/2)
- DP: DATA PROCESSING**
- DP006T Computer and Data Processing Concepts 3**
Covers fundamentals of computers and computerized data processing, data processing concepts, computer terminology, computer devices, basic systems considerations, programming techniques, and data accuracy and control. (3/0)
- DP007T Fundamentals of Bank Data Processing 3**
Broadly based, non-technical, and designed for the manager who uses the computer as a tool, rather than the computer scientist. The courses are geared to fundamental principles, concepts and functions on the basis of what everyone in banking must know about the characteristics of automation. Discusses computer systems and languages, the present and potential uses of computers, and societal influence of growing computer dependence. (3/0)
- DP009T Making It Count 3**
Introductory applications course on computers and computer operations including computer hardware and software. (3/0)
- DP010T Introduction to Microcomputers and Data Processing 1-4**
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. (1-3/0-2)

- DP001U Self-Service Aids** 1
Covers basic operation of data entry equipment. Intended to make students self-sufficient in preparation of programs and test data. (0/2)
- DP003U Computer Operating Techniques** 3
Includes study and practice of computer operating techniques, student study and performance in the areas of card/tape/disk handling, computer console control and peripheral equipment operation. (3/0)
- DP005U Introduction to S/370** 3
Presents the System 370 architecture and hardware. Includes direct storage and peripheral devices, and the techniques of file organizations for these devices. (3/0)
- DP007U Assembler Language I** 4
Studies IBM Basic Assembler Language programming concepts and techniques. Includes the writing and testing of Assembler Language programs and routines. Prereq: DP013U. (3/2)
- DP009U 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)
- DP010U Computer Applications for Managers** 3
Students learn several applications for microcomputers in management, including accessing data networks, financial planning, decision making, scheduling and communication. (2/2)
- DP011U Introduction to Report Program Generator (RPG)** 4
Presents the language facilities of RPG II. Students will write and test several programs. (3/2)
- DP012U Introduction to BASIC Programming** 3
An acronym for Beginners All-purpose Symbolic Instruction Code. Presents the language and coding fundamentals that can be used to program microcomputers. Prereq: DP010T. (2/2)
- DP013U Introduction to COBOL Programming** 4
Presents ANSI COBOL programming language fundamentals and coding techniques. This course includes the writing of COBOL programs using structured techniques. (3/2)
- DP014U COBOL II Programming** 4
Continues introduction to COBOL Programming and extends exposure to more complex techniques, including table handling, sorting and file maintenance. Prereq: DP013U. (3/2)
- DP016U Introduction to FORTRAN Programming** 4
Introduces FORTRAN programming concepts and techniques, with numerical analysis and other methods for solving mathematical/scientific/business problems. Prereq: DP013U. (3/2)
- DP018U Introduction to Programming Language I** 4
Introduces PL/I concepts and techniques emphasizing applications of the business world. Students will write and test several programs. Prereq: DP016U. (3/2)
- DP021U Disk Operating System (DOS/VSE) Concepts and Facilities** 3
Provides an introduction to the concepts and facilities of the disk operating system/virtual storage. Includes sufficient information to allow a student to run programs using appropriate statements and commands. (2/2)
- DP022U Disk Operating System (DOS/VSE) Coding** 4
Covers all facilities of the Disk Operating System, including the job control language, supervisor services, systems maintenance, the linkage editor functions and multiprogramming facilities. Is designed for programmers who plan to use the Disk Operating System of the S/370. Prereq: DP021U, DP013U. (3/2)
- DP026U Operating Systems Survey** 4
Presents the concepts and facilities provided by various manufacturers in their operating systems. Also includes some commercial software systems (spoolers, librarians, reporters, etc.) Prereq: DP006T, DP021U. (4/0)
- DP027U Systems Utilities** 2
Develops knowledge and skill in the use of various systems utilities and offers actual working experience with a sort, merge, monitor and various utilities. Prereq: DP021U. (1/2)
- DP036U Application Programming Projects** 5
Offers supervised work experience at various data processing tasks, which serve as learning tools as the tasks are completed. These tasks may be done within a real or simulated business organization. Prereq: DP083U, DP049U. (1/8)
- DP041U Program Design and Documentation** 3
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. (3/0)
- DP042U Program Testing** 3
Presents the techniques of planning and documenting the testing and modifying and correcting computer programs. Includes the coding techniques required to reduce coding and logic errors to improve error detection and correction. Also includes programming considerations for program maintenance. Prereq: DP013U. (2/2)
- DP044U Data Management** 4
Presents the concepts and techniques of Data Access Methods. Storage methods presented include sequential, index sequential, direct and virtual storage access methods. Prereq: DP014U, DP022U. (3/2)
- DP048U Financial Applications of Data Processing** 3
Presents computer considerations in dealing with general financial systems. Students will be exposed to the characteristics of such areas as general register, receivables, payables, payroll, etc. Prereq: DP049U. (3/0)
- DP049U Introduction to Systems** 3
Includes systems, procedures, systems analysis and design, purposes, responsibilities, applications and techniques of the systems activity as found in a business organization. Prereq: DP006T. (3/0)
- DP083U Data Base Management** 4
Continues Data Management. Includes concepts of data base organization and management. Provides coding experience for data base. Prereq: DP044U. (3/2)
- DP084U Manufacturing Applications of Data Processing** 3
Includes computer applications of dealing with nonfinancial systems. Students will be exposed to such applications as personnel, inventory, etc. Prereq: DP048U. (3/0)
- DP085U Data Communications Concepts** 3
Presents the concepts and considerations for programming in an on-line environment. Presents facilities of communications software, including CICS. Prereq: DP083U. (3/0)
- DP087U BASIC Programming II** 3
Reviews introductory techniques and also studies utility programs, formatting and string manipulation. The student gains experience with multiple subscripting variables, subroutines, data files programming and graphics. Prereq: DP012U. (2/2)
- DP089U Business Applications of Data Processing** 3
Presents a general exposure to financial, manufacturing, and insurance systems. Prereq: DP006T. (3/0)
- DP090U Computer Operation Support Activities** 3
Covers all support activities associated with computer operation, tape library functions, input and output control, and related equipment (burster, decollator, etc.). (2/2)
- DP091U COBOL III Programming** 4
Continues COBOL programming and extends exposure to more complex techniques. Prereq: DP014U. (3/2)

DP092U Data Communications Coding 4

Covers data communication facilities under CICS. Students write and test on-line programs. Prereq: DP085U. (3/2)

DP093U Introduction to PASCAL 3

Presents the elements of PASCAL in increments from the less complex to the more complex. Students gain experience using syntax diagrams as reference tools, performing textfile I/O using all four basic data types, creating complex structured data types, manipulating objects of a user declared type. Prereq: DP012U. (2/2)

DP001V Introductory Data Entry 3

Offers introductory training on data entry machines. Prereq: typing skill of 35 wpm. (0/6)

DR: DRAMA**DR101T Introduction to Theatre 4**

Introduces the various methods of stagecraft with emphasis on the study of a number of plays and the observation of performances to discover the relationship of the playwright to the creation of an actual performance. (4/0)

DR102T Theatre Workshop 2

Provides students with experience in theatrical production. Students may work in one of a number of production areas under the guidance of experienced theatre personnel. Guidance and frequent critiques provide students with an understanding of production activities. This course may be repeated for credit once. The production schedule determines the number of hours required per week. (0/4)

DR103T Theatre Production 3

Provides students with on-campus production experience. The course is responsible for presenting a series of short dramatic presentations and provides opportunities in acting, directing and staging. (3/0)

DR104T Drama: Play, Performance, Perception (TV Course) 2-4

A course in the viewing of plays in the European tradition, which includes emphasis on criticism, history and appreciation. Each play is accompanied by a short expository documentary that completes the hour and includes guest appearances by professional performers such as Julie Harris, Anna Russell, Ruby Dee and Ossie Davis. The expository documentaries incorporate critical commentary, capsule performances, parody and related readings. (2-4/0)

DR105T Theatre Practicum I 2

Students work as actors or technicians (or both in the case of small acting roles) in one Kirkwood production. A minimum of twenty-four hours of practical work is required for a passing grade. (0/4)

DR106T Theatre Practicum II 2

Students work as actors or technicians (or both in the case of small acting roles) in one Kirkwood production. A minimum of twenty-four hours of practical work will be required for a passing grade. (0/4)

DR107T Theatre Practicum III 2

Students work as actors or technicians (or both in the case of small acting roles) in one Kirkwood production. A minimum of twenty-four hours of practical work will be required for a passing grade. (0/4)

DR108T Acting I 4

Introduces basic acting techniques, with emphasis upon improvisation, recreation of roles from dramatic literature, self-analysis, and character analysis. Students present individual and group performances. (4/0)

DR109T Acting II 4

Continues training in basic acting techniques, with emphasis upon voice control, movement, and styles of acting. Students present individual and group performances. (4/0)

DR110T Stagecraft 4

Introduces the backstage crafts of the theatre. Students are introduced to elementary scenic drafting, parts and uses of the theatre, basic techniques of scenic carpentry, scene painting, and stage lighting. Students are required to work on technical aspects for one Kirkwood production. (4/0)

EA: EARTH SCIENCE**EA001T Introductory Geology 4**

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 will be discussed. Plate tectonics and sea-floor spreading will serve as a unifying factor for the course. (4/0)

EA003T Introductory Geology Lab 1

Designed to be taken with EA001T. (0/2)

EA002T Evolution of the Earth 4

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 is also examined in some detail. Additional credit via directed study and preparation of a paper is available for students wishing 4 credit hours in historical geology. (4/0)

EA004T Evolution of the Earth Lab 1

Designed to be taken with EA002T. (0/2)

EC: ECONOMICS**EC008T Money and Banking 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. Prereq: Recommend EC013T. (3/0)

EC009T Principles of Collective Bargaining 3

Covers problems of the industrial labor setting as applied to collective bargaining. Topics reviewed include wage determination and employment theory, internal and external problems of the labor force, union structure and government, growth and theory of labor movements and evolution of substantive labor law in the U.S. Emphasis will be placed on the historical, political and institutional setting of the collective-bargaining process. (3/0)

EC010T Labor Law (Taft-Hartley) 3

An institutional and historical approach to public policy considerations in labor relations law from 1806 to the present. Topics reviewed include the "Greek" of labor law, "strikes," "picketing," "organizational," "boycotts," "unfair labor practice," "union security," "duty to bargain," etc. Relationships between the large group conflicts of labor relations and other large group conflicts (e.g., race relations) will receive attention. Attention also will be directed to the public sector. (3/0)

EC011T Dispute Settlement and Labor Relations 3

Offers an analysis of problems encountered in the area of employer-employee differences with respect to the meaning and application of contract terminology. Cases in arbitration are used to illustrate problem areas in the industrial relations setting. Areas of study include: grievance handling; arbitration of grievances; discipline; wages; vacations and holidays; work assignments; seniority; distribution of overtime; subcontracting; technological change. Additional attention will be directed to the public sector. No prior course is required. (3/0)

EC013T Principles of Economics (Macro) 4

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 and policy, and economic growth. Recommended for students pursuing a baccalaureate degree program. (4/0)

EC014T Principles of Economics (Micro) 4

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 program. (4/0)

EC015T Principles of Business Economics 4

Acquaints the student with the business enterprise in the perspective of the modern economy, and introduces the economizing program and analysis of markets and the price system. The course also examines national income and employment theory. Recommended for associate degree programs only. Transfer status uncertain. (4/0)

EC016T Contemporary Economic Problems 4

Offers advanced analysis of some of the topics discussed in Principles of Economics (Macro and Micro). The course will focus on one or more contemporary economic problems. Individual and group projects will be assigned. Prereq: EC013T and EC014T. (4/0)

EC018T Unions and the Political System 3

Describes the structure and functions of all levels of government including separation of authority, executive privilege, and presidential appointive powers. The role of pressure groups, the union's role in our two-party system, plus recent trends in the "labor vote" also will be discussed, as well the issues that unions want enacted into law. (3/0)

EC020T Labor Law (Landrum-Griffin) 3

Continues the study of labor law using an institutional and historical approach to public policy considerations in labor relations law. Topics reviewed include: individual rights and the duty of fair representation, admission to union membership, union elections, enforcement of the agreement, union democracy, etc. Emphasis is placed on the public sector. (3/0)

EC800T Independent Study - Economics 1-4

Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairman before registering. (1-4/0)

EC003U Economics for Technicians 3

Studies macro and micro economics to present the student with an understanding of the external and internal economic forces that affect the businesses and industries for which they will work. (3/0)

EC004U Agricultural Economics 3-4

Identifies economic concepts, principles and relationships as they relate to the agricultural industry. Reviews the principles of diminishing returns, marginal costs, opportunity cost, substitution, and the concept of risk and uncertainty. (1-4/0-3)

EG: ENGINEERING**EG015T Introduction to Engineering 3**

Is a required introductory level course for all entering freshmen engineering students. Surveys the multiple opportunities in the field and the education required to enter them. The student is introduced to the engineer's approach to problem solving through direct application. Equals 2 semester hours. Prereq: one year of high school algebra or equiv. (2/0)

EG007T Engineering Graphics I 3

Includes study of sketching, lettering, freehand drawing, use of drawing instruments and principles of projection. Also lines, perpendicularity, parallelism, revolution, topography and piercing points. (3/0)

EG008T Introduction to Engineering: Computation 3

Emphasizes digital computer programming utilizing Fortran and time-shared BASIC programming, engineering applications using logic operations, decision and transfer loops, subprograms, input/output and flow charts. It is a required course in engineering and is designed for undergraduate students who have had no, or only a minimum amount, of experience in digital computer programming. Equals 2 semester hours. Prerequisites are high school algebra and trigonometry or departmental permission. (3/0)

EG016T Problem Solving Using Structured Language 5

Introduces computer programming and techniques using the PASCAL language. The course also introduces block structure and procedures. Data types included are numeric, character, boolean, enumeration, subrange, arrays, records and sets. The course emphasizes program refinement involving documentation and programming style. Prereq: MA032T or MA043T. (5/0)

EG009T Materials Science I 5

A foundation course in materials science designed to show relationships between structures and properties of various materials at the atomic, micro and macro levels. The course is a core requirement in all engineering curriculums. Equals 3 semester hours. Prerequisite CH005T or departmental approval. (5/0)

EG010T Statics 3

Covers such topics as vector algebra, forces, couples, equipollent force-couple systems, Newton's laws, friction, equilibrium analysis of particles and finite bodies and applications. This course principally serves both the civil engineering and mechanical engineering undergraduate engineering programs for which it is a required course. Equals 2 semester hours. Prereq: One semester or two quarters of college-level calculus. (3/0)

EG011T Dynamics 5

Emphasizes vector calculus, Newton's laws, dynamics of particle motion, multiparticle systems, and rigid bodies in plane motion and applications. It serves principally both the civil and mechanical engineering undergraduate programs for which it is a required course. Equals 3 semester hours. Prereq: EG010T and MA037T. (5/0)

EG012T Thermodynamics I 6

Includes basic elements of classical thermodynamics, including first and second laws, reversibility, irreversibility, Carnot cycle, properties of pure substances; closed simple systems and one-dimensional steady-flow open systems, and engineering applications. The course is a core course in the basic and applied science portion of the curriculum and is required of all engineers except those in chemical engineering. Equals 4 semester hours. Prereq: CH005T or equivalent and one semester or two quarters of college-level calculus. (6/0)

EG013T Introduction to Electrical Science 5

Elementary d.c. and a.c. passive circuits. Complex impedance, network analysis, Thevenin's theorem and network theorems. Elements of transient response. Elementary electromagnetic theory. Coulomb's law, Ampere's law, Gauss's theorem. Equals 3 semester hours. Prereq: Concurrent registration in Calculus II: MA036T. (3/2)

EG014T Mechanics of Deformable Bodies 5

Investigation of resistance of materials to external stress. Studies stress-strain relationships in beams, columns, plates, shells and other structural elements. Equals 3 semester hours. Prereq: MA037T. (5/0)

EG001U Statics 7

Introduces applied engineering mechanics. Analyzes various force systems to produce an equilibrium condition acting on rigid bodies at rest or in uniform motion. Friction is also covered. Both graphical and analytical solutions are utilized. Prereq: MA013U. (5/5)

EG002U Kinematics of Mechanisms 6

Studies the analysis of kinematic systems for displacement, velocity and acceleration. Graphical and analytical methods are used in the solutions. Systems include linkages, cams and gear trains. (3/7)

EG003U Dynamics 7

Deals with the forces that produce or change the motion of rigid bodies in translation, rotation, or combination of the two. Solution methods include: force, work-energy, and impulse-momentum methods. Prereq: EG001U. (4/6)

EG004U Machine Design 7

An application course in which the skills acquired during the first four quarters are focused on problems involving the size, shape and material requirements of machine parts for various loading conditions. Machine components that are analyzed are: shafts, weldments, fasteners, springs, clutches and brakes, gears and gear trains, bearings, and chain drives. (5/5)

EG005U Materials Analysis and Testing 2

Studies the terminology used in describing the properties of engineering materials. Reference descriptions are reinforced with actual tests conducted on ferrous metals to determine their mechanical properties. (1/3)

- EG006U Strength of Materials I** 4
An analytical study of material properties and the application with respect to joints, torsional devices and beams, including shear and moments, stresses, and beam design. Prereq: EG006U. (3/2)
- EG007U Strength of Materials II** 4
Studies the deflection of beams, statically indeterminate beams, combined stresses and columns. Provides complete structural analysis. Prereq: EG006U. (3/2)

EL: ELECTRICITY AND ELECTRONICS

- EL001U Introduction to Electronics Laboratory** 3
Develops the student's ability to use electronic test equipment, function effectively in a laboratory and a shop environment, learn the basic skills necessary for a technician and provides an overview of the field of electronics. Also covered are the standard color code, electronic symbols, schematic sketching and preferred values. (1/4)
- EL002U Electric Circuits I** 6
Introduces the physics of electricity, and covers circuit analysis techniques of DC circuits. Major network theorems are covered in detail. Prereq: Intermediate Algebra. (5/2)
- EL003U Electric Circuits II** 6
Studies the steady-state sinusoidal analysis. Includes reacton, resonance, and frequency response. Prereq: EL002U. (5/2)
- EL006U Communications Electronics** 5
Cover general topics in communications electronics. Includes AM, FM, SSB, superheterodyne receivers, TDM and FDM. Prereq: EL015U. (5/0)
- EL007U Communications Circuits I** 6
Studies the theory and servicing of mono and stereo audio amplifiers in both high and low power. Laboratory exercises gives the students hands-on experience with the various types of audio systems. Designed to be taken concurrently with Solid State II (EL077U). Prereq: EL076U. (4/4)
- EL008U Communications Circuits II** 6
Studies the theory and servicing fundamentals of electronic receivers such as AM/FM broadcast, paging devices, CB and scanners. Laboratory exercises are in testing and measuring the various types of receivers. Prereq: EL007U. (4/4)
- EL012U Transmission Systems** 6
Completes the general coverage of communications systems begun in Communications Electronics. Includes transmission lines, Smith charts, standing waves, antennas, propogation, waveguides and microwave components. Prereq: EL006U. (5/2)
- EL013U Active Devices III** 6
Takes a theoretical as well as a laboratory approach to the analysis of control devices and circuits. Some of the topics covered include SCR's, UJT's, Op-amps and voltage regulators. Prereq: EL015U. (4/4)
- EL015U Active Devices II** 6
An analytical approach, with laboratory applications, to solid-state circuitry and basic transistor amplifier analysis and design. Topics covered include biasing techniques, equivalent circuits and their parameters, small-signal amplifiers, large-signal amplifiers, multi-stage amplifiers, feedback and oscilliators. The theory and application of field-effect transistors, unijunctions and new devices also are covered. Prereq: EL035U. (4/4)
- EL026U Electricity** 3
Studies electric circuits and machines. Emphasis is placed on the fundamentals of electricity relative to the operation of electric machines. Topics covered are basic electricity (AC and DC), magnetism, DC generators, and motors. AC generators and motors, transformers, and basic electric machine control. Prereq: Technical Math II. (2/3)
- EL029U Electrical Circuits I** 8
Studies the theory and application of the physics of electricity. Included are definition, symbols, resistors, inductance and the basic laws that apply to

- these components in direct current circuits. Laboratory experiments are designed to enhance the learning of the theories studied. Prereq: Algebra. (5/6)
- EL030U Electrical Circuits II** 8
Studies alternating current and its effects on inductive, capacitive and restrictive circuits, including the effects of filters and resonant characteristics. Laboratory experiments are designed to enhance the learning of theories studied. Prereq: EL029U. (5/6)
- EL035U Active Devices I** 6
Provides the student with a basic understanding of how active devices work, how amplifiers amplify, and how a circuit is analyzed and designed. The course provides a background needed to progress into more complex circuits and systems. Prereq: EL002U. (4/4)
- EL033U Electronic Test Methods** 3
An applications course in which communications circuits, test equipment and test procedures are investigated. Prereq: EL015U, EL006U. (1/4)
- EL034U Transform Circuit Analysis** 4
Studies the use of Laplace transforms to analyze multiple time-constant circuits. Prereq: EL015U. (3/2)
- EL058U Design Projects I** 2
A practical introduction to techniques of design. Students design circuits to perform defined functions. Prereq: EL006U, EL060U. (1/2)
- EL059U Design Projects II** 4
Provides the student with experience at contributing to the overall design, testing and building of a complex project involving the entire class. Prereq: EL058U. (1/6)
- EL060U Microprocessor Interfacing** 3-4
Covers programming and interfacing the 6502 microprocessor. Includes data transfer, I/O techniques, interval timers, address decoding, control signals, output ports, flags, and interrupts. Prereq: EL061U. (3/0-2)
- EL061U Microprocessor Fundamentals** 3-4
Studies basic concepts of microcomputers including CPU, I/O, and memory sections. The student learns how microprocessors are utilized in the system. Prereq: EL062U. (3/0-2)
- EL062U Digital Principles** 5-6
Introduces the basic digital concepts including number systems, logic gates, Boolean Algebra, flip-flops, registers, counters, arithmetic circuits. Prereq: EL035U. (5/0-2)
- EL063U Microprocessor Software** 3-4
Covers CP/M operating system, monitors, assemblers, editors and debuggers. The student learns to write programs in 6502 and 8085 assembly languages. Prereq: EL060U. (3/0-2)
- EL064U Basic Electricity** 2
Addresses the basic concepts of electricity including definitions, voltage and current measurement, and energy consumption. Circuit and equipment protection devices and personal safety also are discussed. (2/0)
- EL065U Advanced Microprocessor Interfacing** 3-4
Studies design techniques of circuits that can be used or adapted to virtually any situation where computer control is needed. Topics include: I/O ports, serial communications, timing, A/D & D/A conversion, data acquisition and closed-loop control. Prereq: EL060U. (3/0-2)
- EL066U Introduction to Robotics** 3-4
Covers general characteristics of industrial robots including support hardware, stepper motors and interface circuitry. The student writes simple programs that control the operation of the robot. Prereq: EL060U. (3/0-2)
- EL067U Digital Diagnostic Techniques** 3-4
Includes digital tests and measurements using logic probes, logic pulsers, current tracers, static stimulus testers, signature analyzers, and digital analyzers. Prereq: EL060U. (3/0-2)
- EL068U Electronic Technological Trends** 3
Investigates some of the newest developments in communications electronics such as fiber optics, lasers and masers. Prereq: EL006U. (2/2)

- EL069U Practical Communications Systems 5**
Investigates specific applications of the general principles studied in Communications Electronics (EL006U) and Transmission Systems (EL012U). Systems discussed include stereo multiplex FM and color TV. Prereq: EL006U, EL012U. (5/0)
- EL070U Radio Frequency Design 4**
Involves the student in designing various communications circuits including RF amplifiers, modulators, filters and others. Prereq: EL006U. (3/2)
- EL071U BASIC Programming for Technicians 4**
Covers programming in the BASIC language with application to electronic problems. Also the student is introduced to Fortran programming. Prereq: Intermediate Algebra. (3/2)
- EL072U Communications Circuits III 6**
Studies the theory and maintenance procedures of the following types of equipment - satellite systems, AM/FM transmitters, antennae and transmission lines. Laboratory experiments are designed to enhance the students' knowledge of the various equipment. Prereq: EL008U. (4/4)
- EL073U Digital Circuits I 3**
Introduces basic digital concepts for the electronic technician. Studies various number systems, basic gates and multivibrators. Laboratory experiments are designed to enhance the learning of the material studied. Prereq: EL029U, EL076U. (2/2)
- EL074U Digital Circuits II 3**
Continues Digital Circuits I extending into counters, registers, D/A and A/D converters, memories, digital arithmetic and basic clocks. Laboratory experiments are designed to enhance the learning of the theories studied. Prereq: EL073U. (2/2)
- EL075U Digital Circuits III 3**
Applies the basic digital principles to more complex digital concepts directed toward the microprocessor. Laboratory experiments are designed to enhance the students' learning of the material covered. Prereq: EL074U. (2/2)
- EL076U Solid State I 8**
Studies the theory and applications of diodes, power supplies, and small signal applications of transistor amplifiers. Laboratory experiments are designed to enhance the learning of the circuits studied. Prereq: EL029U. (5/6)
- EL077U Solid State II 7**
Continues Solid State I with preparation into large signal transistor amplifiers, JFETS, MOSFETS, OP amplifiers and integrated circuits. Laboratory experiments are designed to enhance the learning of the circuits studied. Prereq: EL076U. (4/6)
- EL078U Shop Methods 2**
Covers the shop skills needed by technicians in a modern electrical and/or service center. Topics included are soldering techniques, wiring, parts placement and the use and care of hand tools. (0/4)
- EL079U Introduction to Electricity and Electronics 6**
Designed to give the student an exploratory survey of the various fields in electrical and electronics maintenance and repair and a brief overview of some of the common systems in those fields. Laboratory experiments are designed to familiarize the student with the various pieces of electronics test equipment that are used in the industry. (4/4)
- EL080U Mechanical Devices 10**
Designed to provide the student with the knowledge and skill necessary to service and maintain electro-mechanical devices such as: turntables, video and audio recorders, disc drives and computer keyboards. Lab exercises give students a hands-on approach to enhance the learning of the various types of devices. Prereq: EL030U. (5/10)
- EL081U Introduction to Medical Electronics 4**
Studies the fundamentals of medical electronic equipment with lab exercises to enhance the learning experience. (3/2)
- EL082U Fiber Optics 4**
Explores the fundamentals and applications of fiber optic devices. Laboratory exercises give practical hands-on experience with the optic devices. Prereq: EL008U. (3/2)
- EL083U Robotics - Maintenance and Service 4**
Designed to familiarize the student with the maintenance and service of robotic devices. Laboratory exercises allow the student to program the robot and make basic tests and troubleshooting diagnosis. Prereq: EL077U, EL075U, EL080U. (3/2)
- EL084U Television Servicing 8**
Designed to provide a comprehensive study of the principles of television receiver theory and troubleshooting techniques. Laboratory experiments provide a hands-on approach to testing and measuring the signals and circuits of the receiver. Prereq: EL030U, EL008U. (4/8)
- EL085U National Electric Code 3**
Develops skills in reading and drawing residential house wiring diagrams, and working drawings. Also includes working with the current National Electric Code residential section. (2/2)
- EL086U Residential Wiring 3**
Combines theory and labs to study proper wiring of electrical devices for residential applications. (1/4)
- EL087U Motors and Transformers 5**
AC single phase and three phase motors, and transformers are covered in theory and laboratory exercises. Includes troubleshooting, wiring, motor starting devices and overload protection. (3/4)
- EL088U Motor Control Circuits 4**
Involves design and application for motor control circuits as found in industry and agriculture. Practical experience is obtained in laboratory exercises. (3/2)
- EL089U Air Conditioning and Refrigeration I 8**
Familiarizes the student with the basic refrigeration terms, the basic components, and the specialized equipment necessary to service a refrigeration or air conditioning system. Practical skills are obtained in laboratory exercises. (6/4)
- EL090U Air Conditioning and Refrigeration II 7**
Fundamentals of refrigeration and air conditioning for domestic and light commercial applications are covered in theory and labs. Provides students with system troubleshooting, accessories, and cooling load calculations. (5/4)
- EL091U Fundamentals of Air Conditioning and Refrigeration 9**
Familiarizes the student with the basic refrigeration terms, the basic components, and the specialized equipment necessary to service a refrigeration or air conditioning system. Troubleshooting techniques are also covered. Practical skills are obtained in laboratory exercises. Offered as a summer quarter option to complete a diploma only. (5/8)
- EL092U Heating, Ventilation and Air Conditioning Systems 3**
Provides the student with a working knowledge of commercial air handling units, heating-cooling systems, and hydronic piping layouts. (2/2)
- EL093U Applied Industrial Electronics 7**
Consists of industrial instruments, solid state motor controllers, logic systems, environmental detectors, regulated systems, and telemetering. Practical experience is achieved in lab exercises. (4/6)
- EL094U Heating, Ventilation and Air Conditioning Controls I 5**
Pneumatic environmental temperature controls application, calibration, and troubleshooting are covered in theory and laboratory exercises. (3/4)
- EL095U Heating, Ventilation and Air Conditioning Controls II 7**
Provides advanced training in pneumatic controls and electronic environmental temperature controls. Also includes an introduction to instrumentation, and process controls for industrial applications. (5/4)

EV: ENVIRONMENTAL STUDIES AND POLLUTION CONTROL

- EV001T Man in the Environment: Atmosphere 4**
 One of three non-sequential courses in the interdisciplinary area of man and the environment. All three quarters are taught cooperatively by a social scientist, a biologist and a physical scientist, with subject matter coming from a variety of disciplines. This quarter deals with weather, air pollution, and noise. Problems, concepts, and alternatives are studied for each topic. Three hours science credit and one hour social science credit. (4/0)
- EV002T Man in the Environment: Hydrosphere 4**
 Includes interaction of atmosphere hydrosphere and lithosphere biology of a closed ecosystem, ecology, water environment, pollution of waters, thermal pollution, wastewater treatment, control technology, humanity and water, legislation and pollution control. Three hours science credit and one hour social science credit. (4/0)
- EV003T Man in the Environment: Lithosphere 4**
 Emphasizes land-based problems of environmental interactions. Topics are: the urban environment, transportation, population, food, solid waste, national priorities, economics of pollution, legal aspects of pollution, control enforcement, conservation, and comparative social and political systems, responses to environmental issues. Two hours science credit and two hours social science credit. (4/0)
- EV007T Energy Today 4**
 Designed to examine energy concepts, problems and alternatives. Topics include energy sources (solar, nuclear, coal, etc.), energy conservation for the consumer, energy in living systems, and politics and economics of energy production, distribution and use. Three hours science credit and one hour social science credit. (4/0)
- EV004U Introduction to Environmental Health 2**
 Includes an understanding of the history and philosophy of the environmental health profession and the development of a professional code of ethics. The basic elements of environmental control of water, air, food, insects, rodents, and waste materials are included. (2/0)
- EV009U Recreational Sanitation 2**
 Examines the application of sanitation principles to recreational facilities. The study of sanitation control at mass gatherings, swimming pools and parks is included. Recreational sanitation programs are developed and evaluated. Prereq: EV004U, EV015U or approval of department head. (1/2)
- EV010U Solid Waste Management 2**
 Examines the principles of collection, handling, storage, and disposal of solid wastes by landfilling, incineration and composting. Developing community solid waste control programs and codes are studied. The course includes studies of techniques for nuisance investigations and solid waste problem solving. (1/2)
- EV013U Supervised Field Studies 12**
 Offers supervised on-the-job training in inspection procedures, complaint investigations, food, water and milk sampling, reports writing, and administration in a typical work environment. (0/36)
- EV014U Seminar: Environmental Health 2**
 Studies problems encountered during the student's field learning experience. (2/0)
- EV015U Insect and Rodent Control 2**
 Includes identification of insects and rodents of public health significance. The course explores techniques of surveying for insects and rodents. Special consideration is given to the techniques involved in the control methods for flies, mosquitoes, and household insects and rodents. (1/2)
- EV018U Air Quality Management 4**
 Considers the sources of air pollution, the classification of pollutants, the meteorological aspects, the effects of atmospheric pollution, the prevention and control of air pollution, and the monitoring of pollutants. (4/0)
- EV024U Diseases of Man 2**
 Develops an understanding of terms associated with disease transmission.

- The course examines various chains of transmission, and the cause and effect relationships of diseases associated with the environment. It studies the investigation of disease outbreaks caused by a breakdown of sanitation. (2/0)
- EV025U Water Supplies I 2**
 Considers the various sources of water, the physical characteristics of water, and sources of water contamination. The types, construction, and protection of water wells are studied. Techniques of water-well inspection and code enforcement are emphasized. (1/2)
- EV026U Wastewater Systems I 2**
 Defines the terms associated with wastewater disposal. The sources of wastewater and the relationship to public health are studied. Soil percolation tests, and designing and inspecting septic tanks are practiced. Study of the sewage disposal code and its enforcement is included. (1/2)
- EV027U Food and Milk Sanitation 6**
 Includes a basic understanding of milk and food microbiology. Techniques for inspecting milk sanitation on dairy farms and in milk-processing plants are investigated. Restaurant inspection and food manufacturing plant inspection are studied. Techniques for sampling and testing of milk and foods are presented. Prereq: EV004U, EV024U, or approval of department head. (4/4)
- EV028U Shelter Environment 6**
 Examines planning, zoning, and proper land use. Techniques for housing and institutional inspection are included. Housing and sanitation surveys are made and evaluated. Studies of code enforcement of laws involving housing, nursing homes and schools are included. Prerequisite: EV004U, EV024U, EV015U or approval of department head. (4/4)
- EV029U Water Supply Systems II 3**
 Examines methods of water acquisition and methods of water treatment as applied to small and large water systems. Sampling and analysis procedures for water quality are presented. Water distribution methods are discussed. Prereq: EV025U. (2/2)
- EV030U Wastewater Systems II 3**
 Offers additional knowledge in private wastewater system design and investigation. A study of methods of collection and disposal of sewage employed by municipalities and other public entities is included. Laboratory and field testing techniques are introduced. Prereq: EV026U. (2/2)
- EV031U Quality Control Product Analysis 2**
 Introduces methods of protein, moisture, fat, crude fiber, ash, vitamins and mineral analysis. Course includes methods of sampling and product inspection. (0/4)
- EV032U Basic Chemical Instrumental Methods 3**
 Introduces methods of chemical analysis stressing the use of instruments such as ultraviolet, visible and infrared spectroscopy, atomic absorption, potentiometric, and gas liquid chromatography. Students will also learn basic electronic troubleshooting, and preventive maintenance related to chemical instruments and equipment (2/3)
- EV033U Laboratory Management and Safety 2**
 Introduces techniques in laboratory management in such areas as purchasing chemicals and equipment, chemical storage, recordkeeping, inventory control and quality control programs. Also includes techniques in lab safety procedures. (2/0)
- EV034U Agricultural Product Analysis 2**
 Introduces methods of basic soil analysis, fertilizer analysis for nitrogen, phosphorus and potassium, fecal stock analysis and moisture treating. (0/4)
- EV035U Special Projects 2**
 Offers special investigative projects related to water or wastewater plant operations selected by the student with approval of the department advisor. (0/4)
- EV036U Wastewater Treatment Plant Troubleshooting 1**
 Focuses on process control for plant operation. Students identify selected

problems in plant processes and develop viable approaches to problem solving. (0/2)

EV037U Internship 12

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. (0/40)

EV038U Treatment Plant Operation 2

Offers supervised training period in either water and/or wastewater treatment plant operation. The student participates in routine operation and maintenance of the pilot plant. (0/4)

EV039U Environmental Analysis 2

Covers advanced water and wastewater analysis procedures such as oils and grease, COD, seeded BOD, fecal coliform, and phosphorus determinations. Discussion and demonstration of other advanced procedures are included. (0/4)

EV040U Sludge Treatment and Disposal 2

Discusses principles and concepts of operation and maintenance of sludge treatment and disposal unit. Topics include anaerobic digestion, aerobic digestion, dewatering and drying techniques. (1/2)

EV041U Activated Sludge Treatment 2

Emphasizes the operation and maintenance of activated sludge treatment units. Hands-on operation of the activated sludge is included (1/2)

EV042U Water Resources 2

Surveys the hydrologic cycle and its relationship to water as a resource for human consumption, and agricultural and industrial usage. Includes discussion of water pollution and its effects on man and the environment. (2/0)

EV043U Basic Environmental Science 3

Addresses cycles of nature, with emphasis on ecological and microbiological theory as it relates to water and wastewater treatment. An introduction to the organic chemistry and physics of wastewater treatment is included. (2/2)

EV044U Water Supply and Distribution 4

Focuses on design principles, installation, repair and operation of wells and water distribution and storage components, such as hydrants, meters and cross-connection prevention devices. Includes discussion of ground water, basic hydraulics and flow measurement. (2/4)

EV045U Water Analysis 2

Covers basic principles of approved chemical and microbiological analyses of potable water. Laboratory techniques include hardness, iron, alkalinity, flouride, chlorine, turbidity, and coliform determinations. Discussion and demonstration of advanced analytical procedures are included. (0/4)

EV046U Water Treatment 4

Offers instruction in water treatment methods, equipment, maintenance, and plant control. Hands-on pilot plant operation of coagulation, softening, sand filtration, and chlorination units is included. (2/4)

EV047U Wastewater Collection 2

Covers the collection of wastewaters by gravity and pumping. Discussion of design, installation, maintenance, and repair of wastewater collection systems is included. Manhole safety is emphasized. (1/2)

EV048U Lagoons 2

Discusses principles and concepts of operation and maintenance of waste and stabilization lagoons, series flow, parallel flow, fill and draw operation, loading, detention time, and drawdown. (2/0)

EV049U Wastewater Analysis 2

Provides instruction in the basic parameters of wastewater analysis, with emphasis on approved BOD, solids, and ammonia analysis procedures as required by state and federal discharge permits. (0/4)

EV050U Wastewater Treatment 4

Focuses on the operation and maintenance of wastewater treatment processes. Pretreatment, sedimentation, trickling filters, and basic solids handling are covered. Hands-on operation of the pilot wastewater treatment plant is included. (2/4)

EV051U Pumps 2

Includes instruction in basic operating principles, maintenance, and repair procedures of pumps typically found in water and wastewater treatment facilities. (1/2)

EV052U Water and Wastewater Plant Administration 2

Offers instruction and practice in planning and conducting an organized system of plant recordkeeping and report writing. An introduction to personnel procedures, public relations, and municipal management responsibilities in water and wastewater processing is included. (2/0)

EV053U Basic Laboratory Skills 2

Emphasizes the use and care of basic laboratory glassware and equipment, including laboratory safety procedures. Discussion of basic chemical equations, solutions, and acid/base titrations is included. (1/2)

EV054U Introduction to Water and Wastewater Treatment 2

Introduces the basic concepts and principles of water and wastewater treatment. Emphasis is placed on terminology and unit process identification. (2/0)

EV055U Supervised Plant Operation 12

Offers supervised training period at Kirkwood Community College wastewater treatment plant. The student participates in the routine daily operation and maintenance of the plant under the supervision of college staff. (0/24)

EV056U Introduction to Quality Control 3

Introduces the techniques and principles of statistical quality control within industry. Various techniques of sampling will be utilized. Charting and graphing for observer results will be accomplished. (2/2)

FL: FOREIGN LANGUAGES

FL001T Elementary French I 4

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

FL002T Elementary French II 4

Continues Elementary French I. Prereq: FL001T or equivalent. (4/0)

FL003T Elementary French III 4

Continues Elementary French II. Prereq: FL002T or equivalent. (4/0)

FL004T Intermediate French I 5

Develops fundamental skills in the French language. The emphasis is on acquiring the proficiency to converse easily with the native speaker on general topics and to read contemporary materials. Includes activities that promote an understanding and knowledge of French-speaking peoples and their culture. Prereq: FL003T or equivalent. (5/0)

FL005T Intermediate French II 5

Develops fundamental skills in the French language. The emphasis is on acquiring the proficiency to converse easily with the native speaker on general topics and to read contemporary materials. Includes activities that promote an understanding and knowledge of French-speaking people and their culture. Prereq: FL004T or equivalent. (5/0)

FL007T French Civilization I 3

Provides readings on France, the French people and their way of life, and the provinces. Course is conducted in French. May be taken as independent study. Prereq: FL006T or equivalent. (3/0)

FL008T French Civilization II 3

Provides readings on French history, politics, unions, education, and the economy. Course is conducted in French. May be taken as independent study. Prereq: FL006T or equivalent. (3/0)

FL009T French Civilization III 3

Provides readings on the cultural heritage of France from the Middle Ages to the present. Units include literature, music, art, drama. Course is conducted in French. May be taken as independent study. Prereq: FL006T or equivalent. May be repeated for credit. (3/0)

FL010T Elementary German I	4
Develops fundamental skills in the German language. The 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 people of Germany and their culture. (4/0)	
FL011T Elementary German II	4
Continues Elementary German I. Prereq: FL010T or equivalent. (4/0)	
FL012T Elementary German III	4
Continues Elementary German II. Prereq: FL011T or equivalent. (4/0)	
FL013T Elementary Spanish I	4
Develops fundamental skills in the Spanish language. The 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 people of Spanish-speaking peoples and their culture. (4/0)	
FL014T Elementary Spanish II	4
Continues Elementary Spanish I. Prereq: FL013T or equivalent. (4/0)	
FL015T Elementary Spanish III	4
Continues Elementary Spanish II. Prereq: FL014T or equivalent. (4/0)	
FL016T Intermediate Spanish - Conversation	5
Develops fundamental skills in the Spanish language. Emphasizes acquiring the proficiency to converse easily with the native speaker on general topics. Includes activities that promote an understanding and knowledge of Spanish-speaking peoples and their culture. Prereq: FL015T or equivalent. (5/0)	
FL017T Intermediate Spanish - Reading	5
Develops fundamental skills in the Spanish language. Emphasizes acquiring the proficiency to read contemporary materials. Includes activities that promote an understanding and knowledge of Spanish-speaking peoples and their culture. Prereq: FL015T or equivalent. (5/0)	
FL019T Spanish Civilization	3
Provides readings on Spain, the people and the land, their history and way of life. Students may choose to emphasize a special interest area. Conducted in Spanish. May be taken as independent study. Prereq: FL017T or equivalent. May be repeated for credit. (3/0)	
FL020T Spanish-American Civilization	3
Provides readings on the Spanish-speaking countries of the Western Hemisphere. Student may choose a special interest area: Mexico, Central America, South America, or some common aspect of all or several of these countries. Conducted in Spanish. Prereq: FL017T or equivalent. May be repeated for credit. (3/0)	
FL023T Intermediate German I	3
Develops fundamental skills in the German language. Emphasizes acquiring the proficiency to converse easily with the native speaker on general topics and to read contemporary materials. Includes activities that promote the understanding and knowledge of German people and their culture. Prereq: FL012T or equivalent. (3/0)	
FL024T Intermediate German II	3
Continues Intermediate German I. Prereq: FL023T or equivalent. (3/0)	
FL025T Intermediate German III	3
Continues Intermediate German II. Prereq: FL024T or equivalent.	
FL031T Advanced German I	3
Provides for improvement of speaking, reading and writing skills through multi-media materials on contemporary German civilization. Prereq: FL025T or equivalent. (3/0)	
FL032T Advanced German II	3
Continuation of Advanced German I. Prereq: FL031T or equivalent. (3/0)	
FL033T Advanced German III	3
Continuation of Advanced German II. Prereq: FL032T or equivalent. (3/0)	

FS: FIRE SAFETY

FS001U Introduction to History and Philosophy of Fire Science	2
Provides a basic description and explanation of the core courses required for the associate degree. Discusses history and philosophy of fire protection; organization at the local, state and national level; relationships with the insurance industry, governmental bodies and other agencies. Includes a study of how our fire services are organized, an introduction to basic fire problems, and an evaluation and survey of fire protection. (2/0)	
FS002U Building Design for Fire Protection	4
Studies building construction as it relates to its reaction under fire conditions. Interpretation and application of fire prevention in building codes as they are related to the structural strengths of a particular design. (4/0)	
FS003U Fire Protection Systems and Equipment	4
Examines the in-house devices and systems utilized to support the role of the fire service in the detection and suppression of fire. (4/0)	
FS004U Industrial Fire Protection and Security	2
Develops the precautions and safeguards essential for protection of lives and property in various types of occupational establishments. (2/0)	
FS005U Fire Protection Administration and Management	2
Includes application and implementation in the fire service; relationship of administration at various levels of the organization including communications, legal aspects, budgeting and evaluation of fire data for statistical purposes. Provides an in-depth study of management as it is defined: a dynamic process that effectively utilizes all resources, human and material, in the achievement of policy and goals established for the department. (2/0)	
FS006U Strategic Planning for Fire Protection	3
Designed to help the student understand the overall fire problem at the area, community, multiple building complex, or the individual building levels. Provides the student with the ability to identify overall and specific fire problems. Describes the management tools (systems analysis) and data collection systems from which the student can then develop solutions and alternatives. (3/0)	
FS007U Tactics for Fire Protection	3
Includes organization for major fires, including pre-planning, command post operations, utilization of manpower and equipment for large scale operations, and supply and communication. (3/0)	
FS008U Fluid Flows	4
Involves application of the laws of hydraulics, design features, flow characteristics and tests needed to ensure adequate water supplies on the fire ground. Flow testing is an integral part of this course. (4/0)	
FS009U Hazardous Materials	4
Discusses the properties of chemically active and hazardous materials, such as flammable liquids, combustible solids, oxidizing and corrosive materials, and radioactive compounds, as they are related to materials and processes connected with transportation, storage, usage and fire potentials. (4/0)	
FS010U Fire Behavior	4
Involves a 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 the extinguishing of a fire. A combination lecture, demonstration and class participation course designed to teach the basic facts necessary to understand fire behavior. The latter part of the course includes the principles of fire suppression. (4/0)	
FS011U Fire Investigation	2
Studies technical matters in a clear and useful manner, permitting the individual to go to the scene of a fire and come back with some answer as to what caused it, who set it, what defect was responsible, or generally, what happened. (2/0)	
FS012U Fire Insurance	3
Presents basic concepts of how fire insurance industries operate. Discusses insurance contracts, basic insurance terminology, basic rate structures, how	

rates are set, how debits and credits are assessed, and buying an insurance contract. (3/0)

GE: GEOGRAPHY

GE001T Human Geography 4

Studies the geography of population and the principle ways of life with consideration of the capacity of the earth for future population growth. (4/0)

GE004T Of Earth and Man: Introduction to Geography 4

Compares the activities of men in societies occupying similar environmental zones. A presentation of the range of choices that we face in meeting the challenges of human existence. This course is concerned with the relationship of man, culture and environment, and seeks to develop an understanding of that complex relationship. (4/0)

GR: GRAPHICS

GR002U Mechanical Drafting I 6

Deals with the following topics: the use of drawing instruments, lettering, geometric constructions, orthographic projection, and freehand drawing. (2/8)

GR003U Mechanical Drafting II 6

The following special topics are covered: sectioning of parts, weights of mechanical parts, isometric and oblique pictorial drawing, auxiliary views, weld symbols, mechanical fasteners, and structural assembly. Also an introduction to CAD. Prereq: GR002U. (2/8)

GR004U Mechanical Drafting III 6

Studies dimensioning and tolerancing practices, drawing of gears. A major part of the quarter is spent in drawing a complete set of working drawings including assembly, details, bill of material and calculation of weights. Prereq: GR003U. (2/8)

GR005U Design Problems I 3

Includes special topics in machine design, an individual creative design project, and general design procedure instructions ranging from problem recognition to problem solution. (2/3)

GR006U Design Problems II 6

Design principles and procedures are applied to a specific design project culminating in a complete set of working drawings. Prereq: GR005U. (1/11)

GR007U Layout and Design 5

Studies two-dimensional design and its relationship to graphic reproduction in terms of balance, contrast, color, form and texture for specified communications. Covers the application of design theory to actual production work in a laboratory environment. (1/8)

GR009U Typography 3

Studies typefaces as related typographic design and layout. Historical evolution of type is traced from the origins of the alphabet to the present. Discusses terminology, including several ways in which type is composed. A prerequisite for this is a typing course. (1/4)

GR011U Copy Preparation I 9

Introduces basic fundamentals and techniques in preparing camera ready art for production. Students have hands-on experience with equipment that is used to produce a pasteup. (2/14)

GR012U Copy Preparation II 4

Covers advanced preparation of art work with intent for color, photo-mechanical transfer techniques, and line and halftone considerations. Prereq: GR011U. (.5/7)

GR019U Platemaking I 1

Presents an introduction to the kinds of lithographic plates, nomenclature and specific applications for each in the printing cycle. Exposure and development of plates are stressed. (.5/1)

GR020U Platemaking II 1

Surveys the chemistry involved in preparing plates as related to problems encountered on the press: length of run, additions, deletions, and proper application of preservatives. Prereq: GR019U or consent of instructor. (.5/1)

GR021U Process Camera I 1

Studies high-contrast photography as it relates specifically to the lithographic process. Emphasis is placed on the production of line negatives and positives, with an introduction to contact printing. (.5/2)

GR022U Process Camera II 3

Presents advanced techniques of line and halftone negatives, including an introduction to the theory of special effects. Related darkroom operations and nomenclature. Prereq: GR021U or consent of instructor. (1/4)

GR023U Process Camera III 2

Offers advanced theory and practical application of photographic sensitized materials applicable to the lithographic printing processes. Attention is given to special effects, photographic techniques, and an introduction to the theory of color separation. Prereq: GR022U or consent of instructor. (1/2)

GR024U Image Assembly I 1

Covers simple stripping of negatives and positives to layout specifications for duplicator size presses. (.5/2)

GR025U Image Assembly II 2

Covers advanced stripping techniques, including multiple impositions, color register and pin register systems. Introduces to step-and-repeat and multiple-burn stripping applications. Prereq: GR024U or consent of instructor. (.5/3)

GR026U Image Assembly III 3

Offers a systematic application of advanced stripping techniques for single color and multiple color runs on duplicator and larger lithographic presses. Prereq: GR025U or consent of instructor. (1/4)

GR027U Offset Presswork I 4

Emphasizes the practical and technical aspects of offset printing including all machine parts and operations in the "make-ready" cycle related to duplicator size presses. (2/4)

GR028U Offset Presswork II 4

Emphasis is placed on tone control and the press as related to line and halftone reproduction. Fountain solutions and formulae related to inks, paper, plates, pH control and associated techniques are studied. Prereq: GR027U or consent of instructor. (1/6)

GR029U Offset Presswork III 4

Advanced study of theory and practical aspects relating to color reproduction and plating, including operation of presses larger than duplicator. Consideration is given to troubleshooting and maintenance of large and small presses. Prereq: GR028U or consent of instructor. (1/6)

GR030U Copy Preparation III 3

Studies advanced principles of preparing art work for commercial offset, including newspaper, magazine and book publication techniques. Prereq: GR012U (.5/5.5)

GR031U Bindery Operations 1

Offers practical application of the various binding operations, including fastening and covering printed materials, folding, stitching, cutting, trimming, punching and other associated finishing operations. (0/2)

GR032U Architectural Drafting I 13

Covers sheet layout, orthographic projection, dimensioning, line quality, sketching, perspective and lettering. (2/22)

GR033U Architectural Drafting II 13

Teaches the proper procedures in developing site plans, plan views (footing plans, floor plans and framing plans), elevations and wall sections. Prereq: GR032U. (2/22)

GR034U Architectural Drafting III 11

Covers the development of a set of working drawings for a commercial or institutional type building. Students learn to use manufacturer's reference materials. Prereq: GR032U, GR033U. (2/18)

GR035U Architectural Drafting IV 14
Enables student teams to develop a set of working drawings for an addition to an existing building. Prereq: GR032U, GR033U, GR034U. (2/27)

GR036U Basic Mechanical/Electrical 2
Covers graphic application of electrical, plumbing and mechanical work as related to architectural working drawings. (2/0)

GR041U Landscape Drawing 4
Emphasizes basic drawing techniques, site analysis and design principles. Students work on residential and recreational design problems. (3/2)

GR042U Elementary Drawing 2
Introduces the use of drafting tools and the methods and skills of drawing as a visual tool for the interior designer. (0/4)

GR043U Phototypesetting I 3
Covers basic techniques in phototypesetting terminal operation and read out. Students perform assignments that will develop keyboard skills. Prereq: typing (2 cr). (.5/5)

GR044U Phototypesetting II 2
Technological skills are introduced and developed including search and replace tabing and paging. Includes hands-on experience developing these skills. Prereq: GR043U. (0/4)

GR045U Phototypesetting III 1
Develops advanced skills in the use of phototypesetter including code translations. Students do production work to maintain and develop marketable skills. Prereq: GR044U. (0/2)

GR046U Copy Preparation IV 3
Advanced skills in pasteup with use of overlays and key line art are developed. Students will use support equipment and prepare camera ready art in a lab setting. Prereq: GR045U. (0/6)

GR047U Platemaking III 1
Advanced techniques of platemaking are explored and a working knowledge of pin registration is developed. Prereq: GR020U. (0/2)

GR048U Printing Estimating 2
Covers estimating production costs, specification of equipment, materials inventory and control, and the study of systems that expedite graphic reproductions. Emphasizes application of techniques in estimating to actual job production specifications and cost. (1/2)

GR001V Graphic Skills 2
Develops basic drafting skills, both freehand and with layout instruments. (1/2)

GS: GENERAL STUDIES

GS001G Introduction to the Associate of General Studies Degree 3
Introduces the goals, components and policies of the Associate of General Studies Degree program. The student determines the appropriateness of this degree for achieving his or her educational goals, and acquire skills for developing a portfolio, securing available learning resources, writing learning objectives, developing evaluation procedures and developing a preliminary plan. (3/0)

GS002G Portfolio Development 1-4
Emphasizes the portfolio, which is the formal written communication in which the student defines and documents his or her learning experiences and requests college recognition toward the attainment of an Associate in General Studies degree. The process of developing a portfolio is for persons who have prior learning that cannot be easily measured through CLEP or proficiency exams. (1-4/0)

GS003G Final Plan Development: Associate in General Studies 1
Provides an opportunity for students to consult and receive direction and assistance from a mentor in the development of a final plan. Prereq: GS001G. May be repeated with permission of department chairman and mentor. (1/0)

GS004G Independent Projects: Associate of General Studies 1-12

Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. The course allows students to explore and experience material not offered in other Kirkwood class offerings. Independent projects may be taken each quarter to a maximum of 12 credit hours. Prereq: Permission of department chairman. (1-12/0)

HE: HOME ECONOMICS

HE001U Introduction to Food Service/Hospitality Careers 1

Introduces students to careers in the hospitality/food service industry, as well as training requirements and personal characteristics desirable for employment in the industry. Guidance is offered in developing individual career goals. (1/0)

HE003U Textiles 4

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. (3/2)

HE005U Food Production I 6

Provides experience in the use and care of small and large quantity cooking equipment. Emphasizes kitchen procedures, work simplification processes, and kitchen safety and sanitation. Introduces food preparation skills and techniques for yeast breads, quick breads, pastry, cakes, cookies, other desserts, salads, dressings, sandwiches, eggs, beverages, fruits, vegetables, appetizers, relishes, milk and milk products, breakfast dishes, condiments and seasonings. (0/12)

HE006U Food Production II 6

Provides continued experience in the use and care of equipment, safety, sanitation, and work simplification procedures. Includes large and small quantity food production in meat, poultry, fish, seafoods, soups, sauces, gravies, yeast breads, convenience and synthetic foods, dehydrated and concentrated foods. Prereq: HE005U. (0/12)

HE007U Food Production III 6

Provides continued experience in quantity food preparation, use and care of equipment, safe food handling, and some specialized food preparation and service. Prereq: HE006U. (0/12)

HE008U Menu and Servicing Fundamentals 3

Applies basic nutrition principles and aesthetic values to menu planning, and directs study toward the various forms of commercial/institutional menus, and their relationships to food purchasing, costing, personnel, equipment and determination of selling price, dependent upon the types of establishment. (3/0)

HE009U Food Service Sanitation and Safety 2

Studies the relationship and requirements of food, food handling, and food preparation necessary to produce safe and sanitary foods, including the study of food-borne illnesses, pest control, commercial dishwashing and local sanitation regulations. Identifies safe working practices, conditions, equipment safety, OSHA requirements and basic first aid procedures and CPR. (2/0)

HE010U Food Composition I 3

Examines the basic principles of nutrition in relation to feeding individuals of all ages. Begins studies of foods, their nutritional contributions, compositions, characteristics, and requirements in handling, preparation, service, and storage. (3/0)

HE011U Food Composition II 3

Continues study of foods, their nutritional contribution, composition, and characteristics and requirements in handling, preparation, service, and storage. Emphasis is on yeasts, flours, baked products, and pastries. Prereq: HE010U. (3/0)

HE012U Equipment and Design 4

Studies the types and capabilities of commercial/institutional food service

equipment available. Studies floor plans of commercial/institutional kitchens in relation to menu needs, work flow, space and personnel. Students design a commercial or institutional floor plan, including equipment, specifications and approximate cost. Includes field trip studies of large quantity kitchens and equipment companies. (3/2)

HE013U Garde Manger 3

Specializes in cold foods and buffet preparation, with emphasis on chaud froid work, aspics, and en croutes, food/ice sculpturing, costing and presentation. Prereq: permission of instructor. (0/6)

HE016U Quantity Food Purchasing 3

Studies the requirements for quantity food purchasing related to food specifications. Specification writing, and determining specifications according to various menu requirements. Includes study of inventories and relation of inventory records to purchasing. (3/0)

HE017U Food Service Internship 6

Provides six-week employment experiences to apply competencies learned in the classroom and laboratory, to gain additional quantity food production experience and to develop the ability to work with food service-oriented people. Prereq: Successful completion of required classroom and laboratory courses. (0-18)

HE020U Interior Analysis and Design 5

Analyzes the interior, including the construction materials and mechanical systems. A study of graphic presentation as it interprets design for the consumer, including blueprint reading, perspective, elevations and medias. Emphasizes graphic presentation as a selling aid and communication tool with client and tradesman. Includes units on schedules, estimates, bids and contract. (4/2)

HE021U Kitchen and Bath Planning 3

Provides standards and skills in judging, designing, and implementing kitchen layouts. Includes the study of work space needs, cabinet locations, evaluation, purchasing and installation, counter tops, storage, appliances, lighting, and ventilation needs of clients. Assignments include studio design work and kitchen design experiences to increase skills and use lecture information. (3/0)

HE022U Food Composition III 3

Continues study of foods, their nutritional contribution, composition and characteristics; and requirements in handling, preparation, service and storage. Emphasis is on red meats, poultry and fish. Prereq: HE011U. (3/0)

HU: HUMANITIES

HU007T Encounters With Ethics 2

Introduces theoretical ethics, the study of standards of conduct, human values and moral judgment. Ethical concepts such as justice, human rights and responsibility are examined from different perspectives. An inquiry method is applied to the discussion of ethical issues drawn from life experiences, literature, and current periodicals. (2/0)

HY: HISTORY

HY001T U.S. History (Seventeenth and Eighteenth Century) 4

Surveys the social, political and economic history of the United States with emphasis on the forces resulting in the emergence of the new nation through the age of Jackson. (4/0)

HY002T U.S. History (Nineteenth Century) 4

Surveys the social, political and economic history of the United States from the 1840's through the Progressive Era. (4/0)

HY003T U.S. History (Twentieth Century) 4

Surveys the social, political and economic history of the United States from World War I to the present. (4/0)

HY016T Europe in the Age of Monarchy 4

Explores the social, cultural, intellectual, economic and political foundations

of Western civilization in Europe from the Middle Ages to Absolutism and Constitutionalism. (4/0)

HY017T Europe in the Age of Revolution 4

Studies four revolutions-the Scientific, the French, the Industrial and the Nineteenth Century Liberal revolutions-that changed the traditional Western society into the modern world. (4/0)

HY018T Europe in the Age of Totalitarianism 4

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. (4/0)

HY800T Independent Study - History 1-4

Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairman before registering. (1-4/0)

IS: INTERDISCIPLINARY STUDIES

IS008T Science and Society 4

Considers the interactions of science and society during past ages, in the present and for the future. Topics include fads and fallacies in science; interactions of science, music, art, literature and politics; government support of science; role of science in various civilizations; energy production and use; the space program; and "consumer survival." (4/0)

IS009T Death and Dying 4

Examines selected topics dealing with death and dying, including health care, religious, social, legal and funeral practices. (4/0)

IS010T Man Evolving 4

Considers biological evolution and applications to the history of man. Hypotheses and theories concerning origins of the earth. Life, levels of life, man and races are examined. Topics investigated include primate classification and relationships, human evolution, anthropological and archaeological techniques, the evolution of prehistoric culture, man's migration into North America, etc. Concept-building subject areas include scientific method and logic, genetic principles, population genetics, evolutionary principles, and paleontological principles. (4/0)

IS014T Irony in Latin American Fiction 1

Introduces plot and theme analysis as applied to four satirical Latin American short stories. (1/0)

IS015T Folk Music of the Andes 1

Surveys forms and types of South American popular music. Recorded music and samples of lyric poems show a variety of ethnic elements in Latin American culture. (1/0)

IS027T Environmental Encounters 3-4

Utilizes a wilderness area as a living classroom to teach the concepts of environmental science, outdoor living skills, sensory awareness and self-expression, leadership training, group dynamics, history and personal values clarification. (0/9-12)

IS028T You and Your Community 1

Focuses on historical development of the Cedar Rapids area and on the resources, operations and programs of educational and government agencies. The arts, business, industry and labor also are examined. (1/0)

IS033T Non-verbal Dimensions of Inter-cultural Communication 1

Emphasizes the concept that examining the non-verbal behaviors of other cultures can broaden our awareness and understanding of ourselves as well as others. (1/0)

IS038T Introduction to Latin American Fiction 1

Emphasizes perceptual tendencies in Latin American cultures revealed through the use of satire, symbolism and fantasy in novelettes and short stories. (12/0)

IS041T Human Sexuality 4

An overview of 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. (4/0)

IS042T Encounters in Humanities 4

By asking a series of questions about various examples of human activity (literature, philosophy, history, visual arts and music), the course teaches a method of inquiry for use in understanding and appreciating the humanities. (4/0)

IS047T Understanding Cultures 4

Examines the culture of a particular country. Special emphasis is placed on contemporary political, economic, religious, business, and social institutions. The student also learns "survival" skills useful in business trips to the country under study. (4/0)

IS001V Homemaker-Home Health Aide I 5

A preparatory course for persons who desire employment as homemaker-home health aides. This course will address orientation to this occupation, and the following topics as they relate to this occupation: human relationships, food/nutrition, home management, child care, elderly care, and care of the disabled. (5/0)

IS002V Homemaker-Home Health Aide II 3

Addresses health needs as they relate to this occupation, including medical ethics, types of patients, body mechanics, routine care procedures, and caring for patients in isolation. The second phase of 120-hour training for persons who desire employment as homemaker-home health aides. (1/4)

JO: JOURNALISM

JO101T Introduction to Communications Media 4

Presents a broad yet incisive picture of communications media. Print media, radio and television, advertising and public relations are examined from both the historical and contemporary perspectives. Use of educational media is also discussed. (4/0)

JO102T Journalism Laboratory 2

A laboratory for basic reporting and newswriting. Combines weekly meetings and independent work on college publications. May be taken twice. (2/1)

JO103T Introduction to Photography 3

Introduces students to the 35 mm camera and to techniques of shooting, processing and printing black and white photographs. (2/2)

JO104T Photojournalism 3

Covers the use of photography in newspapers, magazines and brochures. Includes the study of the image and its layout. Emphasis on black and white photography with some examination of color. (2/2)

JO105T Newswriting and Reporting I 4

Involves an in-depth study of objective news reporting and advocacy, journalism as well as training in writing the news story, writing headlines, layout, copyright and editing. Prereq: CM101T. (4/0)

JO106T Promotion and Public Relations 3

Designed to teach students how to plan an effective promotion campaign by identifying target audiences, understanding the effect of mass communication media, and preparing materials for media campaigns. Students are involved with campaign projects. (3/0)

JO107T Principles of Design and Layout 2

Includes work with typography and two-dimensional design. Production-oriented assignments result in dummy sheets and actual paste ups for newspaper, magazine, brochure and advertising formats. Prereq: CM214T. (0/4)

JO108T Newswriting and Reporting II 3

Emphasis is on advanced reporting and writing. Students cover topics ranging from government and the courts to business, economic and social issues. Prereq: JO105T. (3/0)

LE: LAW ENFORCEMENT

LE002T Patrol Procedures 4

Studies the basic methods used by a police patrolman. Subjects covered are planning the patrol, methods of patrol, problems faced by the patrolman, 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.

LE004T Criminal Investigation 4

Presents the basic techniques of criminal investigation, including examination of the criminal scene, collecting physical evidence, interrogation and investigation, drawings, report writing and basic photography. Investigative methods related to specific crimes such as arson, burglary and homicide will be treated. Specialized detection methods and services of the crime laboratory will be included.

LE005T Crime Scene Investigation 4

Deals with advanced methods of criminal investigation, utilizing special methods and techniques as they apply to felony and misdemeanor cases. (4/0)

LE009T Introduction to Criminal Justice 4

Covers the various sub-systems in our present and past criminal justice system. It will hint at the future and study proposed changes that affect the major components of this sphere of knowledge. The major sub-components, including law enforcement, corrections (both adult and juvenile), and the courts will be discussed. (4/0)

LE010T Traffic Safety and Accident Investigation 4

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. (4/0)

LE012T History of Police in America 4

Traces the development of the police officer and the police organization, from the colonial period to modern times, investigates the problems encountered during various periods of development of American police agencies. (4/0)

LE014T Motorcycle Safety Education 4

Develops the knowledge necessary to organize and administer the program. This would include class scheduling, instruction of staff, physical support, cycle procurement, community support and promotion. (3/2)

LE015T Crash Injury Management for Law Enforcement Officers 3

Examines the roles and responsibilities of law enforcement officers at the scene of a vehicle collision with injuries. Emphasis is placed on emergency care training and a majority of the course deals with the practical aspects of emergency care required at an accident scene; Legal aspects regarding same are also examined. (2.5/1)

LE800T 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: Consent of instructor and department chairman. (Hours arranged)

LS: LIBRARY SERVICES

LS001T Instruction in Educational Media 3

Covers the planning and production of different types of projected and non-projected teaching materials for use in the classroom, and selection, utilization and evaluation of audiovisual materials in educational programs. (3/0)

LS011T Library Technician Practicum 4

Offers experience in a library setting where students serve as aides. Students spend 10 to 12 hours per week working under the supervision of a librarian. Prereq: consent of instructor. (0/10-12)

LS012T Introduction to Uses of the Library 2

Provides self instruction in basic skills of library research. Students are allowed to proceed at their own pace with guidance in the LRC. Research

skills in using indexes, reference sources and library catalogs are introduced. (2/0)

LT: LITERATURE

- LT001T Children's Literature 4**
Analyzes children's reading interests by examining the three levels of ability and the types of literature available. It is primarily a historical survey of the literature with emphasis on contemporary literature. Prereq: CM101T or consent of instructor. (4/0)
- LT002T Science Fiction 4**
Includes the study of short stories and novels of the science fiction genre. Special emphasis is on utopian and fantasy science fiction. Authors studied include Herbert, Brunner, Vonnegut, Asimov and Heilein. Prereq: CM101T or equivalent. (4/10)
- LT003T Selected Topics 2, 3**
Offers specialized study in interest areas. Areas may include special courses in mythology, American culture, detective novels or other concentrations. (2-3/0)
- LT004T American Literature I 4**
Examines the major works and writers of American literary heritage from its beginning to the mid-nineteenth century. Works are studied in their cultural and historical context. Prereq: CM101T. (4/0)
- LT005T American Literature II 4**
Examines the major works and writers of American literary heritage from the mid-nineteenth century to the present. Works are studied in their cultural and historical context. Prereq: CM101T. (4/0)
- LT101T Introduction to Fiction 4**
Introduces the techniques and purposes of the novel and the short story. Both forms are based on the students, interests, and broadening and refining those interests. Intensive analytical and interpretative reading, and extensive comparative reading will help to enrich and improve the students' literary tastes. In addition to basic texts, supplemental reading lists will refer students to a variety of library reading in the novel and short story. Prereq: CM101T or equivalent. (4/0)
- LT102T Introduction to Dramatic Literature 4**
The purposes and kinds of dramatic works will be analyzed, and extensive comparative reading will indicate some of the significant types and forms used in dramatic convention. In addition to the study of a number of individual plays, supplemental reading will refer students to a variety of dramatic works. Prereq: CM101T or equivalent. (4/0)
- LT103T Introduction to Poetry 4**
Develops skill in interpreting the elements of the formal structure of poetry, and evaluates different theories of how poems gain meaning. The study develops a perceptive acquaintance with a large number and variety of the world's poetry. Prereq: CM101T or equivalent. (4/0)
- LT105T The Shakespeare Plays I 2 or 4**
An introduction to the drama of William Shakespeare. Students view professional television productions of each play studied. Staging, plot, characterization, and the use of language are discussed within the context of each play. (2,4/0)
- LT201T Masterpieces of Literature: The Ancient World 4**
Analyzes selected writings from the Bible, Greek drama, and Greek and Roman narrative poetry. These works will be approached primarily on their contextual basis, with some attention to style, meaning and form. Prereq: CM101T or equivalent. (4/0)
- LT202T Masterpieces of Literature: Medieval, Renaissance and Neo-classical Periods 4**
Studies epic poetry of the medieval period, some of Chaucer's works, and some of Shakespeare's plays and poetry. These works will be explored using a combination of generic, social-cultural, mythical and comparative approaches. Prereq: CM101T or equivalent. (4/0)

- LT203T Masterpieces of Literature: 19th and 20th Centuries 4**
Discusses selected prose and poetry of nineteenth and twentieth century Europe and America. Works will be read as masterpieces of art and studied by employing a combination of critical approaches. Prereq: CM101T or equivalent. (4/0)
- LT204T Black Literature 4**
Analyzes American Black literature as art forms and for sociological impact, and provides a historical overview of significant Black writers. Prereq: CM101T or equivalent. (4/0)
- LT209T Literature of Terror 4**
Explores fear or horror in literature from medieval times to the present. Beginning with the medieval folk tale and ending with twentieth century psychological horror, this course will attempt to show how literature has dealt with the theme of fear throughout western history. This course will be concerned with horror fiction as a reflection of historical phenomena, but also as a work of art understandable in its own terms. Prereq: CM101T or equivalent. (4/0)
- LT210T Popular Literature 4**
Includes a survey of popular literature, which covers such genres as the thriller, the romance, the detective, the western and science fiction. The course attempts to evaluate their effect on modern society and to give these types of literature their place on the literary scene. Prereq: CM101T or equivalent. (4/0)
- LT211T Introduction to Film 4**
Covers film history, criticism and analysis of major films. The works of Chaplin, Renoir, Cocteau, Bergman, Antonioni and Truffaut will be viewed and analyzed. The emphasis of the course is upon criticism and analysis of film as an artistic medium and upon the historical and societal implications of the film. Prereq: CM101T or equivalent. (4/0)
- LT800T Independent Study - Literature 1-4**
Provides readings, papers and/or research projects in literature under the guidance of a staff member. Prereq: consent of instructor and department chairman required before registering. (1-4/0)

LW: LAW

- LW001T Criminal Procedural Law 4**
Deals with the procedural aspects of the criminal justice system; includes the limits on prosecution; proceedings prior to trial; and the rights and privileges of the defendant. Emphasis is on the safeguards and protections of "due process" as they relate to procedures. (4/0)
- LW002T Criminal Evidence 4**
Studies the kinds and degrees of evidence, and the rules governing the admissibility of evidence in court. (4/0)
- LW003T Criminal Law 4**
Reviews the historical development of criminal law and the resultant 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. (4/0)
- LW004T Applications of Criminal Law 4**
Examines specific definitions of criminal behavior as set forth by law. Subjects include: homicide, robbery, burglary, arson, larceny, rape, auto theft and others. Study will progress from historical definitions to contemporary Iowa law. (4/0)
- LW005T Business Law I 4**
Surveys principles of law as applied to business relationships and transactions. (4/0)
- LW006T Business Law II 4**
Studies partnerships and corporations, real property, negotiable in-

struments, sales, insurance, trusts and estates, government and business. Prereq: LW005T. (4/0)

LW007T Constitutional Law 4

Studies the development of fundamental principles in Constitutional law, integrating both case-by-case study of United States Supreme Court decisions and broad examination of the judicial legal processes. Coverage includes the nature of judicial review, powers of the Supreme Court, President and Congress, and Federalism. (4/0)

LW008T Introduction to Law 3

Introduces the philosophy and history of common law as it relates to the court system and law office operations in Iowa. The role of the legal assistant in the modern law office is examined. (3/0)

LW009T Legal Research 3

Reviews the American judicial system and the relationship between the federal, state and local systems; also, study of the law library and research. (3/0)

LW010T Legal Processes 3

Examines the processes and methods of legal decision making by judicial legislative and administrative agencies; and ethical and professional practice standards applicable to lawyers and law office personnel. (3/0)

LW011T Estates and Trusts I 3

Provides the basic legal concepts of the more common forms of wills and trusts, and their ramifications. Studies the Iowa District Court relating to probate, administration of estates in probate court, and estate and inheritance taxes. (3/0)

LW012T Estates and Trusts II 3

Covers the basic legal concepts of the more common forms of wills and trusts, and their ramifications. Studies the Iowa District Court relating to probate, administration of estates in probate court, and estate and inheritance taxes. Prereq: LW011T. (3/0)

LW013T Tax IV: Estates and Gifts 3

Focuses on the basic legal concepts of the more common forms of wills and trusts and their ramifications and studies the Iowa District Court regarding probate, administration of estates in probate court, and estate and inheritance taxes. Prereq: LW012T. (3/0)

LW014T Legal Internship 2-6

Provides practical experience in the functions and responsibilities of a legal assistant. The student will research legal problems utilizing the law library; will be able to understand the more common forms of legal procedures and agreements, and to perform the functions of a legal assistant in an office setting. The student will be evaluated by the coordinator and the employer. Prerequisite: one year in the Legal Assistant curriculum. (0/6-18)

LW015T Torts 3

Studies the principles of the law of tort, and preparation and use of pleading and other documents involved in the trial and appeal of the civil action. (3/0)

LW016T Civil Litigation 3

Continues Torts and Trials I. Prerequisite: LW015T. (3/0)

LW017T Business Organizational Law I 3

Provides a study of the attorney's role in the formation of business entities. This includes proprietorships, partnerships, corporations and other business vehicles, with a survey of the fundamental principles of law applicable to each, and the training to prepare the necessary documents for the organization and operation of each entry. (3/0)

LW019T Real Estate Law 4

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 recording systems, and public documents. (4/0)

LW020T Law Office Management 3

Aids in effective planning and use of financial resources. Topics will include management techniques, human relations, fees, accounting for time, planning and development in the law office, training, law library management and maintenance, tickler procedures, and word processing future trends. (3/0)

LW021T Commercial Law 4

Studies the fundamentals of the laws of contracts, sales and transactions, and the right of creditors in transactions involving commerce. (4/0)

LW023T Bankruptcy Law 3

Provides a study of the Bankruptcy Act and applicable case law. The filing requirements under the act and related court rules are emphasized. (3/0)

LW024T Domestic Relations 3

Provides a study of laws of marriage, divorce, child custody and support, tax aspects of divorce and separation, separations, annulments, paternity, adoptions, and mental health commitment procedures. The emphasis of the course is on the procedural and practical aspects of the laws. (3/0)

LW025T Personal Law 4

Offers coverage of the individual's rights in the court systems together with an introduction to criminal law, tort law, divorce law, insurance law, employment law and student rights. (4/0)

LW027T Contract Law I 3

Designed to provide purchasing personnel with the knowledge of legal principles governing contracts as evolved from common law, statutes, regulations, and court and board decisions, with emphasis on the direct application to the legal aspects of purchasing. (3/0)

LW028T Contract Law II 3

Continues legal principles governing contracts as evolved from common law, statutes, regulations, and court and board decisions, with emphasis on the direct application to the legal aspects of purchasing. (3/0)

LW029T Legal Writing 3

Studies legal analogization and the fundamentals of legal writing of office memorandum, case briefs, trial briefs and appellate briefs. Prereq: LW009T (Legal Research). (3/0)

LW030T Legal Ethics 1

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

LW031T Substantive Criminal Law 3

Provides a case study of Iowa and Federal Criminal procedure and pertinent substantive law. (3/0)

LW032T Legal Assistant Student Orientation 1

Provides college orientation and introduces to the Legal Assistant student the legal community and the proficiencies expected of the paraprofessional. (1/0)

LW002U Agricultural Law 3

Considers the local, state, and federal laws as they relate to farm management and agribusiness in regard to contracts, mortgages, environmental protection, taxation, real estate, tenancy and other legal problems relating to agribusiness. (2/2)

LW004U Ethics and Legal Aspects 3

Studies the ethics and the legal aspects related to purchasing, sales, manufacture, and repair of jewelry. (3/0)

LW005U Food Service Law 4

Studies the concept of common law and its specific application to the food service industry; includes contracts, business organizations, OSHA, sanitation laws, franchises, selecting a lawyer, employee/employer rights. (4/0)

LW001V Medical Law 2

Studies medical jurisprudence as applied to health personnel in performing activities in health care centers. (2/0)

MA: MATHEMATICS

MA020D Beginning Algebra 5

Includes the properties of the real numbers, linear equations and linear inequalities in one variable, factoring, fractions, systems of linear equations, exponents, radicals, second-degree equations and inequalities in one variable. This course presumes no background in algebra. (5/0)

MA050T Mathematics for Liberal Arts 4

Provides an overview of some basic principles in mathematics. Topics which may be covered include patterns of numbers, basic concepts in math of finance, elementary probability and statistics, logic, use of calculators and computers and an introduction to algebra. The course presumes no specific background in mathematics. (4/0)

MA031T Intermediate Algebra 5

Includes the properties and manipulation of real numbers, polynomials, rational expressions, rational exponents, and radicals. Develops techniques for solving first degree equations and inequalities, second degree equations, and systems of two dimensional linear equations. Introduces the concepts of function and graphs. Prereq: MA020D or one year of high school algebra. (5/0)

MA043T Finite Mathematics 5

Includes matrices, systems of linear equations, linear programming, functions, combinatorial techniques, probability, math of finance, and applications. Prereq: MA031T or departmental approval. (5/0)

MA034T Analytic Geometry 5

Includes point and plane vectors, direction cosines, the straight line, the conics, transformations, polar coordinates, the point and space vectors, surfaces and curves. Prereq: MA033T or equivalent. (5/0)

MA035T Calculus I 5

Includes limits, derivative, differentiation, the differential elementary applications of calculus, and introduction to integration. Prereq: MA034T. (5/0)

MA036T Calculus II 5

Continues Calculus I and includes study of the integral, integration, application of integration, logarithmic and exponential functions, trigonometric functions, and techniques of integration. Prereq: MA035T. (5/0)

MA037T Calculus III 5

Continues study of technique of integration and also includes polar coordinates, vectors in two and three-space, parametric equations, function of several variables, and multiple integrals. Prereq: MA036T. (5/0)

MA032T College Algebra 5

Includes extensive methods of solving linear, quadratic, and higher degree polynomial equations and inequalities. Systems of equations are solved by various methods, including matrices and determinants. Exponential, logarithmic, and other functions will be studied and graphed. The concepts of binomial theory, series and sequences will be introduced. Prereq: MA031T or equivalent. (5/0)

MA041T Fundamentals of Statistics 5

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: MA032T or MA043T. (5/0)

MA051T Business Calculus 4

Studies the techniques of differential and integral calculus likely to be encountered in undergraduate course in business economics. Applications are emphasized in these areas. Prereq: MA032T or MA043T. (4/0)

MA033T Trigonometry 5

Studies functions, inverse functions, periodic functions, circular functions, identities: trigonometric equations, and applications using the properties of the trigonometric functions. Prereq: MA032T. (5/0)

MA052T Calculus IV 5

Includes study of line integrals, infinite series and an introduction to differential equations. Topics include exact equations, separable equations, and linear equations. Prereq: MA037T. (5/0)

MA053T Differential Equations 5

Continues differential equations topics covered in Calculus IV. Includes 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: MA052T. (5/0)

MA040T Linear Algebra 5

A post-calculus course that includes a study of vector spaces, determinants, linear transformations and matrices, bilinear and multilinear forms, and polynomial rings. Prereq: MA036T. (5/0)

MA001U Mathematics I - Agriculture 1-4

Stresses problems relating to agronomy, animal science, ag business, ag economics and ag mechanics. This course is designed to aid the student in reviewing mathematics practical to agriculture. (1-4/0-6)

MA003U Mathematics II 1-5

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. (2-5/0)

MA004U Mathematics III 1-5

Includes the study of algebraic symbols, directed numbers, fundamental operations and factoring of algebraic expressions. Graphs, linear and simultaneous equations, and trigonometric functions are also covered. Emphasis is placed on application to technology. (1-5/0-2)

MA007U Technical Problems 2

Approximately one-third of the course is devoted to using the hand-held scientific calculator to find numerical answers to a wide variety of mathematical expressions. The balance of the course deals with applied trigonometry and geometry, and with dimensional analysis problems. Problem solving format as well as correctness of the solution are emphasized. (1/3)

MA011U Mathematics I - Industrial 1-5

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. (1-5/0)

MA012U Technical Mathematics I 3-5

Covers: a brief review of basic algebra, graphs, introduction to trigonometry, systems of linear equations, factoring and fractions, quadratic equations, vectors, exponents and radicals. (3-5/0)

MA013U Technical Mathematics II 4-5

Continues Tech. Math I. Covers: J-operator, exponential and logarithmic functions, systems of equations, inequalities, variation, progressions, additional topics in trigonometry, plane analytic geometry, introduction to derivative calculus. Prereq: MA012U. (4-5/0)

MA015U Technical Mathematics III 4-5

Continues Tech. Math II. Covers: application of derivatives, introduction to integration, application of integration, derivatives of transcendentals, methods of integration, and introduction to differential equations. Prereq: MA013U. (4-5/0)

MA036U Health Data Statistics 4

Emphasizes techniques used in health information retrieval, analysis, and report preparation. (4/0)

MA037U Mathematics I - Business 1-5

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. (1-5/0)

MF: MANUFACTURING SERVICES**MF001U Jewelry Fabrication 4**

Introduces the student to the selecting, adapting, soldering and finishing of pre-fabricated ring shanks, mountings and/or various metal shapes. (2/4)

MF002U Repair I 3
Includes ring sizing, chain repair, restringing pearls, clasp, straightening, and other similar repairs. (1/4)

MF003U Repair II 4
Develops the knowledge and skills necessary to complete more difficult repairs. Prereq: MF002U. (2/4)

MF004U Advanced Study: Repair 8
Applies the knowledge and skills required to complete more advanced and difficult repair work. (3/10)

MF800U Internship (Jewelry Repair) 1-15
Applies the knowledge and skills of the student in a jewelry establishment under the supervision of an establishment supervisor and a Kirkwood faculty person. (0/3-45)

MH: MECHANICS

MH002U Hydraulics I 3-5
Studies the use of hydraulic pumps and systems. Special emphasis is given to pumping, controlling and measuring flows, and to system design and analysis. Special emphasis is also placed on distinguishing the difference between types of valves, pumps, hose and connection arrangement and flow patterns. (1-2/2-6)

MH013U Engines I 3-5
Covers fundamentals of 2 and 4 stroke cycle engine operation, servicing, and adjustment. Emphasis is placed on proper disassembly, measuring, and reassembly of actual engines. (1-3/0-6)

MH016U Power Transfer Systems I 2-3
Includes a study of basic gear, friction, and fluid drives. Emphasizes theory, operation, diagnosis, repair, and maintenance procedures. Course includes clutches, propeller shafts, rear axle assemblies and planetary gears. (1-2/2)

MH018U Power Transfer Systems II - Standard Transmissions 2-3
Teaches theory of operation, maintenance, diagnosis and overhaul procedures of standard, sliding gear, collar shift, and synchromesh transmissions. (1/2-4)

MH019U Equipment Reconditioning and Repair 2-3
Covers reconditioning and repairing used equipment other than power units, using arc and acetylene welding, pop riveting, soldering, grinding, lathe work and fibreglassing. (1-3/0-3)

MH021U Unit Diagnosis and Overhaul I 8
Covers diagnosis and overhaul of gasoline and diesel power units with special emphasis on student work with a minimum of instructor supervision. (3/10)

MH030U Fundamentals of Automotive Mechanics 6
Covers the introduction to the automobile and auto servicing. Includes steering, suspension, alignment, tires, lights and the total automotive vehicle in relation to servicing. (3/6)

MH031U Brakes 6
Covers theory of brake systems and the repair of both disc and drum types, as well as the various components. (2/8)

MH032U Electrical Systems I 3-5
Covers the diagnosis and repair of electrical problems as they relate to tractors, trucks and small engines. Modern test methods and equipment are stressed. (1-2/2-6)

MH033U Electrical Systems II 3-5
A continuation of Electrical Systems I. Emphasis is placed on overhaul and servicing of electrical components and total system. On-the-unit diagnosis and testing is stressed. Prereq: MH032U. (1-2/4-6)

MH034U Vehicle Inspection 2
Designed to meet requirements of State of Iowa inspection procedures. Successful completion requires passing State exam. (2/0)

MH035U Automotive Engine Overhaul 6
Covers instruction in the theoretical procedures necessary to rebuild completely an automotive engine, and includes the disassembly and assembly techniques along with the restoring of tolerances by the machining of engine components. The student will be able to identify and list the procedures for engine diagnosis, removal, disassembly, rebuilding and service to worn parts. (1/10)

MH036U Fuel Systems 6
Covers fuel systems from basic principles and single barrel carburetors up through 4 barrel carburetors and gasoline electronic fuel injection. (3/6)

MH037U Basic Tune-Up 6
Emphasis is placed on performing maintenance tune-up work. Instruction is given in diagnosing malfunctions in the automotive engine and its accessory systems. Methods of testing electrical and carburetion systems directly to engine performance are studied and practiced. (3/6)

MH038U Advanced Tune-Up 6
Covers troubleshooting diagnosis and repair. Techniques used for detecting faulty coils, distributor components and engine emission components are studied. Laboratory exercises involve the use of the infrared exhaust emission analyzer and other advanced equipment. (3/6)

MH040U Power Trains 6
Presents training principles, diagnosis, troubleshooting, servicing and repair of automotive automatic transmissions. Prereq: MH016U, MH018U. (3/6)

MH042U Vehicular Air Conditioning 1-6
Designed to teach the theory of vehicular air-conditioning systems, with emphasis on the basic air-conditioning cycle and servicing procedures. The objective of this course is to enable a student to obtain a working knowledge of air-conditioning systems, be able to identify the components, and develop proper servicing techniques. (.5-3/1-6)

MH047U Farm Machinery Maintenance 3
Course centers on practical maintenance work with KCC Farm Lab mechanic. Involves work with power units and other farm implements. (2/2)

MH048U Planting and Tillage Equipment Operation and Adjustment 3-5
Covers latest types of planters, tillage equipment and sprayers. Equipment field adjustments and calibration are stressed. Operation of actual units is covered. (1-3/2-6)

MH049U Field Crop Harvesting Equipment Operation and Adjustment 3-5
Introduces the basics, theory and operation of combines and choppers with actual in-the-field adjustment and operation of machines. (1-2/4-6)

MH050U Diesel Fuel Systems I 2-4
Covers the many types of diesel pumps and injectors and their operation. Fuel system maintenance and servicing are also stressed. Emphasis is placed on turbo and super chargers, air cleaner design and functions. (1-4/0-4)

MH051U Unit Diagnosis and Overhaul II 8
Continues the diagnosis and overhaul of gasoline and diesel power units, with special emphasis on student work with a minimum of instructor supervision. Prereq: MH021U. (3/10)

MH052U Unit Diagnosis and Overhaul III 8
Covers advanced diagnosis and overhaul of gasoline and diesel power units, with special emphasis on student work with a minimum of instructor supervision. Prereq: MH051U. (3/10)

MH054U Basic Two and Four Cycle Engines 2
Covers the basic designs and functions of 2 and 4 cycle single cylinder engines with student involvement in the disassembly and assembly of both types. (1/2)

MH055U Tool Crib Operation 1-2
Involves checking out, checking in of tools and equipment. Gives the student a chance to work with and for other people and develop accountability for tools and equipment. Reconditioning of tools is included. (.5-1/1-2)

MH057U Power Transfer Systems III - Power Shift 6

Covers operation and theory as well as diagnosis and overhaul of fluid driven equipment. Includes power shift, hydrostatic, and hydraulic assist transmissions. Also includes torque converters. Prereq: MH018U. (2/8)

MH058U Hydraulics II 3-5

Continues Hydraulics I. Emphasis is placed on diagnosis, repair and maintenance of hydraulic systems and components such as valves, pumps, and cylinders. Prereq: MH002U. (1-2/4-6)

MH059U Engines II 3-5

Continues Engines I with primary emphasis on disassembly, measuring, reconditioning and reassembly of multi-cylinder engines. Prereq: MH013U (1-2/4-6)

MH060U Diesel Fuel Systems II 2-5

Continues Diesel Fuel Systems I. Emphasis is placed on servicing and adjustment of injectors and related components. Specific pump and injector applications are discussed. Prereq: MH050U. (2-4/0-6)

MH061U Field Crop Harvesting Equipment Repair 3-5

Includes repair and reconditioning of combine and chopper units covering basic hydraulics, electrical, power train, monitor, chassis, air conditioning adjustments. Prereq: MH049U. (1-2/4-6)

MH062U Planting and Tillage Equipment Servicing 3-5

Covers set-up, pre-delivery, shop and field adjustments. Servicing of monitor components, hydraulic systems and equipment repairs is emphasized. Correct field operation techniques are stressed. Prereq: MH048U. (1-3/4-6)

MH063U Technical Manual Interpretation 1

Covers techniques of using service manuals and microfiche information. Deals with specialized electrical, engine, and tractor manual interpretation. (1/0)

MH064U Front End Service 6

Gives students an understanding of the principles of operation of front suspension systems and their components. Fundamentals of front suspension and steering geometry, diagnosis of steering and suspension troubles including overhaul techniques for various steering and suspension systems. (3/6)

MH065U Advanced Alignment 3

Wheel alignment factors, equipment and procedures are covered in detail. Rebuilding of the different types of front and rear suspensions including strut types is practiced. Prereq: MH064U (1/4)

MH066U Cooling Systems 4

Explains basic principles of cooling systems and components. Covers testing and repair of cooling systems demonstrated including all the parts in a cooling system from fan belts to heater cores. (2/4)

MH067U Shop Practices and Safety 1-6

Discusses the rules and regulations of the shop and includes the necessary materials and equipment the students need in mechanics programs. Demonstrations are given on the proper use of *all* general mechanic's laboratory equipment that the student will use on a regular basis. Covers the care and handling of equipment and the safety aspects involved in a mechanic's laboratory. (1-3/0-6)

MH068U Body Glass and Trim 5

Includes properties of body glass, installation of glass, installation of electric and manual glass regulators, and installation of trim and mouldings. This course is segmented into three sections in order to provide on-going training advancement over the length of the program. The first two sections involve 2 credits per quarter and the last section has one credit for the quarter. (2, 2, 1 or 5 credits). (3/4)

MH069U Body Shell 5

Includes training in the various body types and styles, part nomenclature, panel relationships and determining panel replacement or repair. This course is segmented into three sections in order to provide on-going training advancement over the length of the program. The first two sections involve 2 credits per quarter and the last section has one credit for the quarter. 2, 2, 1 or 5 credits. (3/4)

MH070U Metal Working 6

Studies the effects of impact on sheet metal structure, proper rough out and panel alignment, pick and ding work, hot and cold shrinking, grinding and filing. Also covers the use of a variety of hand and power equipment. This course is segmented into three equal sections of 2 credits each (per quarter) providing on-going training throughout the program (2, 2, 2 or 6 credits). (3/6)

MH071U Leading, Filling and Shaping 6

Involves working with the comparisons of application of lead, plastic and fiberglass fillers. Areas of comparison involve labor, price, durability, and safety in the use of these filler materials. This course is segmented into three equal sections of 2 credits each (per quarter) providing on-going training throughout the program. (2, 2, 2 or 6 credits). (3/6)

MH072U Welding of Body Sheet Metal/Frame 3

Oxy-acetylene and electric welding as applied to auto bodies is covered in this course. Steel and bronze, spot, frame, and seam types of welding are demonstrated and practiced. This course is segmented into three equal sections of 1 credit each (per quarter) providing on-going training throughout the program (1, 1, 1 or 3 credits). (1.5/3)

MH073U Chassis Sheet Metal 5

Emphasizes structural integrity of sheet metal, installation of grille and radiator, and alignment of structural support and sheet metal components. This course is segmented into three sections in order to provide on-going training advancement over the length of the program. The first two sections involve 2 credits per quarter and the last section has one credit for the quarter (2, 2, 1 or 5 credits). (2.5/5)

MH074U Auto Body Construction & Materials 2

Covers relationship between styling changes and technology in areas of the various materials. The properties and limitations of steel, aluminum, and fiberglass are covered. (1/2)

MH075U Interior Vinyl Plastic and Urethane 2

Treatment, use of adhesives, and plastic welding on various types of plastic, including vinyl and urethane, are demonstrated and practiced. (.5/3)

MH076U Body/Frame Relationships 2

Covers frame types, their alignment, unitized and sub frame types, damage transfer between components, and repair and replacement procedures. (.5/3)

MH077U Damage Estimate Analysis 1

Studies the implications in making and using an accurate estimate. Also covers the requirements of insurance companies when working with estimates and the proper training to make an accurate estimate. (.5/1)

MH078U Accessories Installation and Repair 2

Provides practical training in handling engine accessories, instrument panel accessories, and other elements involved with those accessories. The student learns to make decisions about repair or replacement with new, used, or rebuilt components, or whether to sublet accessory repair. (1/2)

MH079U Refinishing I 6

Covers metal conditioning, types of finishes, types of thinners and compounds, and refinishing steps. (3/6)

MH080U Refinishing II 6

Continues Refinishing I, focusing on various problems associated with refinishing, such as humidity, temperature, gun setting, air pressure, etc. (3/6)

MH081U Refinishing III 6

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: MH080U)(3/6)

MK: MARKETING

MK001T Principles of Marketing 4

Studies the concepts, institutions, procedures, methods and problems in moving goods or services from the producer to the consumer. (4/0)

- MK002T Principles of Retailing** 4
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. (4/0)
- MK003T Principles of Selling** 4
Provides the basic skills needed to sell goods and services in a free enterprise economy. Theory is followed by practical application by each student. (4/0)
- MK006T 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)
- MK007T Principles of Banking** 3
Presents the fundamentals of bank functions in a descriptive fashion so that the beginning bankers may view their chosen profession in a broad perspective. (3/0)
- MK008T Trust Business** 3
Provides an overview of the trust department, including how the trust department fits into the overall banking business, the services it provides, and in general, how those services are delivered. The changing role of the trust department is highlighted. (3/0)
- MK013T Marketing for Bankers** 3
This course discusses the basis of public relations, both internal and external, and seeks simply to explain the why, the what, and some of the how of public relations and marketing. It is intended as an overview for all bankers, in terms of what everyone in banking should know about the essentials of bank public relations and marketing. (3/0)
- MK014T Exploring World Trade** 3
Provides students with an overview of the concepts of international trade. Students will acquire an awareness of the effects of monetary exchange, trade duties and restrictions, sociological problems and other areas of involvement in international trade. (3/0)
- MK016T Counselor Selling** 4
Presents the technical aspects of customer assistance. The student should have had previous sales experience to enroll in this course. Prereq: instructor's consent. (4/0)
- MK017T Techniques of Exporting** 3
Covers terminology, payment terms, financing, drafts, letters of credit, and United States foreign government trade controls. The course is structured for the person who has no previous foreign trade experience. Prereq: MK014T or consent of instructor. (3/0)
- MK019T Real Estate Portfolio** 3
Approaches the subject from the viewpoint of the mortgage loan officer who seeks to develop a sound mortgage portfolio. A picture of the mortgage market is presented first, followed by the acquisition of a mortgage portfolio, mortgage plans and procedures, mortgage loan processing and servicing, and finally the obligations of the mortgage loan officer in overall portfolio management. (3/0)
- MK020T Savings/Time Deposit Banking** 3
Presents the historical development of savings institutions and an awareness of the basic economic function of the savings and policies of these institutions. Different types of financial savings are reviewed in order to describe the system of financial flows of income to capital investment. (3/0)
- MK021T Foreign Trade Documentation** 3
Involves the student directly in the actual details of processing an export order from the time it is received until payment is received. It will cover export shipping, documents, packaging, traffic procedures and insurance. The course is structured for the person who has had no previous foreign trade experience. Prereq: MK014T or consent of instructor. (3/0)
- MK022T International Transportation** 3
Covers the functions of the movements of goods from the point of origin to international and intercontinental destination. These functions include choice of carrier and port of exit and entry, routing, packaging, insurance, claims, rates and freight forwarder functions. Prerequisite: MK014T or consent of instructor. (3/0)
- MK023T Business Potential Seminar** 3
Designed around a series of seminars for the small business owner manager and employee. It deals with the image of business, customer potential analysis, advertising and promotion, merchandising for more sales, the satisfaction of the customer and the development of the master plan for a profitable business. (3/0)
- MK024T International Business** 3
Intended to teach the theoretical and practical concepts of international business that are related to international trade. The course will outline world effects of private and governmental trade, as well as the effects of foreign and domestic economic policy on overseas trade. Prereq: MK014T or consent of instructor. (3/0)
- MK025T Principles of Advertising** 4
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. (4/0)
- MK027T Advanced Documentation** 3
A case problem course involving application of transaction theories. Students will gain experiences with actual transaction problems involving performance, letters of credit, ocean freight documents and other control systems. Prereq: MK021T. (3/0)
- MK030T Certified Purchasing Manager Review** 2
Provides the student with an organized study approach prior to taking the Certified Purchasing Manager (CPM) exam. All sections of the exam are covered. (2/0)
- MK800T Independent Study in International Trade** 1-4
Provides opportunities to International Trade students to augment their formal education with learning experiences outside the traditional classroom. Activities involving international experiences and culture are designed to help students achieve their goals. Consent of program coordinator required. Course is not available to first quarter freshmen. Prereq: MK014T. (1-4/0)
- MK002U Basic Agricultural Salesmanship** 2-4
Leads students to recognize personal traits needed for success in a sales career and identify basic sales principles as they relate to the agricultural industry. (2-4/0-4)
- MK003U Agricultural Product Marketing** 2-4
Emphasizes grain marketing from the producer's standpoint. Economic principles and seasonal supply cycles, grain grades and least-cost market options are covered. (2-4/0-4)
- MK004U Agricultural Futures Marketing** 2-4
Covers the futures marketing system from a hedging standpoint. In addition, forward contracting as a price protection for farm commodities is explained and discussed. (2-4/0-4)
- MK006U Fashion Merchandising Seminar** 1
Explores current practices in specialized areas of merchandising. Includes current designers and design concepts in marketing. Explores trends through field trips, guest speakers, and review of marketing literature. (0/2)
- MK007U 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)
- MK008U Fashion Show Procedures** 3
Includes the principles of fashion show production: planning, coordinating and directing the fashion show. (1/4)
- MK010U Retail Seminar** 1
Designed to help prepare students for careers in retailing. The majority of seminar time is set aside for individual student help. Students also are given time to investigate retailing opportunities, prepare reports and complete projects related to their individual retailing interests. (0/2)

MK011U Food Store Seminar 1
 Provides various instructional approaches to practical problems in food marketing, with special emphasis on the technical study of the food merchandising field and the development of projects through the use of food store marketing facilities. May be repeated for a total of six hours. (0/2)

MK012U Introduction to Food Store Marketing 4
 Offers an introduction to the specialized field of food merchandising. Study and materials will be based on the principles, practices and procedures relating to the retail and wholesale food industry. (4/0)

MK013U Food Store Planning and Layout 3
 Includes the study and actual development of the organization and planning necessary for proper merchandising and layout of a retail or wholesale food operation. (3/0)

MK014U Merchandising 4
 Studies principles and methods of successful merchandise selection, analyzing the market, and coping with the problems of buying. Inventory control and pricing procedures are included. (4/0)

MK015U Marketing Study Tour 1-2
 Provides a short period of orientation (lectures, films, discussion and study) prior to tour departure. Written report due after termination of the tour. Cities and itinerary will vary to include educational appointments with retail stores, manufacturing companies and showrooms, advertising agencies, national conventions and market-week activities. (1/1-2)

MK018U Visual Merchandising 2
 Offers basic instruction in display construction, the relationship of display to the total promotional program, the role of display manager, elements of display design, construction materials and merchandise selection. A laboratory provides the student an opportunity for display construction. (1/2)

MK019U Small Business Organization 3
 Designed to examine the fundamentals of organizing a small business. Covers such topics as finance, demographics, promotion, market competition, and site location and analysis. The student is involved in a business simulation project. Prereq: instructor's consent. (3/0)

MK022U Employment Seminar 1
 Provides preparatory training in job-seeking skills for fashion/home furnishings majors, prior to their supervised business internship period. Emphasizes application, resume, and interviewing techniques; philosophy and purpose of career programs, and an introduction to the availability and use of current resource literature in professional areas of study. (0/2)

MK023U Industrial Marketing 3
 Introduces and investigates the functional areas of industrial marketing. Industrial distributor and manufacturer marketing principles and methods are examined. Industrial marketing simulated experiences are given through an industrial marketing business game. (3/0)

MK024U Business Internship Seminar 1
 Offers arranged seminars for marketing 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)

MK032U Home Furnishings I 3
 Studies furnishings, including fundamentals of good design, color in interiors, background materials, window treatments and fabrics. Emphasis placed on practical aspects of home furnishings, including measurements and estimates. Prereq: HE003U. (3/0)

MK033U Home Furnishings II 4
 Studies sales/servicing in the home furnishings store through projects requiring the student to select the elements employed in the creation and coordination of an interior. The course covers the fundamentals of space planning, product knowledge, trade sources, furniture arrangement, room coordination and the solution of specific customer problems. (4/0)

MK035U Agribusiness Sales 1-4
 Describes the application of selling aids, selling innovation, prospecting for customers, importance of customer relations, handling customer objections,

meeting the competition, and the preparation of sales calls, sales reports and the necessity of organization. (1-4/0-4)

MK041U Food Store Merchandising I 3
 Offers a basic look at the principles involved in retail food merchandising, with practical examples and illustrations of how they maximize profits and customer satisfaction when properly applied. (3/0)

MK042U Food Store Merchandising II 3
 Offers a continuation of the principles involved in retail food merchandising, with emphasis on advertising and promotions, display, profit planning and control, government regulations and trend affecting merchandising. Prereq: MK041U. (3/0)

MK043U Trends and Practices Fashion Merchandising I 1
 Explores current practices in specialized areas of merchandising. Includes current designers and design concepts in marketing. Explores trends through field trips, guest speakers, and review of marketing literature. (0/2)

MK048U Window Design Treatment 3
 Studies the factors involved in designing and planning the window area for aesthetics, function and energy conservation. Includes terminology of windows and window treatment, measuring, construction and installing of window treatments. Prereq: AT006U, HE019U. (3/0)

MK049U Professional Practices 4
 Emphasizes the development and maintenance of business principles and practices for a professional standard of practice in the field of interior design. Includes review of legal qualifications, statutory licensing, and review of the national qualification exam. A client project is assigned to a student for presentation to a professional design jury for evaluation. (4/0)

MK050U Precious Gem Appraisal 2
 Studies the characteristics of precious gems and the use of that knowledge to evaluate and make appraisal of such stones. (1/2)

MK051U Advanced Study: Marketing and Salesmanship 8
 Studies marketing and salesmanship including fashion, display, psychology and analysis of sales techniques and purchasing. (3/10)

MK053U Consumer Behavior 3
 Studies basic principles of consumer behavior. Examines importance of market segmentation strategies in a consumer-oriented society. (3/0)

MK054U Management Seminar 2
 Includes independent analysis of those facets of the business industry that would enable the student to become better acquainted with the business environment to which their career goals are directed. Student develops project which will entail extensive interaction with the business community. (Open only to Retail Management majors.) (1/2)

MK055U Merchandising - Horticulture 3
 Introduces the student to basic sales procedures and stresses product knowledge of horticulture products and services. Students concentrate on relating product information to customers. (2/2)

MK056U Principles of Agricultural Marketing 1-4
 Studies the concepts, institutions, procedures, methods and problems in moving goods or services from the producer to the consumer. (1-4/0-6)

MK057U Merchandising-Agricultural 3
 Covers planning, creation, and use of advertising related to the agricultural economy and marketing of agricultural products. Purposes of advertising and displaying of merchandise and produce, methods of appeal, copy problems, layout and design problems, and media selection are included. (2/2)

MK058U Real Estate Appraisal 3-4
 Presents definitions and terminology of real estate appraising, analyzing the real estate market, explaining the appraisal process. Includes basic approaches to an estimate of value-cost, income, and market data. Mechanics of inspecting and measuring improvements and cost estimating. A term case study project is assigned providing practical experience in writing an ap-

praisal report for a single family residence. Prereq: MK060U, LW019T (3-4/0)

MK059U Real Estate Finance 4

Designed to explore the financial aspects of real estate with primary consideration toward the fundamentals of mortgage banking, source of funds for mortgage lending, loan application procedures and processing, inspection and appraisal of collateral, attracting new business, investing, and the effects of governmental monetary and fiscal policies. Prereq: LW019T, MK060U (4/0)

MK060U Real Estate Principles/Practices I 4

An introductory course designed for those interested in entering the real estate field as salesmen or brokers, as well as the general public. Covers the general background of real estate law, terminology, practice, and procedures. Includes extensive coverage of real estate mathematics. (4/0)

MK061U Real Estate Principles/Practices II 4

Covers brokerage firm management with primary study of techniques of sales promotion, the role and functions of the manager, selection and training of staff, and the systems and techniques to employ in order to produce a profitable business operation. Prereq: MK060U, LW019T, MK059U. (4/0)

MK062U Real Estate Seminar 4

Offers in-depth study of special interest areas including case studies of problems in real estate where specialized knowledge of taxation, planning and analysis, and current market and legislative activities is needed. Prereq: The basic GRI series; may be waived by the instructor if the previously acquired expertise of the student warrants it. (4/0)

MK063U Purchasing I 3

Introduces the purchasing function as an element of an industrial business operation: organization, techniques and coordination of other functions, concepts of materials management, and economy effected by prudent buying. (3/0)

MK064U Purchasing II 3

A continuation of Purchasing I. Prereq: MK063U. (3/0)

MK065U Telemarketing I 3

Introduces students to the field of marketing products and services by telephone communication. Discusses product knowledge, overcoming objections, closing, selling simulations, telephone courtesy and listening skills. Tours of telemarketing facilities may be conducted. (3/0)

MK800U Internship (Jewelry Sales) 1-15

Applies the knowledge and skills of the student in a jewelry establishment under an establishment supervisor and a Kirkwood faculty person. (0/3-45)

MK001V Retail Advertising and Display 2-4

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. (2-4/0-4)

MK011V Retail Flower Shop Operation I 5

Introduces the florist business and efficient shop layout. Studies the processing of floral orders, terminology, telephone procedures, and floral product sales. (5/0)

MK012V Retail Flower Shop Operation II 3

Studies the aspects of the floral business involving funeral arrangements, funeral directors, etiquette, and sales. Holiday preparations and diversifications are also discussed. Prereq: MK011V. (3/0)

MK013V Retail Flower Shop Operation III 3

Analyzes the floral business as a center of employment, personnel policies, shop management and operation. Sales of floral products is included. Prereq: MK012V. (3/0)

MK014V Retail Flower Shop Operation IV 2

Studies floral business etiquette, sales of wedding flowers, and purchasing and pricing of floral products. Prereq: MK013V. (2/0)

MM: METALS AND MANUFACTURING

MM001U Manufacturing Processes I 3

Covers ferrous metals and materials, machining and cutting tools, layout tools, gaging and inspection, measuring, hand tools, sawing and turning lathes. (1/5)

MM002U Manufacturing Processes II 3

Develops skills in turret and automatic lathes, screw threads, drilling, milling, grinding and finishes, shaper and planer, and numerical control machines. (1/5)

MM006U Metals and Welding 4

Studies shaping, cutting, forming, fastening, drilling, finishing and welding of various types of metals used in farm construction. (3/2)

MM007U Cast Jewelry I 3

Develops skills in design, wax, invest, cast and finish pieces of jewelry using non-precious alloys. (1/4)

MM008U Cast Jewelry II 5

Continues Cast Jewelry I by making three different pieces of jewelry cast in precious alloys. Stonesetting will also be emphasized in this course. Prereq: MM007U. (2/6)

MM009U Advanced Study: Fabrication and Plating 8

Applies the knowledge and skills required to complete more advanced fabrication projects. (3/10)

MM010U Advanced Study: Casting and Plating 8

Applies the knowledge and skills required to complete more advanced cast jewelry. (3/10)

MM011U Rural Metals and Welding 3

Covers the identification of metals and the use of arc and acetylene welding and soldering as it applies to the farm. (2/2)

MM012U Machinist Math and Blueprint Reading I 2

Begins with a review of fractions along with practical application of addition and subtraction of fractions. Stresses the importance of prints in industry and introduces types of lines and principles of sketching. (2/0)

MM013U Machinist Math and Blueprint Reading II 2

Continues to review fractions and decimals and their application to shop problems. Introduces the calculator for basic functions. Tapers are introduced along with basic handbook tables and formulas. Introduces orthographic projection, auxiliary views, detail and assembly drawings, dimensions and tolerances and sectional views. Prereq: MM012U. (2/0)

MM014U Machinist Math and Blueprint Reading III 2

Introduces powers and roots and use of calculator in solving practical problems. Covers complementary and supplementary angles, geometric principles and use of handbook tables and formulas. Covers title block information, materials lists, drawing notes and the drawing change system. Prereq: MM013U. (2/0)

MM015U Machinist Math and Blueprint Reading IV 2

Continues advanced geometric principles, metrics, area and volume calculations, temperature conversion and expansion of metals. Right angle trig is introduced along with calculations that relate to numerical control programming. Prereq: MM014U. (2/0)

MM021U Machinist Theory and Practice I 5

Provides an overview of the machinist course and the machinist occupation. Introduces students to the basic concepts of measuring tools and systems of measurement, layout and inspection, bench work and hand tools. Operation of power saws, bench and surface grinders, drill press and engine lathe are introduced along with basic heat treatment equipment and practice. Safety is taught as it relates to each machine and process. (2/6)

MM022U Machinist Theory and Practice II 5

Continues Machinist Theory and Practice I. Introduces main types and main parts of drilling machines along with basic setups, speeds and feeds for drilling operations. Main types of engine lathes along with main parts, attachments, accessories and basic lathe operations are covered. Concepts

relating to lathe tool geometry, surface finish and concentricity are introduced. Prereq: MM021U. (2/6)

MM023U Machinist Theory and Practice III 5

Continues Machinist Theory and Practice II. Introduces basic milling machines, mill setups and simple milling operations. Introduces more advanced lathe work along with metallurgy as it relates to the manufacture of iron and steel. Prereq: MM022U. (2/6)

MM024U Machinist Theory and Practice IV 4

Continues Machinist Theory and Practice III. Heat treatment of steel is covered. More advanced principles of milling are covered along with principles of indexing and rotary table work. Types of shapers along with shaper setups are introduced. The use of carbide lathe tools is introduced with an emphasis on productivity. Prereq: MM023U. (1.3/6.7)

MM025U Machinist Theory and Practice V 4

Continues Machinist Theory and Practice IV. Covers milling cutters, setup and operation of surface and cylindrical grinders. Lathe and mill work continue as they relate to job shop machining. Turret lathe setup and operation are introduced along with concepts of quality control. Prereq: MM024U. (1.3/6.7)

MM026U Machinist Theory and Practice VI 4

Continues Machinist Theory and Practice V. Precision surface and cylindrical grinding is covered along with an introduction to grinding wheels. Also introduced are precision jig boring, use of carbide mill cutters, rotary table use, broaching, and single point threading. Job shop work, special projects and turret lathe setups continue. Prereq: MM025U. (1.3/6.7)

MM027U Machinist Theory and Practice VII 2

Continues Machinist Theory and Practice VI with an emphasis on numerical control. Prereq: MM026U. (0/4)

MM028U Machinist Theory and Practice VIII 5

Continues Machinist Theory and Practice VII. Emphasis is on developing skills in precision inspection and machine setup techniques. Special projects and production work continue. Prereq: MM027U. (0/10)

MM029U Machinist Theory and Practice IX 5

Continues Machinist Theory and Practice VIII. Covers special machining processes and reviews key principles presented throughout the course. Special projects and production setups continue. Prereq: MM028U. (0/10)

MM030U Fundamentals of Welding I 2

Covers basic welding techniques with oxy-acetylene 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. (0/4)

MM031U Fundamentals of Welding II 3

Continues Fundamentals of Welding I. Covers a more advanced type of welding involving welding of cast iron, aluminum, and a variety of different welding situations encountered in the trades. Prereq: MM030U. (.5/5)

MM032U Production Machinery 2

Covers classroom study and shop practice on the use of metal-forming machinery and maintenance of welding equipment. (0/4.5)

MM010V Welding for Automotive Mechanics 2

Covers the set-up and operation of metallic arc and oxyacetylene welding equipment. Welding techniques used for welding in the flat position with arc welding, gas welding and brazing also are included. Welding safety is stressed. (0/48)

MM011V Introduction to Arc Welding 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. (2/24)

MM012V Welding Special Projects .5 to 5

An individualized course for those needing specific welding training other than the regular courses, or practice for various weld tests. Also for those needing review or up-grading of methods and skills. (0/12-120)

MM017V Semi-automatic Welding 3

Studies the set-up and operation of the semi-automatic welding process, using both hard wire and flux core wire. (6/54)

MM019V Heliarc Welding 5

Covers all position welding techniques on ferrous and non-ferrous materials using the heliarc welding process. (6/98)

MM020V Special Arc Welding Techniques 3

Studies the welding methods used on cast iron, stainless, hard surfacing and all position weld techniques used on light gage metal. (6/54)

MM022V Welding Inspection 2

Studies shop and lab welding inspection techniques giving practice in the selection, preparation and interpretation of both destructive and non-destructive welding tests. (0/56)

MM023V Student Project 2

Provides for preparation of an original project by the student in the areas of fabrication, inspection or welding process. (0/56)

MM024V Welding Technology 4

Studies welding processes and power sources including welding metallurgy, strength of materials, design of weldments, cost of welding and production methods. (60/0)

MM025V Weaving the Electrode .5

Covers the welding techniques used to make beads of weld any width. Three basic weave patterns are taught. Prereq: MM011V. (0/12)

MM026V 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. (4/24)

MM027V 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. (4/24)

MM028V Flame Cutting 1

Develops the skills needed in oxy-acetylene flame cutting, including set-up, operation and maintenance of equipment. Oxy-acetylene safety is stressed. (6/12)

MM029V Butt Joints: Flat 1

Introduces the basic methods of preparing and welding butt joints in the flat position, with and without backing strips. Also includes the use of the A.W.S. welding symbols. (6/24)

MM030V Horizontal Weld Techniques 1

Introduces horizontal welding techniques and methods used to make various types of joints in the horizontal position. (0/24)

MM031V Vertical Welding Techniques 1

Introduces vertical welding techniques and methods used to make various types of joints in the vertical position. (0/26)

MM032V Overhead Welding Techniques .5

Introduces overhead welding techniques and methods used to make various types of joints in the overhead position. (0-18)

MM033V A.W.S. Test: Low-hydrogen Electrodes 3.5

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. (8/70)

MM034V Blueprint Reading for Welders 3

This covers lines and views, size description, and welding layout, with emphasis on welding terms and symbols. It also includes interpreting welding prints. (36/0)

MM035V Oxy-acetylene Light Gauge Steel Welding 1

An introduction to oxy-acetylene welding including the set-up and operation of equipment and accessories. Welding procedures for light gauge steel sheet metal in all positions, and common joint types are taught. (4/16)

MM036V Oxy-acetylene Heavy Steel Welding 1
Provides instruction in the correct welding procedures to use for heavy steel plate in all positions and various joint types. (4/16)

MM037V Brazing and Silver Solder 1
Introduces the techniques and procedures used to braze, braze weld, and silver solder. (4/16)

MM038V Oxy-acetylene Cast Iron Repair 1
Studies the various methods of oxy-acetylene repair welding of cast iron. (4/16)

MM039V Oxy-acetylene Non-ferrous Materials 1
Covers methods and procedures used for oxy-acetylene welding of non-ferrous materials. Aluminum welding techniques are stressed. (4/16)

MM065V Pipe Welding Techniques 8
Studies shielded metal arc welding of pipe joints in all positions and in accordance with A.S.M.E. and A.P.I. pipe welding codes. Prereq: MM033V. (26/134)

MS: MEDICAL AND SURGICAL

MS003T First Aid .5
Provides instruction in First Aid procedures consistent with the Red Cross Multimedia Basic First Aid requirements. (.5/0)

MS004T Cardio-Pulmonary Resuscitation .5-1
Provides instruction in basic life support (cardio-pulmonary resuscitation) as required by the American Heart Association. (1/0)

MS004U Orthopaedic Conditions I (OPA) 4 ✓
Investigates specific orthopaedic disorders, their etiology, course and varied treatment modalities. Incorporates orthopaedic history and physical examination techniques, and fundamentals of roentgenology. Subject areas include the upper extremity, neck and back. (4/0)

MS005U Orthopaedic Conditions II (OPA) 4 ✓
Deals with dysfunction of the lower limb. Metabolic, endocrine, neuromuscular and neoplastic disease states are discussed. (4/0)

MS006U Operating Room Techniques I (OPA) 3 ✓
Provides the basic principles and skills necessary to assist with surgical procedures in the operating room, including sterile techniques, positioning and instrumentation. Selected operative procedures are studied. (2/2)

MS007U Immobilization Techniques I 4
Focuses on the principles and techniques of casting (plaster and synthetic) and splinting of the extremities utilized in the treatment of musculoskeletal trauma and disease. Included are care of the cast, and the involved patient, radiographic identification of fractures, healing and complications. (2/4)

MS008U OPA Clinic I 4 ✓
Provides practical experience in a hospital emergency room, orthopaedic operating room and orthopaedic out-patient clinics. In the emergency room, the student assists with the care, treatment and transportation of patients, especially those with traumatic injuries. In the orthopaedic operating room, the student functions as an operating room technician. In the orthopaedic outpatient clinic, the student observes and assists staff with patient evaluations and treatments. Students are assigned a minimum of six weeks in each area. Performance is based on knowledge and skills acquired through the first-year course offerings. Emphasis is placed on patient/personnel relations and the development of technical skills. (0/2)

MS009U OPA Clinic II 4 ✓
Continues OPA Clinic I. (0/8)

MS010U OPA Clinic III 7 ✓
Focuses on developing skills in surgical assisting. The student is assigned to a local orthopaedist in private practice to assist with the care of office and hospitalized patients, with special emphasis on assisting with all types of orthopaedic surgical procedures. Activities involve patient positioning, draping and prepping for surgery, and retracting and maintaining hemostasis during surgery. Students develop surgical case studies during operating room rotations. (0/20)

MS011U OPA Clinic IV 7 ✓
Offers an intensified, comprehensive clinical practicum in St. Paul, Minnesota. Emphasis is placed on increasing skills in assisting with the immediate care and treatment of patients with traumatic injuries, and also offers the student an opportunity to assist a number of orthopaedists with a variety of procedures in the hospital and office environment. (0/20)

MS012U OPA Clinic V 13 ✓
Involves a three-month assignment in a private orthopaedic office or clinic. Under the direction of the orthopaedist(s), guided by predetermined learning objectives, the student participates as an OPA, including assisting with office procedures and emergencies, accompanying the orthopaedist on hospital rounds and assisting in surgery. (0/40)

MS013U Immobilization Techniques II 3.5 ✓
Investigates advanced techniques of fracture bracing, plaster and synthetic immobilization of the spine and the uses of skin and skeletal traction in the treatment of musculoskeletal disorders. The principles involved as well as the special considerations and complications of these treatments are emphasized. An opportunity to increase skills in radiographic identification of orthopaedic disorders is provided. The concepts of non-rigid immobilization and internal fixation are introduced. Prereq: MS007U. (2/3)

MS014U Respiratory Therapy Techniques I 5
Provides lectures and laboratory practice in the techniques used to administer gas and aerosol therapy. Included is the study of medical gases; regulation of gas flow; storage and safe handling of compressed gas systems; devices used to generate humidity aerosols; administering therapeutic gases; and operation of environmental control systems. (3/4)

MS015U Introduction to Physical Therapy, Orthotics and Prosthetics, (OPA) 3 ✓
Studies the basic concepts of biomechanics and physical therapy in relation to the care and rehabilitation of the orthopaedic patient, and includes principles of orthotics and prosthetics with emphasis on terminology, gait concepts, recognition of abnormalities and problem-solving techniques. (3/0)

MS017U Ventilation Therapy 5
Introduces rationale for IPPB therapy, pressure, volume and flow classifications of ventilators, mechanics of IPPB therapy, techniques and hazards, continuous ventilation, pressure and volume cycled ventilators, compliance monitoring alarms, IMV, PEEP, CPAP. Emphasis on mechanics of providing ventilating techniques. Prereq: MS023U. (4/2)

MS019U Clinical Experience I 4
Provides orientation to hospitals with closely supervised patient care techniques in oxygen therapy, changing cylinders and processing equipment for sterilization. Prereq: MS014U. (0/8)

MS020U Clinical Experience II 8
Requires the student to participate actively under direct supervision of a clinical instructor. Clinical skills in gas therapy, airway management and chest physical therapy are expected to be refined to the point where there are few mistakes. The student should demonstrate sound judgement in interpersonal skills, but clinical judgment is not expected at this time. The student will observe and participate in IPPB therapy to a limited extent. Prereq: MS019U. (0/16)

MS021U Clinical Experience IV 5
Assigns students to specific diagnostic clinics and laboratories for observation and practice of laboratory skills in diagnostic procedures. Includes pulmonary function, bronchoscopy, and electrocardiogram labs. Prereq: MS051U. (0/10.5)

MS022U Clinical Experience V 8
Emphasizes active participation in clinical areas of general medical-surgical wards, intensive care units, coronary care units, pediatric wards and neonatal intensive care units. The student should be able to judge the appropriateness of a physician's orders for basic therapy and recognize contraindication to therapy. The student will, to a limited extent and under close supervision, establish continuous ventilation. Prereq: MS021U. (0/16)

MS023U Respiratory Therapy Techniques II 4
Provides lectures and laboratory practice in making a physical assessment of

the respiratory system, providing basic airway care and chest physical therapy techniques. Prereq: BY006U, MS014U. (3/2)

MS025U Introduction to Health Care 4

Offers an overview of the medical care system, medical specialties and allied health fields, and an insight into the hospital organization and the interrelationship of its personnel in meeting the needs of the clientele. The course also stresses the fundamentals of patient care, safety and comfort, and includes basic nursing procedures, medical terminology, medical ethics and legal responsibilities. (2/4)

MS032U Pediatric Respiratory Equipment and Clinical Topics 4

Investigates the anatomy and physiology of newborn, neonatal cardio-respiratory diseases and disorders, pediatric cardio-respiratory diseases and disorders, pediatric oxygen therapy equipment, ventilators and CPAP devices. Prereq: MS017U. (3/2)

MS033U Clinical Experience VI 8

Offers continued active participation in all areas of the hospital. The course goal is to refine the student's skills in the care of critically ill patients. Emphasis is on experiences in pulmonary rehabilitation. Prereq: MS022U. (0/16)

MS036U Studies in Health Science 1-4

Provides readings, papers, seminars and/or basic research. Prereq: Consent of instructor and program coordinator. (12-48/0)

MS037U Clinical EEG Lecture I 1

Provides basic knowledge of electroencephalography to understand how the EEG is utilized for diagnosis of various cerebral disorders. Includes history, development, basic neurophysiological concepts of EEG, normal and abnormal brain wave patterns in adults and children, effect of consciousness level or mental process upon EEG, pharmacology and various electroencephalographic signs of cerebral disorders. (1/0)

MS038U Introduction to EEG Laboratory Techniques/Seminar 8

Introduces the student to basic EEG techniques in the classroom and their practical application in the laboratory; includes basic instrumentation and operation. (2/12)

MS040U Applied Electronics/Instrumentation 3

Provides theory and application of systems operant in EEG instruments. Laboratory sessions provide practical applications of the course material. (2/2)

MS041U General Neurology I 2

Provides medical and neurological terminology, neurological symptoms and signs, and neurological examination in relation to functional neuroanatomy, including neurological diagnostic methods. Introduces the disorder epilepsy. (2/0)

MS042U Clinical Laboratory I (EEG) 8.5

Continues Introduction to laboratory techniques. Applies basic EEG techniques of recording in the clinical laboratory. History taking, patient handling and recording techniques will be correlated in a seminar. Normal and abnormal adult EEG will be introduced. (1/15)

MS043U General Neurology II 2

Studies neurologic disease entities, including toxic and metabolic disorders, headaches, cerebrovascular disease, tumor and infectious processes. Also covers neurosurgical techniques, trauma, demyelinating, degenerative diseases, and diseases of peripheral nerves and muscles. (2/0)

MS004U Clinical Laboratory II (EEG) 15

Continues Clinical Lab I. Provides additional knowledge of EEG findings. Pediatric EEG, development, both normal and abnormal, and appropriate techniques are stressed. Seminars are designed to compliment clinical experience and recording techniques. (1/28)

MS045U Special Instrumentation Techniques I 3.5

Provides exposure to recent advances of electrodiagnostic techniques utilizing the computer system. Content includes visual, auditory and somatosen-

sory evoked potentials, CNV and radio-telemetry. Special emphasis will be placed on evoked potentials in the laboratory setting. (1.5/4)

MS046U Clinical Laboratory III (EEG) 13

Introduces techniques in intensive care and outside laboratory settings. Emphasis is on abnormal patterns of all age groups and special techniques. Students will be required to exercise judgement initiative in techniques and instrumentation. (1/24)

MS047U Special Instrumentation Techniques II 4

Provides the practical aspect of electromyography and studies of nerve conduction velocity and blink reflex by observing and assisting neurologists. (.5/7)

MS048U Clinical EEG Lecture II 2

Provides integrating information of EEG characteristics and specific patterns for cerebral disorders. Emphasis will be placed on disorders in which EEG serves as a critical diagnostic tool. (2/0)

MS049U Clinical Laboratory IV (EEG) 9

Emphasizes the ability to demonstrate clinical and technical competencies and problem solving in a varied clinical setting; includes laboratory management. Students will develop and present related reports for discussion in seminar. (1/16)

MS050U Diagnostic Laboratory Techniques 2-4

Provides technician and therapist students instruction in spirometry volumes and capacities, basic mechanics, functional residual capacity measurements, theory and operation of blood gas analyzers, and electrocardiographic techniques. Therapist students will learn: measurements of gases, distribution and diffusion of gases, body plethysmography, measures of resistance and compliance, arterial puncture techniques, bronchoscopy procedures, and recognition of cardiac arrhythmias. (1.5-3/1-2)

MS051U Clinical Experience III 4-8

Provides active participation for refinement of clinical skills in IPPB therapy, changes of continuous ventilator circuits, checks of ventilator settings. Prereq: MS020U. (0/8-16)

MS052U Clinical Medicine I 3

Provides the study of general medicine and medical subspecialties, general body response to diseases, essentials of diagnosis and treatment, review of upper airway disorders, respiratory disorders, cardiovascular and G.I. disorders, renal and nervous system disorders. (3/0)

MS053U Clinical Medicine II 3

Examines general surgery and subspecialties, thoracic and cardiovascular surgery, chest trauma, neurosurgical procedures, pediatrics and obstetrics. (3/0)

MS054U Pharmacology I 2

Introduces the administration, distribution, metabolism and excretion of drugs in the body, pharmacy terminology, aerosol medications, and respiratory physiology pertaining to drug administration. There is further study of pharmacologic action of bronchodilators, mucolytics, proteolytics, wetting agents and anti-foaming agents, which include patient assessment following drug administration. (2/0)

MS055U Pharmacology II 2

Studies the autonomic nervous system and cardio-respiratory drugs affecting it, cardiac drugs, anesthetics and muscle relaxants, antibiotics, steroids, narcotics, barbiturates, diuretics, bronchial asthma inhibitors, anti-coagulants and drugs used in cardio-pulmonary resuscitation. Prereq: CH003T, BY009U. (2/0)

MS056U Educational Techniques 3

Provides a systems approach to designing a learning program. Includes stating objectives in behavioral terms, writing a lesson plan, presentation techniques, strategies for learning, clinical education and evaluation, use of media, production of audio-visual materials, and production of self-instructional package or presentation of inservice lecture. (3/0)

MS057U Clinical Experience VII 12

Refines all clinical skills. The student is expected to demonstrate sound clinical judgement and ability to function independently in critical care areas. Offers practice in clinical evaluation and instruction of freshmen students under direction of a clinical instructor, and selected experiences in elective clinical rotations. (0/24)

MS058U Advanced Life Support	2
Provides a review of cardio-pulmonary resuscitation. In addition, lecture and laboratory practice will be provided in inendotracheal intubation, cardiac defibrillation, intravenous therapy and fluid replacement, and treatment of immediate life-threatening conditions. (1/2)	
MS059U Advanced Pathology	3
Offers an in-depth study of cardio-respiratory disorders, relating to the respiratory therapists' role in diagnosis, treatment and support. Prereq: MS052U, MS053U, MS050U and Advanced Pharmacology. (3/0)	
MS060U Advanced Respiratory Therapy Equipment and Procedures	4
Examines establishing a continuous ventilation, predicting necessary ventilator adjustments, criteria for weaning and weaning procedures, including nasotracheal suctioning, monitoring systems, assessing ventilator performance, choosing ventilators for clinical situations, VD/VT measurements, bedside spirometry, fluidics and application to respiratory equipment. Prereq: MS014U, MS023U, MS017U. (4/1)	
MS061U Medical Terminology I	2-3
An orientation course in the vocabulary of medicine. Efforts are directed toward correct pronunciation and spelling of words through self-paced learning with videotapes as well as classroom participation. (2-3/0)	
MS062U Medical Terminology II	3
Continues Medical Terminology I with concentration on spelling, defining and applying terminology common to systems of the body by the medical field. Prereq: MS061U. (3/0)	
MS063U Pharmacology	2 ✓
Introduces drug classifications, abbreviations and the metric system. (2/0)	
MS065U Applied Pharmacology	1 ✓
Focuses on the medicines related to the practice of orthopaedics in terms of indications, contraindications, complications and dosage. (1/0)	
MS066U Physical Assessment and Interpretation	3 ✓
Offers the basic principles and techniques of physical assessment, and provides insight into the pathology that may be found. (1/4)	
MS067U Health Occupations Leadership	.5-3 ✓
Develops leadership skills in using parliamentary procedures, techniques for conducting business meetings, committee functions, communications, and project design and implementation for organizational structures. Provides insight in developing public relations with the community in furthering career services to the community. (.5, 1, 2, 3/0)	
MS068U Medical Terminology Practice	1
Provides practice in word building, pronunciation and spelling of medical terms. To be taken concurrently with MS061U and MS062U. (0/1)	
MS008V MA Clinic I	6
Offers experience in private doctors' offices, hospitals, clinics, industry or wherever medical treatment is given under supervision of doctors, registered nurses and school instructors. (1/16)	
MS009V MA Clinic II	13
Continues Supervised Clinical Experience I (MA). Prereq: MA008V. (1/36)	
MS022V Clinical Procedures I	3
Provides introduction to back office techniques, microbiology, aseptic techniques, vital signs and fundamentals. (2/2)	
MS023V Clinical Procedures II	3
Provides basic skills in sterile techniques, setting up for minor surgery, ward duties, physiotherapy, basic x-ray techniques and electrocardiogram techniques. Prereq: MS022V. (2/2)	
MS025V Medical Office Procedures III	2
Covers services management, including computer science information and current trends. (1/2)	
MS028V Medical Office Procedures I	2
Provides an introduction to medical office assisting and front office tech-	

niques, including making appointments, scheduling, history taking, telephone techniques, decision making and patient relationship. (1/2)

MS029V Medical Office Procedures II **2**

Provides a working knowledge of basic medical insurance programs, forms utilized and the record keeping of insurance claims. Prereq: MS028V (2/0)

MS030V Medical Laboratory I **4**

Provides basic principles and skills in hematology and urinalysis necessary for medical personnel in a medical setting. (1.5/5)

MS031V Medical Laboratory II **1.5**

Continues the study of hematology. Prereq: MS030V. (.5/2)

MS032V MA Pharmacology **2**

Provides techniques in administration of drugs and study of basic mathematics and dosages. Prereq: MS063U (2/0)

MS033V Psychiatric - Medical Assistant **2**

Examines current concepts, techniques and procedures used in treatment, prevention and rehabilitation of mental illness as it relates to individuals in doctors' offices. (2/0)

MU: MUSIC

MU007T Vocal I **2**

Designed to teach, in a group situation, the basic skills of singing to beginning students. Various concepts of voice will be presented concerning these skills. Includes overcoming self-consciousness, breath control, tone production, interpretation and performing musical exercises. A varied repertoire will be learned so that the student may apply concepts and techniques to simple songs. (0/4)

MU008T Vocal II **2**

Continues Vocal I. (2/0)

MU010T Voice **1**

Offers private instruction for advanced students in voice. May be repeated for six credits. Periods to be arranged. Prereq: MU008T or permission of instructor. (1/0)

MU011T Music Appreciation **4**

Includes elements and types of music with some attention to major periods and composers. (4/0)

MU012T Advanced Music Theory I **4**

Continues the first-year music theory. Prereq: MU025T. (4/0)

MU013T Advanced Music Theory II **4**

Continues Advanced Music Theory I. Prereq: MU012T. (4/0)

MU014T Advanced Music Theory III **4**

Continues Advanced Music Theory II. Prereq: MU013T. (4/0)

MU015T Band **1**

Designed for students with ability and desire to play in a band. May be repeated for a total of six credits. (0/3)

MU016T Chorale **1**

Meets three hours weekly. May be repeated for a total of six credits. Period to be arranged. Prereq: permission of instructor. (0/3)

MU019T Beginning Piano **2**

Designed to teach beginning piano in a group situation. The basic music skills and vocabulary are taught and developed into the techniques needed to perform music. Simple, familiar folk and popular songs are learned to develop these basic skills and techniques. The course is also designed to help the student overcome self-consciousness while playing the piano and to stimulate ensemble playing in order to perfect the basic skills and to learn from one another. (0/4)

MU022T Ensemble **1**

Offers instruction and performance in small vocal groups. May be repeated for a total of six credits. (0/3)

MU024T Music Theory II 4
Continues Music Theory I. Includes Instruments and voices, four-part choral writing, harmonic progression, style periods, the major-minor dominant 7th chord and leading-tone chord. Prereq: MU124T. (4/0)

MU025T Music Theory III 4
Continues Music Theory II. Prereq: MU024T. (4/0)

MU034T Beginning Guitar 2
Designed to teach beginning guitar in a group situation. The basic skills and vocabulary are taught and developed into the technique needed to perform music. Simple, familiar folk and popular songs are used to develop these skills and techniques. (0/4)

Applied Music

For each hour of credit, the work in applied music requires 10 lessons during the quarter. Unless otherwise directed by the department head, these lessons will be on a weekly basis. It is possible for a student to enroll for two hours of the same instrument with the permission of the department head. The appropriate faculty will determine the level of the student's qualification by audition and/or previous study in the instrument or vocal area.

The following are the instrument areas. Each represents one hour of credit. (.5/0)

- | | |
|---------------------------|-------------------------------|
| MU101T Organ | MU110T Trombone |
| MU102T Piano | MU111T Coronet-Trumpet |
| MU103T String Bass | MU112T French Horn |
| MU104T Cello | MU113T Saxophone |
| MU105T Viola | MU114T Bassoon |
| MU106T Violin | MU115T Clarinet |
| MU107T Percussion | MU116T Oboe |
| MU108T Tuba | MU117T Flute |
| MU109T Baritone | |
| MU118T Guitar 1 | |

Offers private lessons for intermediate and advanced guitarists. Prereq: MU034T or consent of the instructor. (.5/0)

MU122T Jazz Ensemble 1
A performance-oriented class designed around the traditional stage band instrumentation. Provides back-up instrumentation for Show Choir. Audition required. (0/3)

MU123T Show Choir 1-2
A performance-oriented class that gives students the opportunity to work with music in rock, show and jazz idioms. Fully choreographed. Audition required. (0/3-4)

MU124T Music Theory I 4
A comprehensive study of the fundamentals of harmony, ear training and sight singing. Includes notation, scales, modes, intervals, key, tonality, the anatomy of melody, harmony and melodic organization. (4/0)

MU125T Community Chorus 1
Performs a variety of vocal music, ranging from repertoire from the Renaissance to several twentieth century styles. Prereq: permission of instructor. (0/20)

MU126T Jazz Improvization I 4
The study of 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. Prereq: MU124T and permission of instructor. (4/0)

MU127T Jazz History and Appreciation 4
A historical approach to the development of jazz in America. Jazz styles will be studied through the analysis of recorded examples played in class. (4/0)

NS: NURSING

NS001U Changing Patterns of Health Care and Nursing (ADN) 2

Focuses on changing patterns of the health care delivery system and the complex team relationships that affect the quality of health service. Prereq: NS008U. (2/0)

NS002U Metrology 1
Uses a programmed instruction text to assist learning of conversion and application of apothecary, metric and household systems of measurement. A nursing core course. (Pass/no-credit evaluation). (1/0)

NS003U Nursing I (Fundamentals of Nursing) 9
Focuses on function of the nurse in beginning clinical practice and the behavioral changes required to implement fundamental care for all patients and/or residents (care, comfort, safety, nutrition and elimination). The patient, as an individual, and the physical-emotional-cultural relationships also are studied. Students with reading and/or mathematics deficiencies may be required to enroll in the personal achievement courses. (5/8)

NS004U Nursing II (Introduction to Medical-surgical Nursing) 10

Continues Nursing I with focus on fundamental nursing knowledge and techniques for the care of all patients. Special emphasis is on the nursing care of patients having surgery. Fluid and electrolytes, oxygen, nutrition, pharmacology and elimination are stressed. Concepts of stress in self and others, death as a progressive, individual process, health care and health promotion are included. A nursing core course. Prereq: NS003U, NS002U, NS013U and BY006U. (5/10)

NS005U Nursing III (Maternal and Child Nursing) 12
Focuses on physical and mental changes occurring during pregnancy and the birth process. The study of the needs of ill children in relation to the well child is emphasized. Includes identification of community health agencies and services through study and visitation. A nursing core course. Prereq: NS004U. (5/14)

NS006U Nursing IV (Medical-surgical Nursing) 13
Focuses on nursing care of patient with healing problems requiring hospitalization. Principles underlying nursing care and nursing techniques are learned, with focus on the nursing process. Prereq: NS005U. (5/16)

NS007U Nursing V (Medical-surgical Nursing) (ADN) 12

Focuses on the systematic application and analysis of care given to, for and with the hospitalized person with more complex medical-surgical health problems. Supportive and therapeutic modalities are continued throughout the nursing care; i.e., fluid and electrolytes, pharmacotherapeutics, surgical and diet. Prereq: NS006U. (4/16)

NS008U Nursing VI (Psychiatric Nursing) 10

Focuses on the care of persons with emotional problems utilizing the nursing process. Principles relating to communication, the nurse-patient relationship and psycho-social needs are applied to the nursing care. The role of the nurse in caring for patients in various settings and in coordination with other professionals is explored. Attitudes, values, feelings and emotions as present in all persons and as an integral part of all interpersonal relationships are used in the continuing development of a philosophy of human caring in nursing. Prereq: NS007U. (5/10)

NS009U Nursing VII (Advanced Maternal and Child Nursing) (ADN) 12

Focuses on the care of obstetrical, newborn and pediatric patients. Nursing content is focused on the care of patients with complications. The psychosocial and learning needs of persons at the various stages of development. Complex health problems are explored in depth. Specific nursing measures are developed, which are utilized in planning, implementing, evaluating nursing care for the patient and family. Prereq: NS008U. (4/16)

NS010U Nursing VIII (High Priority Care and Management Principles) 16

Focuses on the role of the nurse in planning, implementing and evaluating

nursing care for groups of patients and those requiring priority care utilizing the nursing process. The student is assisted with the transition to the nurse practitioner role. The team-leading method of patient care is studied in relation to managerial skills. Prereq: NS009U. (4/24)

NS011U Nursing IX Seminar 2
Focuses on the legalities and guidelines within which the nurse's patient care responsibilities are defined by the law and by nursing practice. Prereq: NS009U. (2/0)

NS012U Advanced Placement Seminar (ADN) 1
Open to advanced placement nursing students to explore the role expectation of the associate degree nurse, develop skills in problem-solving, communication, self-evaluation and self-directed learning. (1/0)

NS013U Normal Nutrition 2
Designed to provide the foundation of knowledge of normal nutrition necessary to application of nutritional therapy in the nursing care of the patient with special nutritional needs. A nursing core course. (2/0)

NS017V PN Nursing Seminar, (LPN) 2
Deals with the legal and ethical implications and responsibilities of the licensed practical nurse. Consideration is given to the rights and privileges of the patient. A nursing core course. Prereq: NS005U. (2/0)

OE: OFFICE EDUCATION

OE001T College Shorthand I 4
Presents the shorthand theory and develops the ability to take dictation consisting of basic vocabulary. For students with no knowledge of shorthand or instructor's approval. (3/2)

OE002T College Shorthand II 4
Offers a review of shorthand theory and continues to develop shorthand dictation ability on gradually increasing vocabulary levels. Introduces typewriter transcription. Prereq: OE001T or instructor's approval. (3/2)

OE003T College Shorthand III 4
Emphasizes increased rate of dictation and development of introductory transcription skills. Prereq: OE002T or instructor's approval. (3/2)

OE004T College Shorthand Transcription 3
Continues shorthand sequence with emphasis on increasing the student's ability to transcribe difficult material from shorthand notes and to polish related transcription skills. Prereq: OE003T or instructor's approval. (2/2)

OE006T College Typing I .5-3
Consists of modules 1-6. Module 1 covers the alphabetic keyboard; module 2, the number keys; module 3, beginning tables; modules 4 and 5, personal and business letters, and module 6, manuscripts. May begin with module 1 or module 3. Speed goal is 35 wpm. (0/1-6)

OE007T College Typing II .5-3
Consists of modules 7-12. This sequence begins with a thorough review of modules 1-6 and is designed to improve the knowledge and skill developed in these modules. Includes learning additional letter styles as well as more complex manuscripts, tabulations, and business forms. Speed goal is 45 wpm. Prereq: OE006T or instructor's approval. (0/1-6)

OE008T College Typing III .5-3
Consists of modules 13-18. This sequence is designed to develop expert typing skill and knowledge and is primarily for the office education major. Begins with a review of previous instruction. Offers an opportunity for extensive practice of very difficult material. Concludes with office-style projects. Speed goal is 55 wpm. Prereq: OE007T or instructor's approval. (0/1-6)

OE009T Electronic Office Machines 2-3
Provides for integration of basic mathematics and office machines. Mathematical concepts are applied to the operation of electronic calculators. Introduces the use of micro-computers. Prereq: knowledge of basic mathematics. (1-2/2-2)

OE010T Filing Systems 2
Teaches rules for alphabetic, numeric, geographic, subject and chronological filing methods with introduction to storage and retrieval procedures. (2/0)

OE011T Administrative Office Procedures 4
Integrates the skills, knowledges, and personal qualities necessary for an administrative secretary to perform the operational and supervisory functions for today's office. Provides simulated office activities, problem-solving techniques and decision-making experiences, with special emphasis on creativity and professionalism. Prereq: OE007T, OE002T or instructor's approval. (3/1)

OE012T College Typing IV .5-3
Provides practice in developing advanced typewriting production skills in a structured class. Includes training on the electronic typewriter. Also available on an individualized office simulation basis as modules 19-24. Speed goal is 65 wpm. Prereq: OE008T or instructor's approval. (0/1-6)

OE038T Electronic Typewriter .5
Consists of learning how to operate an electronic typewriter and applying the automated features to type business applications. Prereq: OE007T. (0/1)

OE041T Automated Typing I 1
Consists of module 26. Designed to teach the basic operations of the memory typewriter in order to complete beginning text-editing tasks. (0/2)

OE042T Automated Typing II 1
Consists of module 27. Designed to apply the text-editing features of the memory typewriter to advanced production typing projects. Prereq: OE041T (0/2)

OE043T Automated Typing III 1
Consists of module 28. This course provides hands-on experience with a stand-alone nondisplay word processor. Prereq: permission from the instructor. (0/2)

OE044T Records Management 2
Introduces principles governing record retention, storage and retrieval methods, micrographics, electronic media, and selection of records equipment and supplies. Prereq: OE010T or placement test. (2/0)

OE001U Office Procedures I 4
Provides for an understanding of the concepts, terminology, skills, and procedures leading to realistic preparation for office employment. Instruction includes units on ethics, professionalism, telephone, mail, meetings, travel, reprographics, resources, references, supplies, and telecommunications. Students prepare a comprehensive resource manual. Prereq: OE006T. (4/0)

OE002U Office Procedures II 3
Provides simulated office activities and problem-solving situations that will develop and apply a wide range of office skills. Students are rotated through different office positions and undergo realistic patterns of interaction, which will better prepare them to perform day-to-day operations, to develop self-confidence and to cultivate the personal traits and the human relations skills necessary for success in office occupations. Prereq: OE007T. (1/4)

OE003U Insurance Machine Transcription 3
Designed to concentrate on the letters, memos and reports used in insurance offices. Both accuracy and increased transcription rate will be stressed, and actual letters will be used. Prereq: insurance terminology and proficiency in machine transcription. (2/1)

OE005U Business Spelling/Proofreading 2
Provides instruction in spelling and proofreading skills through classroom presentations, drills, application exercises, and self-paced learning activities from taped materials. (2/0)

OE007U Office Procedures (OPA) 2 ✓
Develops procedures necessary to assist the orthopaedic surgeon and related personnel with care of patients in the office environment. Includes communications procedures, inventory management, ordering orthopaedic shoes and adjustments, and applied pharmacology. (2/0)

OE009U Medical Record Science II 4
Provides instruction in numbering and filing systems and retention of records. Also covers the medical record professional's role with ancillary departments and medical staff. Provides simulated office activities and problem solving situations. Students are rotated through different medical record office positions. Prereq: OE015U. (4/0)

OE010U Nosology 4
 Designed to develop skill in the use of approved disease and procedure classification system. Specialty coding systems are also explored. (4/0)

OE011U Directed Practicum 1-8
 Provides students with positions in medical record centers in order to gain experience in medical record analysis, filing, storage, coding and indexing, as well as statistical reporting and related medical record functions and responsibilities. This course is required for two quarters prior to graduation. (0/3-24)

OE012U Medical Record Science III 4
 Provides for training in quality assurance activities including utilization review and patient care evaluation. Prereq: OE009U. (4/0)

OE013U Documentation of Medical Records 3
 Provides for an understanding of requirements for completion of medical records in various types of health care facilities. Allows the student to analyze medical records for completeness, accuracy, and abstracting of medical records. (3/0)

OE014U Legal Aspects of Medical Records 2
 Enables the student to know what medical information can be released to proper authorities—proper release of information from the medical records. (2/0)

OE015U Medical Record Science I 4
 Provides for a survey of the health history of medical science and the profession. Includes admission techniques, correspondence procedures, and medical record content. (4/0)

OE016U Medical Secretarial Machine Transcription I 3
 Develops transcription skills with emphasis on medical terminology and gives practice in transcribing medical letters, forms and reports. The course provides a review of English grammar as used in medical reports and introduces students to medical case histories, consultation reports, operative reports, discharge summaries, x-rays, and reports used in specialized medicine (e.g., pediatrics, ophthalmology) (2/2)

OE017U Medical Secretarial Office Procedures 4
 Designed as a comprehensive advanced office simulation. Basic secretarial skills are combined with skills needed to perform secretarial duties in a doctor's office, hospital record room or specialized hospital department. Prereq: College Typing II or approval of instructor. Prereq: OE007T or approval of instructor. (4/0)

OE018U Medical Typing 2
 Concentrates on typing forms, letters, and reports common to physicians' or hospital offices. Provides for an introduction to transcribing machines. (1/2)

OE019U Machine Transcription 3
 Teaches efficient use of transcribing machines. Emphasis is placed on application of English skills and formatting decisions in transcribing realistic office-style dictation. Prereq: OE007T. (2/2)

OE020U Office Careers 1-2
 Provides an atmosphere to analyze the career opportunities available to clerical and secretarial workers. Special emphasis is placed on tours, personal development and projects related to individual interest areas. (1-2/1-1)

OE021U Medical Secretarial Machine Transcription II 3
 Develops speed and accuracy in transcribing reports of medical specialties and introduces students to problem-oriented medical records used in many hospitals and clinic offices. Physicians' dictation is used in this class. Prereq: OE016U. (2/2)

OE022U Medical Record Science IV 4
 Designed to give the student an understanding of the function of accrediting agencies in the health-care field. Other units include use of medical records in long-term care facilities, trends in the health-care field, problem-oriented medical records and special registries. Prereq: OE012U. (4/0)

OE023U Medical Record Seminar 1
 Designed to prepare the student for directed practicum. Introduces students

to procedures in seeking employment. Students learn effective job application techniques. (1/0)

OE024U In-service Education 1
 Includes presentation techniques, strategies for learning, evaluation and use of audio-visual aids. Students prepare and present an in-service workshop. (1/0)

OE025U Certified Professional Secretary Review 1-5
 Reviews the six areas of the Certified Professional Secretary exam: behavioral science in business, business law, economics and management, accounting, office administration and technology, and communication application. (1-5/0)

OE026U Word Processing I 3
 Introduction to modern word processing concepts and careers. Hands-on training provides basic training on current text-editing equipment. Prereq: Typing speed of 45 wpm. (1/4)

OE027U Medical Transcription 5
 Develops the skill of transcribing with emphasis on the use of medical terminology and medical reports. Provides information on and helps students realize the importance of confidentiality in transcribing of medical reports. Students prepare an evaluation instrument which is tested on classmates. (4/2)

OE028U Information Processing Systems Management 2
 Includes units on organizing, implementing, and managing of word processing center; evaluating word processing equipment; and analyzing work measurement methods. Prereq: OE031U. (2/0)

OE029U Office Education Seminar 1
 Correlated with the student's program of studies and business internship experiences. Time assigned by program. (1/0)

OE030U Professionalism 1
 Develops and recognizes leadership in the professional association for office education students. Prereq: Instructor's approval. (0/2)

OE031U Word Processing II 2
 Covers the application of basic word processing skills using test-editing equipment. Simulation of the word processing cycle. Prereq: OE026U. (0/4)

OE032U Word Processing III 3
 Provides further development of word processing techniques. Advanced applications on text-editors and dictation equipment. Prereq: OE019U, OE031U. (0/6)

OE002V Law Office Procedures 3
 Designed as a finishing course in specialized legal secretarial training, combining skills previously learned in legal typing and terminology, shorthand, and office procedures. Through lectures, class discussions, simulated projects, field trips and panel discussions, students are acquainted with typical law office procedures applicable to different areas of legal work—probate work, real estate transactions, civil actions, etc. Prereq: OE005V, OE006V. (3/0)

OE003V Legal Dictation 3
 Develops student's ability to take dictation of difficult materials and to transcribe in legal document form. Prereq: OE003T, OE006V. (2/2)

OE004V Legal Machine Transcription 3
 Develops student's ability to transcribe legal materials in document form from machine dictation. Prereq: OE006V, OE019U or instructor's approval. (2/2)

OE005V Legal Typing 3
 Provides instruction in typing information on printed legal forms and in completing legal instruments and documents common to local jurisdictional practice. Equal emphasis is placed on typing speed and accuracy of production work. Prereq: OE008T. (2/2)

OE006V Legal Terminology 3
 Provides instruction in the correct definitions, spelling and application of approximately 400 terms commonly used in legal secretarial work. (2/2)

- OE007V Medical Secretarial Dictation 4**
Develops a medical shorthand vocabulary, concentrates on building shorthand speed on medical material, and on producing mailable letters and reports with medical terminology. Prereq: OE003T, MS061U, BY006U. (3/2)
- OE012V Medical Secretarial Typing 3**
Concentrates on typing medical letters and forms, case histories, consultation reports, operative records, discharge summaries, x-ray and EKG reports and the preparing of abstracts and articles for medical journals. Prereq: OE008T. (2/2)
- OE014V Insurance Terminology 2**
Emphasis will be on the correct spelling and application of terms used in the insurance field. (2/0)
- OE028V Insurance Typewriting 3**
Introduces the forms, policies and letters common to most insurance offices. The typing of numbers will be stressed, and accuracy will be a major objective. (2/2)
- OE030V Clerical Seminar 1**
Reviews clerical applications in basic math, proofreading, telephone techniques, and human relations. (1/0)
- OE031V Business Skills (Insurance) 2**
Promotes a working knowledge of basic medical insurance programs and forms utilized in recordkeeping of insurance claims. (2/0)
- OE032V Medical Insurance Seminar 2**
Introduces preparation of basic medical insurance claims. (2/0)
- OE033V Legal Terminology Review 2**
Provides review and reinforcement of terminology as applied to local jurisdictional usage. Prereq: OE006V. (2/0)

PD: PERSONAL DEVELOPMENT

- PD002D Personal Achievement Math 1-2**
Designed on an individualized basis, to help students master the basic skills of mathematics as well as to help students who need a review of math skills. The course may cover any one or all of the following modules: whole numbers and fractions, whole numbers and decimals, ratios, proportion, percent, pre-algebra, basic geometry, metric system and technical math. (0-2/4)
- PD003D Personal Achievement 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)
- PD004D Personal Achievement Basic Writing 1-2**
A course 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 will prepare the student to take Composition I and may also be supplemental support for those students enrolled in Composition I, Composition II, Communications Skills and/or other courses. (0-2/4)
- PD006D Orientation to American Culture 1**
Presentation of information that will help the student function in American society and at Kirkwood Community College. Topics to be covered include American institutions and customs, and the educational system. Student activities include conversation, oral reports, notetaking and quizzes. This course is required during the first term for those enrolled in English as a Second Language.
- PD007D Personal Achievement Basic Study Skills 1**
Basic study skills include instruction and practice in the following areas: time schedule and management, using textbooks, systematic study attack methods, notetaking, concentration and retention, test-taking and listening skills. This class is six weeks in length. (2/0)

- PD012D Job Seeking Skills 1**
Provides students with training in resume preparation, self appraisal, job searching, application and interviewing. (.5/1)
- PD013D Spelling Techniques 1**
Designed to help students improve their spelling ability. Teaches the most commonly used and misspelled words in English. The course is individualized (6 levels) and self-paced. Uses the test-study-test method, a success-oriented program, based on 50 years of research in the teaching of spelling. (0/2)
- PD014D Personal Achievement Math (Pre-algebra) 3**
Pre-algebra is taught on a small group basis for students planning to take Beginning Algebra. Reviews fractions, decimals, ratios and percents. Introduces exponents, operations with negative and positive number, combining algebraic expressions and solving simple equations. (2/2)
- PD015D Techniques for College Success 2**
Designed to initiate the distant learner not only into the Kirkwood educational experience but into the effective use of the TV delivery system. The student will receive specific instruction in TV learning techniques, become acquainted with Kirkwood degree and program requirements, and learn how to function successfully as a KCC student. The course will provide assessment of basic study, reading, writing and math skills. (1/2)
- PD016D Personal Achievement Math (Lec/Lab) 2**
Designed on a small group basis to help students master the basic skills of mathematics as well as to help students who need a review of math skills. The course may cover any one or all of the following modules: whole numbers and decimals, ratios, proportion, percent, pre-algebra, basic geometry, metric system and technical math. A one-hour weekly lecture on specific topics in math is required. (1/2)
- PD017D Personal Achievement Writing (Lec/Lab) 2**
Designed to assess a student's writing strengths and weaknesses. The student receives instruction on an individualized or small group 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. A one-hour weekly lecture is required. (1/2)
- PD018D Personal Achievement Reading (Lec/Lab) 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. A one-hour weekly lecture on specific topics in reading is required. (1/2)
- PD019D Personal Achievement Reading-Writing (Lec/Lab) 3**
Intended for those 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 in order to strengthen basic skills in these areas. (2/2)
- PD020D Agricultural Experience (Introductory) .5-12**
Provides a student-centered format for securing basic, background-type farm experiences. Students entering Farm and Ranch Technology and Agribusiness Technology programs, as well as some other agricultural technology programs, are expected to perform selected minimum competencies at or near the beginning of the programs. Units covered are careers, machinery, animal husbandry, crops, soils, buildings and facilities, economics, and other topics. (.25-6/ .5-12)
- PD001T Group Dynamics 2**
Emphasizes small group procedures for personal development in education. Structured group procedures and micro-counseling skills will supplement materials relevant to academic adjustment and success. (2/0)
- PD005T Human Potential Lab 2**
Designed to allow the student to become involved in group interaction in an atmosphere that is conducive to assisting the student in the formation of a

realistic, positive self-concept. Emphasis is on the personal growth of the individuals involved and development of the attributes important in establishing harmonious inter-personal relationships. (2/.5)

PD010T Life-style Planning .5-1

Assumes that the student is raising some basic questions about life and/or work, or the circumstances have raised these questions. Its purpose is to help identify the direction the student wants to take in life and work, and then move in that direction. (.5-1/0)

PD012T Assertive Behavior Training 1

An introduction to 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. (1/0)

PD013T Career Decision Making 3

Designed to provide a grasp of the process of making a career decision. This is to be accomplished by identifying the individual's desires, relating these to the requirements of various career fields, and developing an understanding of the trade-offs involved in making a career decision. (3/0)

PD800T Career Exploration: Independent Study 1-3

An individualized, career process which 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 first extending his/her knowledge of career choices and then assisting in decision strategies. The student chooses up to three of the five modules offered, with the assistance of the instructor. (0/2-6)

PD001U Personal Development 1-2

Provides the study and application of techniques for improving personal appearance, mental attitude, poise and personality, such as hair care, skin care, wardrobe selection, weight control and personality development. (1-2/0)

PH: PHYSICS/ASTRONOMY

PH008T 21st Century Introductory Physics 4

A one-quarter introductory course with lab experience. Provides basic work with scientific reasoning and with fundamental concepts in classical and modern physics. Recommended for students who plan to take college or general physics, as well as all liberal arts students desiring an introductory science course. (3/2)

PH001T College Physics I 4

Open to all students wanting a non-calculus level physics course. Designed primarily for students interested in pre-medical, pre-dental, pre-pharmacy, pre-forestry or pre-teacher education programs, and all who seek to meet science requirements in their professional programs. Emphasizes introductory physics concepts and methods of scientific reasoning. First quarter of this sequence treats the structure and properties of matter, descriptions of motion. Newton's Laws, conservation laws, rotation and vibration, and unifying principles. Prereq: Introductory algebra course in high school or college. (3/2)

PH002T College Physics II 4

Continues Physics I and covers wave motion, liquids, gases, the gas laws, heat and the heat laws of thermodynamics. Applications to the life sciences are integrated with material throughout the quarter. Prereq: PH001T. (3/2)

PH003T College Physics III 4

Continues College Physics II, and includes static and current electricity, electromagnetism, optics and optical devices, and nuclear physics. Applications to the life sciences are integrated with material throughout the quarter. Prereq: PH002T. (3/2)

PH004T General Physics I 4

Designed primarily for students in engineering, mathematics and physics, as well as those needing a problem-solving physics course using calculus-level mathematics. The first quarter of this three-quarter sequence covers the topics of vectors, Newton's Laws, momentum, energy and rotational dynamics with applications to engineering problems. Prereq: MA035T (may be taken concurrently). (3/2)

PH005T General Physics II 4

Continues General Physics I. Includes the subjects of oscillatory and wave motion, gas laws, thermal properties of materials and the laws of thermodynamics. Quarter ends with an introduction to electricity. Prereq: PH004T and MA036T concurrently. (3/2)

PH006T General Physics III 4

Continues General Physics I and II. Includes work in current electricity, electromagnetism, waves, optics and application of physics to current problems. Prereq: PH005T and MA037T concurrently. (3/2)

PH011T Medical Physics 4

Designed for students enrolled in respiratory therapy and pre-nursing. Deals with theory and applications of the gas laws, fluid dynamics, hydrostatics, simple machines and electricity as they apply to respiratory therapy and the life sciences. (3/2)

PH007T Astronomy 4

An introductory course centered 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. (3/2)

PH800T Independent Study - Physics 1-4

Provides readings, papers, and/or basic research or other projects under the individual guidance of a staff member. Offers advanced work in the topics of general physics. The work is an extension in breadth and depth of the materials covered in PH004T, PH005T and PH006T. Prereq: General Physics and consent of instructor. (1-4/0)

PH013T Project: Universe (Introduction to Astronomy) 3

A basic introduction to astronomy. Via this television course, students are given a comprehensive introduction to the origin, characteristics, and evolution of the solar system, the stars, galaxies and the universe as a whole. (1.5/0)

PH001U UTC Physics I 4

Studies the concepts of: force, parameter, rate, resistance and energy loss; and introduction to magnetism. (This course uses UTC format; that is, all topics are presented with cross-disciplinary applications: mechanical, fluid; electrical; and thermal.) Prereq: EL003U. (3/2)

PH002U UTC Physics II 4

Continues Applied UTC Physics I. Studies the concepts of: capacitance, inductance, and energy storage; and energy transfer and storage in resistive-capacitive-inertive systems. Prereq: PH001U. (3/2)

PH003U Heat Theory and Application 4

Studies theoretical considerations and techniques of application of heat. Major emphasis is placed on the application of heat energy conversion, heating and air conditioning. Prereq: MA013U (4/1)

PH004U Technical Chemistry and Physics I 3.5

Includes study of weight and measurements, charts, proportions, chemical and physical properties, and reactions relating to the mixing, gelation and solidification of dental materials, including the laws of physics as they relate to the dental laboratory fabrication. (2/3)

PH005U Technical Chemistry and Physics II 4

The study and application of principles contained in Technical Chemistry and Physics I. (1/6)

PH006U Technical Physics III 2

Studies forces, stresses and support relating to anatomical structures, dental materials or designs; principles of splinting and broken stress; and color or optical illusions created in restorations; applicable to the construction of crowns, and fixed or removable partial dentures. (1/2)

PH008U UTC Physics III 4

Continues Applied UTC Physics II. Studies the concepts of: forced oscillation in resistive-capacitive-inertive systems; waves; and radiated energy. Prereq: PH002U. (3/2)

PH009U Applied Physics I 4
Studies pressure, work, power, energy, thermodynamic processes, and psychrometric properties of air. (3/2)

PH010U Applied Physics II 4
Studies mechanical power transmission, friction, lubrication, fluid power, and light energy. (3/2)

PH011U Mechanisms 2
Studies the theory of mechanics and machines. Included are topics in forces and their effects, balance, equilibrium, gravitation, motion, and mechanical movements. Also covered are simple machines, mechanical power transmission, friction and lubrication, and pressure. (2/0)

PR: PHILOSOPHY AND RELIGION

PR001T Introduction to Philosophy 4
Examines the foundations of philosophical thought in the West from Descartes to the present day, with emphasis on problems of ethics, aesthetics, epistemology and metaphysics. (4/0)

PR002T Introduction to Religion 4
Includes a consideration of the great religious traditions. Basic forms, beliefs and functions of religion are examined in relationship to society. (4/0)

PS: POLITICAL SCIENCE

PS002T American Government 4
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. Empirical data is employed as a basis for many analytical techniques. (4/0)

PS004T International Relations 4
An analysis of governments interacting in political, security and economic dimensions. Emphasis is on the sources of foreign policy. Problems will be examined through current world concerns. (4/0)

PS006T Iowa Government: Today and Tomorrow 4
Provides close examination of Iowa government processes and institutions, with specific emphasis on decision making. (4/0)

PS008T Comparative Governments 4
Examines political institutions, problems, processes and ideologies in selected countries. "First," "Second" and "Third World" states will be studied and their interrelationships examined. (4/0)

PS800T Independent Study - Political Science 1-4
Provides readings, papers, and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairman. (1-4/0)

PS002U Citizen's Role in Government 3
Provides an experience in community politics. Students develop an understanding of community leadership and organization, community governmental process, and ways they can participatively influence government as a citizen or a business entity. (3/0)

PY: PSYCHOLOGY/EDUCATION

PY002T General Psychology 4
Provides an introduction to the study of human and animal behavior with emphasis on such topics as learning, motivation, personality and abnormal psychology. Wherever possible, psychological theories and principles are utilized to explain and predict behavior. (4/0)

PY004T Educational Psychology and Measurement 4
Considers and evaluates the following items: factors of physical and mental development; child and adolescent characteristics as they may effect the general learning situation; problems of classroom management, construction, use, interpretation and evaluation of standardized and teacher-constructed tests. Prereq: PY002T. (4/0)

PY005T American Public Education 4
Explores the multi-million dollar education industry that touches and shapes the lives of all of us. Examines the impact of schooling on the person, in terms of individuality, creativity, self-concept and socialization. Students will examine current beliefs about education and its effectiveness. (4/0)

PY007T Field Experience/Education I 4
Offers experience in classroom or education setting in which students serve as teacher aides. Student spends 10-12 hours per week at a practicum site working under the supervision of a teacher. Students may choose to work in preschools, elementary or secondary schools. Prereq: consent of instructor. (0/10-12)

PY009T Introduction to Teaching 4
An introduction to the concerns and activities of beginning teachers. The primary focus is on teaching in public schools, K-12, though many topics are applicable to any learning situation. (4/0)

PY020T Psychology of Growth and Development: Conception to Senescence 4
Examines the process of human development with special emphasis on the formative years—birth to adolescence. Topics range from socialization and personality development to identity crisis and death. Prereq: PY002T. (4/0)

PY024T Exceptional Child 4
Studies children who are exceptional in the context of mental, emotional, physical and social development. The adult manifestations of the above developmental patterns also will be examined. Prereq: PY002T. (4/0)

PY025T The Young Child 4
Characteristics and development of the young child are examined via current literature on early childhood. Observations and readings will provide students with an understanding of educational strategies relating to the developing child. (4/0)

PY026T Handicapped Services Orientation 2
Examines the roles of professionals and paraprofessionals. Basic terminology dealing with mental, learning, physical and behavioral disabilities is presented. Discussions are centered around situations that students may face while in a practicum. Following visits to local agencies and schools, the student selects a practicum placement for the following quarter. (2/0)

PY027T Skill Development—Observation and Management of Behavior 4
Develops skills needed to work as a paraprofessional in educational and community agencies. The course consists of four modules: Observation of Behavior; Developing and Maintaining Behavior; Behavior Contracts and Token Economies; and Eliminating and Decreasing Behavior. (4/0)

PY028T Skill Development—Mainstreaming and Mild Disabilities 4
Develops skills needed to work as paraprofessional with students having mild mental, behavioral and learning disabilities. The course consists of four modules: The Special Education System; Developmental Activities; Teaching Basic Skills; and Communication Skills. (4/0)

PY029T Handicapped Services Practicum and Seminar I 4
Places the student in an agency or educational setting working as a paraprofessional. Students will develop specific objectives related to program competencies. Bi-weekly seminars are held to assess progress and discuss student experiences. Prereq: PY026T and one Skill Development course. (1/9)

PY030T Handicapped Services Practicum and Seminar II 8
Places the student in an agency or educational setting working as a paraprofessional. Students will develop specific objectives related to program competencies. Bi-weekly seminars are held to assess progress, discuss student experiences, practice job-interviewing skills and prepare resumes. Prereq: PY026T and two Skill Development courses. (1/21)

PY031T Skill Development—Physical and Multiple Disabilities 4

Develops skills needed to work as a paraprofessional in educational and community settings. The course consists of four modules: Physical Health and Self Management; Multiple Disabilities; Psychological Aspects of Disabilities; and Community Living. (4/0)

PY033T Teacher Associate Seminar 1

Stresses the practical aspects of the teacher associate's role in an educational environment. Duties, responsibilities, expectations, and attitudes on the job will be examined. Job-seeking and problem-solving skills will also be included. (1/0)

PY035T Introduction to Mental Retardation 4

Provides a broad overview of mental retardation. A brief discussion of developmental factors leading to mental retardation will be followed by history of the "normalization" process. Educational, familial and vocational implications will also be presented in light of recent developments within the field. (4/0)

PY037T Field Experience/Education II 4

Offers additional experience in a classroom or educational setting, from pre-school to adult education. The student will spend 5-12 hours per week at the practicum site working under the supervision of a teacher. (0/12)

PY038T Field Experience/Education III 4

Offers additional experience in a classroom or educational setting, from pre-school to adult education. The student will spend 5-12 hours per week at the practicum site working under the supervision of a teacher. (0/12)

PY039T Social Psychology 4

Studies the individual in society. Topics include interpersonal attraction, person perception, group process, aggression, attitude formation and change, persuasion, conformity and deviation, and leadership. Human behavior will be examined from the perspective of the experimental method. (4/0)

PY041T Psychology of Personality and Adjustment 4

Familiarizes students with the major theories of personality and examines the concept of adjustment from theoretical and clinical viewpoints. Teaches techniques for relieving stress and maintaining adjustments. Prereq: PY002T. (4/0)

PY800T Independent Study-Education 1-4

Provides readings, papers, and/or basic research or other projects under the individual guidance of the staff members. Prereq: Consent of instructor and department. (1-4/0)

PY801T Independent Study-Psychology 1-4

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). (1-4/0)

PY003U The Profession 1

Familiarizes students in architectural drafting with ethics and procedures. Personal appearance and human relations are also stressed. (1/0)

PY004U Human Relations 3

Covers application of psychological principles of human behavior. Designed to help students understand themselves and those persons with whom they will work. The course is adapted to the needs and interests of students depending on the program in which they are enrolled and is open to students in vocational or technical programs only. (3/0)

PY005U Psychology of Human Relations II 2-4

Continues Psychology of Human Relations I. Open to students in vocational-technical programs. The course includes a study of self-concepts and individual and group relationships and adjustment factors, and considers the special needs of persons at various ages from early childhood through adulthood. (2-4/0-2)

PY007U Sales Psychology and Human Relations 3

Explores the human motivational and behavior factors. Emphasis is placed on understanding human behavior from a supervisor's point of view. Basic fundamentals of salesmanship are studied, with emphasis on successfully approaching professional people. (3/0)

PY001V Human Relations and Shop Supervision 1

Covers organizational principles and patterns of shop leadership. (1/1)

RE: RECREATION

RE001T Foundations of Recreation 4

Designed to introduce the basic philosophical, historical and scientific foundations and development in leisure and recreation; the function and setting of organized recreation; and a survey of organizations and agencies concerned with recreation. (4/0)

RE003T Recreation Leadership 4

Designed to enhance leadership skills in the student by examining various techniques used in the recreation and educational fields. (4/0)

RE006T Bowling 1

An activity course designed to improve the bowling skills of each student regardless of the degree of previous experience. Qualified instructors, instructional lane and instructional films will be available, in addition to hours of actual bowling experience. (0/2)

RE012T Fundamentals of Physical Fitness and Conditioning 1

Provides students with an understanding of the value of physical fitness, the alternative methods for achieving and maintaining fitness, and actual experience in developing a personal plan for fitness. (.5/1)

RE013T Orientation to Community Recreation Agencies 3

Provides the student with an opportunity to visit local facilities that deliver leisure services. Includes lectures by agency staff members describing their role in the community. (2/2)

RE015T Theory of Coaching Basketball 3

Introduces the coaching profession, with specific emphasis on basketball, fundamentals, strategy, organization, public relations, and coaching psychology. (3/0)

RE016T The Nature of Backpacking 3

Provides students with opportunities to learn the skills of hiking and living in the backcountry. (3/0)

RE017T Recreation Activities Project 1-4

Provides an opportunity to participate in various recreation experiences, including backpacking, canoeing, whitewater rafting and others. (0/2-8)

RE018T Recreation for Special Populations 4

Designed to examine the recent trend in recreation toward serving the physically and mentally handicapped as well as the elderly. (4/0)

RE019T Fundamentals of Golf 1

Develops the basic skills necessary for a beginning golfer. (0/2)

RE020T Beginning Archery 1

Familiarizes students with the fundamentals of archery. Correct methods of bow stringing, safety and short-range target practice will be stressed. Equipment will be provided. (0/1)

RE021T Sports Participation 1

Designed to give credit for knowledge and skills gained through varsity sports participation. Students may earn one credit per term up to a maximum of six credits. Although participation in a single sport can earn only one credit per year, a second credit can be earned for additional year's participation in the same sport. Prereq: permission of the instructor. (0/2)

RE022T Administration of Physical Education and Athletics 3

Examines the policies, procedures, and current problems associated with the administration of physical education and athletic programs, with major emphasis on the secondary level. (3/0)

RE023T Prevention and Care of Athletic Injuries 3

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 typing techniques. (2/2)

RE024T Beginning Tennis 1

Introduces the basic skills (forehand, backhand, service), strategy and rules of tennis. (0/2)

RE025T Recreation Programming 4

Provides the student with knowledge in setting up and administering recreation classes. (4/0)

RE026T Volleyball Techniques 1

Instructs students in the basic rules and fundamentals of volleyball, including on-court participation. (0/2)

RE027T Principles and Theory of Lifetime Fitness 1

Provides students with an understanding of the value of physical fitness, the alternative methods for achieving and maintaining fitness, and actual experience in developing a personal plan for fitness. (1/2)

RE028T Elementary Activities 3

Familiarizes students with the methods, techniques, materials and safety concepts involved in organizing and managing an elementary activities program. Includes some lab experiences. (2/2)

RE029T Beginning Tae Kwon-Do 1

Provides instruction in blocking, kicking, punching and thrusting techniques. Through traditional form techniques controlled sparring and free sparring, the student learns methods of self-defense against one or more attackers. All students are required to adhere to the tenets of Tae Kwon-Do: courtesy, integrity, perseverance, self-control and indomitable spirit. (0/2)

RE030T Introduction to Physical Education 3

An overview of the foundations, philosophies, history and principles of physical education. (3/0)

RE031T Techniques of Teaching Dual Sports 3

Techniques and methods of teaching badminton, table tennis and racquetball. (1/2)

RE032T Intermediate Tae Kwon Do 2

Provides continued instruction from Beginning Tae Kwon Do in blocking, kicking, punching, and thrusting techniques. Through intermediate form techniques, controlled sparring and free sparring, the student will learn additional methods of self defense against one or more attackers. Prereq: RE029T. (0/4)

RE033T Advanced Tae Kwon Do 2

Advanced instruction in blocking, kicking, punching, and thrusting techniques. Through advanced form techniques, controlled sparring and free sparring, the student will learn advanced methods of self-defense against one or more attackers. Prereq: RE032T. (0/4)

RE034T Techniques of Teaching Individual Sports 2

Covers techniques and methods of teaching archery, golf, and bowling. (1/2)

RE035T Techniques of Teaching Team Sports 2

Covers techniques and methods of teaching secondary basketball, softball, and track skills. (1/2)

RE036T Beginning Racquetball 1

Introduces students to fundamentals and rules of the sport. (0/2)

RE037T Intermediate Racquetball 1

Teaches students safe play using higher level shots — singles, cutthroat, doubles. (0/2)

RE038T Advanced Racquetball 1

Advanced students learn competitive level skills. (0/2)

RE039T Weight Training (Nautilus) 1

Improves muscle tone and overall strength. Increases flexibility through full-range lifting on the Nautilus machines. Changes body composition, either by gaining or losing weight. (0/2)

RE040T Basketball Techniques 1

Offers development of basketball skills necessary for analyzing and demonstrating purposes in teaching and coaching. Emphasis is on fundamental mechanics and teaching progressions. (0/2)

RE041T Officiating Softball 2

Includes rule interpretation and mechanics of officiating for softball. (2/0)

RE042T Officiating Basketball 2

Includes rule interpretation and mechanics of officiating for basketball. (2/0)

RE001U Equestrian 1-3

Applies modern forms of recreation to enhance and develop specific parts of the body for riding. (1-3/2-6)

RE002U Exercises for Horsemanship 1-3

Practices the use of suppling exercises for riding. (1-3/2-6)

SO: SOCIOLOGY

SO004T Introduction to Sociology 4

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. (4/0)

SO005T Marriage and the Family 4

The nature of contemporary family institutions is explored 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 both the continuities and discontinuities in the family experience of individuals and the society as a whole. (4/0)

SO006T Social Problems 4

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. (4/0)

SO007T Criminology 4

Surveys the nature, causes and extent of crime and delinquency; major consideration is given to apprehension, control and treatment. (4/0)

SO008T Introduction to Cultural Anthropology 4

Considers group life in various cultures. Involves anthropological insights relative to human behavior in a comparative perspective. Includes selected aspects of both physical and cultural anthropology. (4/0)

SO011T Juvenile Delinquency and Deviancy 4

Analyzes the various components of delinquency and deviancy, 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. (4/0)

SO013T Sociology of Poverty 4

Focuses on structured social inequality and its consequences for the life chances of the poor in the United States. Poverty is studied as one aspect of the distributive system. A general theory of the distributive system is advanced. The special concerns of low income groups are explored as a problem in distributive justice. (4/0)

SO015T Sociology of Aging 4

Considers many of the issues associated with the role of the elderly in our society. By analyzing current research, students will investigate the attitudes, preferences and lifestyles of the aging. (4/0)

SO017T Women and Society 4

Introduces and analyzes the impact of society on women by focusing on structural, interpersonal, and institutional perspectives. (4/0)

SO800T Independent Study - Sociology 1-4

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) (1-4/0)

SO001U Industrial Organization 3
 Studies the union systems in the United States. Studies wages, union policy, local and national union organization, and the laws pertaining to union and employer. (3/0)

SS: SOCIAL SCIENCE

SS004T Methods of Social Research 4
 Examines the basic techniques and concepts used in research in the social sciences. The emphasis is interdisciplinary, covering the major methods common to all the social sciences as well as special problems with disciplines. The course is recommended for students with advanced standing and/or strong interests in social research. Prereq: Consent of instructor. (4/0)

SW: SOCIAL WELFARE

SW005T Field Experience and Seminar I 6
 Places the student as an aide in a human services agency 15 hours a week. The experience will be discussed at a one-hour seminar, the purpose of which is to maximize the experience by gaining insights from other students and the instructor. These insights should enable the student to objectify his or her work experience. (1/15)

SW007T Field Experience and Seminar II 9
 Provides on-the-job training for mastery of competencies of human service values, communication skills, problem solving and job skills. Prereq: Consent of instructor. (1/24)

SW009T Introduction to Human Services 4
 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 systems analysis and problem-solving techniques. Concepts of systems analysis will be accompanied by applications of these concepts to problems. (4/0)

SW010T Human Service Policy and Programs 4
 Investigates the relationship between social service programs and related social issues in the context of cultural conditions. Introduces historical trends in human services, as well as acquaints students with current human services available to various client groups. (4/0)

SW011T Making Observations 4
 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. (4/0)

SW012T Intervention Skills 4
 Includes an overview of various intervention techniques. Students also learn principles of helping interview and practice interviewing in beginning, middle and ending phases. (4/0)

SW014T An Overview of Substance Abuse 4
 Provides an introduction to the problem of substance abuse. Topics include addiction process, treatment modalities, family involvement, problems of special populations, and psychology/pharmacology effects and an introduction to social psychological explanations of substance abuse. (4/0)

SW015T Substance Abuse Detection and Prevention 4
 Provides the skills to identify substance abuse problems in the clientele of human service workers. Focus will be placed on appropriate prevention and intervention techniques and referral processes. Consideration will be given to the minority perspective. (4/0)

TH: THERAPY

TH001U Occupational Therapy Management Skills 2
 Provides knowledge of sound equipment maintenance procedures, purchasing procedures and supplies maintenance. Also provides knowledge of rudimentary personnel management skills. Prereq: TH003U, TH005U, and TH006U. (2/0)

TH002U Health-Illness-Health 10
 Provides knowledge of the factors which influence/interfere with an individual's ability to function in basic life concerns such as self-care, play-leisure work experience. This includes knowledge of physical and psychosocial disease and disease processes. This is supplemented by practicum experience appropriate to didactic material. Prereq: BY011U. (8/6)

TH003U Therapeutic Crafts I 4
 Provides knowledge and skills relating to the major crafts used in Occupational Therapy, including weaving, leathercraft, ceramics and woodworking. (0/8)

TH004U Developmental Processes 6
 Provides a knowledge of normal physical and psychosocial development processes that affect a person throughout life, stressing integration of the physical with the psychosocial. Prereq: PY002T. (5/2)

TH005U Therapeutic Techniques I 4
 Provides a knowledge of the general aspects of occupational therapy and the work environment by didactic work and field observation. Includes defining the role of the occupational therapy assistant. (4/0)

TH006U Therapeutic Techniques II 4
 Interpersonal relationship techniques important to occupational therapy are explored. Interpersonal skills are broadened. The structuring of interpersonal skills and activity is learned. Includes one-to-one and group techniques. Prereq: TH005U. (3/2)

TH007U O.T. Evaluation 5
 Presents the processes and techniques used in evaluation of the client in occupational therapy. This includes physical function and psychosocial functions. Prereq: TH002U. (3/4)

TH008U OTA Clinic C 4, 8
 Offers learning activities in an occupational therapy clinic emphasizing the psychosocial aspects of therapy. Prereq: All occupational therapy courses except TH011U. (0/12, 24)

TH009U OTA Clinic B 4, 8
 Offers learning activities in an occupational therapy clinic emphasizing the physical disability aspects of therapy. Prereq: All occupational therapy courses except TH011U. (0/12, 24)

TH010U OTA Clinic A 4, 8
 Encompasses pediatric development and/or geriatric or other specialized experience. Objectives will be consistent with the projected need or desire of the student. Prereq: CM007U, TH007U and TH002U. (0/12, 24)

TH012U O.T. Theory and Techniques 5
 Presents the O.T. theory, the methods and means by which the client is treated as a total person using physical and psychosocial means. (3/5)

TH013U O.T. Planning 5
 Emphasizes planning for the client's therapeutic program from the evaluation process through treatment to outpatient care and the recommendations for continued health maintenance activities. (3/5)

TH014U Therapeutic Crafts II 4
 Provides knowledge and skills in leathercraft, woodworking, and weaving as used therapeutically. Prereq: TH003U. (0/8)

ADMINISTRATIVE STAFF AND FACULTY

BOARD OF DIRECTORS

B. A. Jensen, *President*

Cedar Rapids

Wayne T. Newton, *Vice President*

Luzerne

Kenneth K. Kupka, *Secretary*

Cedar Rapids

Robert O'Meara, *Treasurer*

Cedar Rapids

Morris L. Allen

Marion

Robert A. Davidson

Mechanicsville

Richard Foerstner

Iowa City

John M. Gerber

Cedar Rapids

Sharon Kromminga

Monticello

James Sauter

North English

Rev. Roy Wingate

Iowa City

ADMINISTRATION

Dr. Bill F. Stewart

President

Norman R. Nielsen

Vice President, Instruction

James Billings

Vice President, Administration

Donald E. Fuller, *Vice President,*

District Instructional Services

James V. Biundo

Assistant to the President

for Community Relations

Position Vacant

Dean, Arts and Sciences

Douglas L. Bolen

Dean, Vocational/Technical Division

Gay R. Dahn

Dean, Community Education

Dr. John C. White

Dean, Student Affairs

Dr. C. Richard Gross

Dean, Telecommunications

Grace Johnson

Administrative Assistant, EEO Officer

EDWARD ADAMS

Instructor, Dental Laboratory Technician
A.A.S., Kirkwood Community College; C.D.T.,
Virginia School of Prosthodontics; Kerpel School of
Dental Technology

J. THOMAS ADAMS

Instructor, Wastewater/Environmental Programs
B.S., University of Wisconsin

MARTHA ALDRIDGE

Instructor/Coordinator, Human Services Program
B.A., M.A., Mississippi State University; Millsaps
College; University of Iowa; University of Wisconsin

ROBERT ALDRIDGE

Instructor, English/Speech
B.A., Millsaps College; M.A., Mississippi State
University; University of Wisconsin; Ph.D., University
of Wisconsin

BEVERLY AMOROSO

Instructor, Business Technologies
Drake University; Iowa State University; B.A.,
University of Northern Iowa; University of Iowa

HELEN ANDERSON

Instructor, English/Speech
B.A., Coe College; M.A., Ed.S, University of Iowa;
Kirkwood Community College

RICHARD A. ANDERSON

Supervisor, Accounting Department
B.S., Iowa State University

SHIRLEY ANDERSON

Dept. Head, Nursing Education
B.S.N., University of Iowa

OTIS ARMSTRONG

Instructor/Coordinator, Horse Science
B.S., Delaware Valley College of Science and
Agriculture; Iowa State University

GARLAND ASHBACHER

Dept. Head, Agribusiness
B.S., M.S., Iowa State University

PAMELA BAENZIGER

Instructor, Math
A.A., Mt. St. Clare Jr. College; B.A., University of
Iowa

DOUGLAS F. BANNON

County Coordinator
A.A., Marshalltown Community College;
B.S., Northwest Missouri State

DONALD C. BARTHOLOMEW

Instructor, Economics/Business
B.S.C., M.A., University of Iowa; Keokuk Community
College

GAYLE BAYLOR

Instructor, Mathematics
B.S., Illinois State University; M.A., Western
Michigan University; Purdue University; Northwestern
Illinois University; University of Illinois; University of
Iowa

ALICE L. BECKHAM

Instructional Developer
B.A., Coe College; M.S. Ed., University of North
Dakota

MARILYN R. BEEBE

Instructor, Office Education
B.S., Central Missouri State University; University of
Iowa

DAN L. BEHAUNEK

Instructor, Auto Collision Repair
Diploma, Kirkwood Community College

CONNIE BETCHER

Instructor, Dental Assisting
B.S., University of Iowa

PHILIP BICKET

Instructor, Accounting
B.E., Wisconsin State University

RAYMOND L. BIGGERSTAFF

Instructor, Nursing Education
A.A.S., Western Iowa Technical Institute; B.A.S.,
Westmar College; Iowa State University; U.S. Navy
Corps School; Wayne State College

JAMES V. BIUNDO

Assistant to the President for Community Relations
A.A., Trinidad State Junior College; B.A., M.A.,
Adams State College; University of Northern Colorado

MICHAEL T. BLOUIN

Executive Director, Resource Development and
Government Relations
B.A., Loras College

DOUGLAS L. BOLEN

Dean, Vocational/Technical Division
A.A., Northwestern Business College; B.A., Ohio
Northern University; M.B.A., University of Dayton;
Ed.S., University of Toledo

MICHAEL A. BORICH

Instructor, English
B.A., University of Northern Iowa; M.F.A., University
of California, Irvine

GREGG J. BOSCH

Director, Athletics & Head Men's Basketball Coach
B.S., Northwestern College; University of Iowa

FRANCIS P. BOSTON

Industrial Services Specialist, Skill Center
B.S., Cornell College

HARLEEN S. BOTT

Instructor/Coordinator, Hartwick Community
Education Center
B.S., Iowa State University; Marycrest College;
Grace Bible Institute

H. KENNETH BRONKHORST

Instructor, Respiratory Therapy
B.S., Northwestern College; University of Illinois;
Chicago City Junior College; Western Michigan
University; Carnegie-Mellon University; University of
Chicago Hospitals and Clinics; University of Illinois,
Chicago Circle; Thornton Community College;
Moraine Valley Community College

FRANKIE H. BUCHANAN

Coordinator, Special Accounts
North Texas State; University of Texas

DAVID R. BUNTING

Director, Non-traditional Studies
B.A., M.A., University of Northern Iowa

CURTIS E. BURGER

Instructor, Horticulture
B.S., Iowa State University

BOB E. BURNES

Project Director, Special Services Support Program
B.A., M.A., Northeast Missouri State University

WILLIAM D. BURNS

KEY Welding Instructor, Iowa City
A.A., Kirkwood Community College; B.S., University
of Iowa

BURTON R. BUTLER

Instructor, Horse Science
B.S., Iowa State University; University of Northern
Iowa; Iowa State University

FRANCIS J. CAMIZZI

Instructor/Coordinator, Architectural Drafting
Registered architect in Iowa, Illinois, Texas and
Florida; NCARB Certificate

DAVID CAMP

Instructor, Electronics
Colorado State University; Iowa State University;
Kirkwood Community College; B.S.E.E., University of
Iowa

EDD CARLSON JR.

Instructor, Agriculture Mechanization
B.S., M.S., Iowa State University

KENT CARROTHERS

Instructor, Production Agriculture (Beef Specialist)
B.S., Iowa State University; University of Northern
Iowa

STEVEN R. CHAPMAN

Lead Systems Programmer
A.A.S., Kirkwood Community College

FRANK S. CHIAVETTA

Instructor, Nursing Education
A.A., New York City Community College; B.A. Loras
College, Buena Vista College

LINDA S. CHRISTIAN

Developmental Instructor, Personal Achievement
B.S., Eastern Illinois University

TERESE CLAEYS

Instructor/Coordinator, Medical Records Technician
B.A., College of St. Scholastica; University of Iowa

GEORGE COLBERT

Community Education Programmer
B.A., Mount Mercy College; A.A., Kirkwood
Community College

WILLIAM D. COOPER

Supervisor, Job Preparation/Skill Center
B.A., University of Northern Iowa

CLAIRE D. CORNELL

Grants Developer
B.A., Queens College of City University of New York;
University of Iowa

JUDITH COWAN

Instructor, Medical Assistant
R.N., St. Lukes School of Nursing; Michael Reese
School of Nursing; A.A.S., Kirkwood Community
College; Iowa State University; B.S., University of
Iowa

MERRILL E. CRAWFORD

Manager, Media Services
B.A., University of Iowa

NANCY CULP

Teacher, Child Care Center
B.S., University of Iowa; University of Evansville;
University of Mid America

J. CHARLES CUNNINGHAM

Instructor, Accounting
B.A., M.A., University of Northern Iowa; University
of Iowa, C.P.A.

GAYLON DAHN

Dean, Community Education
B.A., Coe College; M.A., Missouri State University;
University of Iowa

KATHRYN KING DAVIS

Instructor, Mathematics
B.A., M.S., University of Iowa

ROBERT B. DAVISSON

Instructor/Coordinator, Electrical and Electronics
B.S., Iowa State University; M.A., University of
Iowa; University of Houston, Drake University

CHARLES DECKER

Coordinator, On-Campus Facilities
Kirkwood Community College

BECKI DE NEUI-LYNCH

Registrar
B.S., Mount Mercy College; University of Iowa;
University of Northern Iowa

JON DE NEUI

Instructor, Agriculture Mechanization
B.A., Iowa State Teachers College

JUDITH D. DENNIS-BURNS

Librarian
A.A., Kirkwood Community College; B.A., University
of Iowa; M.A., University of Iowa

DAVID B. DETTMAN

Instructor, Food Service Management
Diploma, Des Moines Area Community College

PHILIP DEUTER

Instructor/Data Processing

JEFFREY J. DITCH

Library Technician
Northeast Missouri State

MARY L. DODSON

Instructor, Lincoln Learning Center
B.S., M.S., Eastern Illinois University

ROBERT R. DOUBET

Instructor/Coordinator, Dental Laboratory Technology
A.A.S., Kirkwood Community College; University of
Iowa

JOYCE DOWNING

Program Developer, Community Education
Mercy Hospital School of Nursing; Mount Mercy
College; Kirkwood Community College; B.S.,
University of Iowa

WILLIAM DUFFY

Director, News Service
B.S., Iowa State University

DEAN DUNLAP

Comptroller
American Institute of Business; Drake University;
Kirkwood Community College

MARY EARLY

Instructor/Coordinator, Medical Assisting
R.N., Allen Memorial School of Nursing; A.A.S.,
Kirkwood Community College; Cook County Hospital;
University of Illinois; University of Chicago;
University of Northern Iowa; Iowa State University;
B.S., University of Iowa

IRVIN A. EBINGER

Instructor, Auto Mechanics
B.A., Westmar College; M.A., Colorado State
University; Chicago Teachers College; General Motors
Training Schools; Iowa State University; University of
Iowa

GEORGE WILLIAM EDDINGS

Program Developer, Community Education
B.S., Northeast Missouri State University; M.S.,
Iowa State University; University of Iowa; University
of Northern Iowa; Moberly Missouri Junior College

RICHARD J. EDWARDS

Developmental Reading/Writing Instructor
B.A., M.A., University of Iowa

ANN ENCK

Instructor, Home Furnishings
B.S., University of Maryland; M.A., University of
Iowa; California State College; Temple University

ROBERT ERNST

Instructor, Biology
B.S., M.S., University of Nebraska; University of
North Dakota; University of Iowa; University of
Minnesota; Ph.D., University of Iowa

MELVIN ESSEX

Dept. Head, Horticulture
B.S., M.S., Iowa State University

DIANE M. FAHEY

Instructor, Nursing Education
A.D.N., North Iowa Area Community College; B.S.N.,
University of Iowa

DOUGLAS A. FEIL

Dept. Head, Water/Wastewater Education
B.A., Bemidji State University

LEONARD FEVOLD

Lead Instructor, Semi-Trailer Truck Driving
B.T., University of Northern Iowa

HELEN FINNEY

Instructor, Keypunch

GLENN FISCHER

Instructor, Chemistry
B.A., Marion College; M.A.T., Miami University;
M.A., University of Iowa

MAX E. FLIEHLER

Counselor
B.S., Wartburg College; M.A., University of Iowa;
Iowa State University; Southern Illinois University

THOMAS H. FLYNN

CETA Team Generalist
B.A., University of Iowa; St. Ambrose College

ROBERT FOLEY

Instructor, Biology/Zoology
A.A., St. Joseph Jr. College; B.S., Northwest
Missouri State University; M.S., Central Missouri
State University; University of Missouri; University of
Iowa; University of Puerto Rico

LYNN S. FRAKER

Instructor, Dental Assisting
Diploma, Kirkwood Community College; B.S.,
University of Iowa

TERRY FRATELLA

Student Advisor, Skill Center
B.A., Simpson College

JAMES FRAZEE

Data Base Administrator, Data Processing;
Consultant of Cedar Rapids Community School
District

BYRON FREESE

Lead Programmer, Data Processing
Diploma, Kirkwood Community College

ROBERT FRENIER

Instructor, Sociology
B.A., University of Vermont; M.A., Kent State
University; University of Iowa; Ph.D., University of
Iowa

LELAND FRY

Instructor, Math
B.A., Parsons College; M.S., Western Washington
State College; Colorado State University; Illinois
Institute of Technology; Oberlin College; San Jose
State College

DONALD FULLER

Vice President, District Instructional Services
B.A., Wayne State College; M.S., University of
Wisconsin; Oxford University; University of Chicago;
University of Illinois; University of Iowa; University of
Nebraska

DELMAR GADE

Instructor, KEY Auto Mechanics

THOMAS GARTLAND

County Coordinator
B.A., Rockford College

RAYMOND GARVEY

Instructor, Adult Education
B.A., Park College; University of Iowa; Master of
Divinity, McCormick Theological Seminary; San
Francisco Theological Seminary

VIRGINIA B. GASTON

Supervisor, Computer Operations
Upper Iowa University, Kirkwood Community College

LORETTE L. GEGNER

Coordinator, Student Publications
B.A., Iowa State University; Northeast Missouri State

LINETTE GEISSLER

Instructor, Floriculture
Kirkwood Community College

ANNA GEORGE

Student Supervisor, Skill Center

LARRY GILDS

Instructor, Horticulture
B.S., Northeast Missouri State University
Muscatine Community College

SHARLENE GILLETTE

Instructor/Coordinator, Teacher Associate
B.A., University of Nebraska; M.A., Iowa State
University; M.A., Ed.S., University of Iowa;
University of South Dakota

THERESA GLASS-PARISH

Instructor, Personal Achievement Department
B.S., Drake University

JAMES GODWIN

Instructor, KEY Auto Mechanics

RICHARD J. GOERS

Instructor/Evaluator, Skill Center
B.S., University of Wisconsin, Stout

RONALD GOLDSMITH

Instructor, Social Studies
B.A., Upper Iowa University

GEROL GOODLOVE

Instructor, Agriculture & Secondary Programs
B.S., Iowa State University

MARCIA A. GOODMAN

Instructor/Coordinator, Floriculture
A.A., Kirkwood Community College

DONALD GOODNOW

Director, Area Vocational Planning Grant
B.A., M.A., University of Iowa

MARY JEAN GOODNOW

Counselor
B.A., Mount Mercy College; Kansas State Teacher's
College; Drake University; M.A., Ph.D., University of
Iowa

LARRY GORDON

Counselor
B.S., Eastern Illinois University; M.A., University of
Iowa

LEAH GRAF

Instructor, Dental Assisting
A.A., Kirkwood Community College; Stephens College

W. JAMES GRAICHEN

Dept. Head, Financial Aids
B.A., Coe College

SHIRLEY GRIMES

Instructor/Coordinator, Program Secretary
B.A., Coe College; Mount Mercy College; University
of Iowa

CHARLES RICHARD GROSS

Dean, Telecommunications
A.B., M.Ed., Ph.D., University of Missouri, Columbia

WILBUR GROVE

Instructor, Electronics
B.T., University of Northern Iowa; Bemidji State
College

SHIRLEY GRULKE

Program Developer, Community Education
B.A., Coe College; M.A., University of Iowa

WILLIAM GRUNDY JR.

Dept. Head, Placement
University of Iowa

HELEN T. GRUNEWALD

Instructor, Photography
A.A., Kirkwood Community College; B.A., M.A.,
University of Iowa

LINDA S. GUCCIARDO

Instructor, Horticulture
A.A.S., Kirkwood Community College; B.A., Coe
College

SHIRLEY J. GUFFEY

Counselor, Special Support Services
B.A., St. Ambrose College; M.A., University of Iowa;
Scott Community College

DAVID N. GUSTAFSON

Instructor, Business and Industrial Management
B.S., M.A., Iowa State University

JOHN HAACK

County Coordinator
B.S., Northeast Missouri State University; A.A.,
Ellsworth Junior College; Drake University; University
of Northern Iowa

DAVID D. HALL

Instructor, Fine Arts
B.A., Long Beach State College; M.F.A., University
of Iowa; Orange Coast College

LARRY B. HAMILTON

Instructor, Semi-Trailer Truck Driving

DOUGLAS E. HANKWITZ

Instructor, Marine and Small Engine Repair

FRANCES R. HANSEN

CETA Asst. Team Manager
B.A., Coe College; Wisconsin State University

VOANNE HANSEN

Librarian/Reference and Serials
A.A., Kirkwood Community College; B.A., University
of Iowa; M.A., University of Iowa; University of
Northern Iowa; Catholic University of America

RICHARD L. HART

Programmer Analyst, Data Processing
Diploma, Kirkwood Community College

ALLAN HAYNES

County Coordinator
B.A., Winona State University

MARY LOU HEITZ

Instructor/Evaluator, Skill Center
Mount Mercy College; University of Iowa; Kirkwood
Community College; Mercy School of Nursing

ROBERTA L. HELLER

Assistant Director, Heritage Agency on Aging
B.A., College of St. Scholastica; M.S., University of
Iowa

DOROTHY HERMAN

Manager, Bookstore
R.N., Illinois Masonic Hospital

ROBERT HEYER

Instructor, Math/Science
B.S., M.S., Northern Illinois University; University of
Iowa; Ph.D., Western Illinois

CHARLES HINZ

Counselor, Skill Center
B.S., Loras College; M.A., University of Iowa

NANCY A. HOGUE

Instructor, Nursing Education
B.Sc.N., University of Ottawa

RUSSELL HOOVER

Instructor, Auto Collision Repair
Aero-Service Body School

GARY HOPPES

Instructor, Industrial Technologies
B.A., University of Northern Iowa; M.S., Iowa State
University; University of Iowa

DAVID HORSEY

Instructor, KEY Building Trades
Dunwoody Institute

ROGER HUGGINS

Associate Dean, Community Education
B.A., Coe College; M.A., University of Iowa; United
States Air Force

JIM E. HYNEK

Instructor, Crops Specialist
B.S., M.S., Iowa State University

PHILLIP JACKS

PLAN Instructor, Math
B.S., Ball State University; M.A., University of Iowa

MAUDE JAHNCKE

Director, Learning Resources Center
B.A., West Virginia Wesleyan; M.A., University of
West Virginia; University of Iowa

PAMELA JENNINGS

Coordinator, Publications & Information Services
B.A., University of Minnesota; University of North
Dakota

DAVID JENSEN

Director, Personnel
B.A., University of Northern Iowa; M.A., University of Iowa

GRACE JOHNSON

EEO Officer/Adm. Asst. to President
B.A., Western Illinois University; M.A., University of Iowa

ROGER L. JOHNSON

Manager, KCKK-FM
B.A., Bemidji State College; University of Montana

ERNEST J. JONES, III

Counselor
B.S., Louisiana State University; M.S., University of Southwest Louisiana; University of Iowa

RICHARD JUHL

Instructor, Animal Science

RHONDA KEKKE

Instructor, English/Speech
B.A., Concordia College; M.A., Southern Illinois University; Moorhead State University; Bemidji State University

ROBERT J. KELZENBERG

Instructor, KEY Business Programs
B.A., University of Northern Iowa; Kirkwood Community College

DAVID KERTON

Instructor/Evaluator, Skill Center
B.S., Northeast State University

EDWARD KESSER

Instructor, Mechanical Engineering Technology
B.A., Westmar College; B.S., M.E., University of Iowa

WILLIAM KIRKPATRICK

Instructor, Math/Science
B.S., M.S., South Dakota State University; Kirkwood Community College; University of Missouri; University of Iowa

VIVIAN KLAUS

Dept. Head, Allied Health
A.A., Kirkwood Community College; Iowa State University; Mercy School of Nursing; University of Iowa; B.A., Stephens College

SUSAN KNUTSON

Instructional Developer
B.A., University of Iowa

JULIUS O. KOEFOED JR.

Instructor/Coordinator, Criminal Justice
A.A., College of San Mateo; B.A., University of California; M.P.A., Golden Gate University; Nova University

ALLEN H. KOEPKE

Instructor/Coordinator, Vocal Music
B.A., Luther College; M.A., University of Northern Iowa; University of Minnesota

MARJORIE KOOLBECK

Assistant to the Head, LRC
A.A.S., Kirkwood Community College

RICHARD KOOLBECK

Instructor, Math
B.A., University of Northern Iowa; M.N.S., Arizona State University; University of Iowa; University of Wisconsin; University of Missouri; Iowa State University

RITA H. KREBILL

Systems Programmer
Kirkwood Community College

WALLACE KROUSE

County Coordinator
B.A., Coe College; University of Iowa

DARWIN L. KRUMREY

Instructor, Marketing
B.A., University of Northern Iowa; M.S., Mankato State College; Indiana University

KENNETH K. KUPKA

Director, Regional Dislocated Worker Center
B.A., Iowa Wesleyan

MICHAEL LAFRANCE

Instructor/Coordinator, Legal Assistant Program
B.A., University of Nebraska; University of Iowa; J.D., Creighton University

IRA E. LARSON

Assistant Superintendent Emeritus
B.A., Luther College; M.A., Ed.S., University of Iowa

GERALDINE A. LATHAM

Instructor/Tutor, Specialized Support Services Program
B.S., Rockford College (Illinois); M.S., Western Illinois University; University of Wyoming; Middlebury College; University of Iowa

RALPH LATHAM

Instructor, English
B.A., Monmouth College; M.A., University of Iowa; University of Wyoming; Bread Loaf School of English

KENNETH LAUER

Coordinator, Reports & Scheduling
B.A., Wartburg College; M.B.E., University of Colorado; University of Northern Iowa

MARY JANE LEARY

Instructor, Speech
B.S., University of Wisconsin; M.A., University of Iowa; University of Texas

MARILYN LEFEBURE

Instructor/Program Developer, Community Education
A.A., Kirkwood Community College; B.A., Mount Mercy College

JACK LEONARD

Heritage Agency on Aging
B.A., St. Ambrose College; University of Iowa; Drake University; University of South Dakota; University of North Dakota

RICHARD LESAN

Grant Developer, Financial Aid Counselor
M.A., Northwest Missouri State University

JOHN LEWIS

Mechanical Engineering Technology Instructor
B.A., Coe College; Kirkwood Community College; Ellsworth Junior College

CLAYTON G. LIFTO

Training & Economic Development Officer, Vocational-Technical Division
A.A., B.S., University of Maryland; University of Wisconsin/Stout; Bethel Theological Seminary; Angelo State University; Howard County Junior College

SUE LIGHTFOOT

Coordinator, Bookkeeping

GEORGE LITTLE

Instructor, Welding

RICHARD LAWRENCE LUTZ

Recreation Program Developer, Community Education
B.S., University of Iowa

FRANCIS LYDIC

Instructor/Coordinator, Occupational Therapy Assistant, Allied Health Grant
B.S., Manchester College; M.A., University of Iowa; Certificate, Virginia Community College

WENDELL MAAKESTAD

Director, Skill Center
A.A., Ellsworth College; B.A., University of Northern Iowa; M.A., University of Iowa

DONNA MADSEN

Instructor, Office Education
B.A., M.A., University of Northern Iowa; Michigan State University; University of Iowa; Kirkwood Community College; University of Minnesota; University of Colorado

RUTH MAIN

Coordinator, CETA Administrative Center

DOREEN MARONDE

Assistant Dean, Communication Arts
B.A., Hamline University; M.S., Iowa State University; Drew University

POLLY ANN MARR

Instructor, Nursing Education
B.S.N., University of Iowa; Diploma, Moline Public Hospital School of Nursing; Black Hawk College; Western Illinois University

WILLIAM D. MARTIN

Instructor, Business Law
B.A., St. Paul University; M.S., J.D., Loyola University

FLORENCE MASTERS

Instructor, Foreign Language
B.A., M.A., University of Iowa; Drake University; University of Paris; University of Wisconsin; Universite Catholique de l'ouest

RACHEL MAY

Instructor, Accounting
B.A., Upper Iowa University; University of Northern Iowa; A.A., Area 1 Vocational-Technical School

GEORGE MAYBANKS

Coordinator, Learning Centers Alternative Programs
B.A., Loras College; M.A., University of Iowa

TERESA M. McANDREWS

Pre-Employment Counselor—CETA
B.A., Western State College; University of Texas;
University of Iowa; University of Arizona

JOHN McCABE

Instructor/Coordinator, Respiratory Therapy
B.A., M.A., University of Iowa; San Antonio College;
Central Connecticut State College; A.A.R.T., New
Britain Hospital School of Inhalation Therapy

LOUISE S. McCANTS

Dean, Arts and Sciences
B.S., M.S., Oklahoma State University; Ph.D., Ohio
State University

KATHRYN McKAY

Instructor, English
B.A., University of Michigan; M.A., University of
Iowa; University of California

DALE E. McNEELEY

Instructor, Agribusiness
B.S., Iowa State University; University of Maryland

THOMAS MEADE

Counselor
B.A., M.A., University of Iowa

JAMES MEISHEID

Instructor, Horticulture
B.S., Iowa State University

PATRICK MELROY

Instructor, Industrial Technologies
B.S., Iowa State University; Coe College; University
of Northern Iowa; University of Iowa

MARY RUTH MICHEL

Developmental Instructor, Personal Achievement
B.A., Rutgers College; M.A., University of Iowa

MARTI MILANI

Coordinator, ABE High School, Community Education
B.A., University of Miami; M.A., Ed.S., Ph.D.,
University of Iowa

DARREL D. MILLARD

Instructor/Coordinator, Business Administration,
Co-op Education
B.A., M.A., University of Northern Iowa

JAMES MILLER

Dept. Head, Admissions
B.S., University of Northern Iowa; M.S., University
of Colorado; University of South Dakota; University of
Iowa

SUSAN MIMS

Instructor/Coordinator, Engineering Math
B.S.E., M.S.I.E., University of Iowa; Michigan State
University

JEFFERY L. MITCHELL

Instructor, Specialist Welding
University of Northern Iowa

GRETCHEN MOINE

Assistant Dean, Health Occupations Technologies
B.S.N., University of Iowa; M.S., Bradley University;
Ph.D., University of Iowa

TERRENCE MORAN

Assistant Dean, Social Sciences
B.A., Loras College, M.A., University of Iowa

JOHN R. MORROW

Instructor, Graphic Arts
B.A., Cornell College; Drake University

DOUGLAS MOUNCE

Instructor, Livestock and Field Crop Production
B.S., University of Wisconsin

JOHN MULLEN

Instructor, Communication Arts
B.A., St. John's University; M.A., Ph.D., University
of Iowa; University of Leeds

RAYMOND E. MULLEN

Instructor, Fine Arts
B.S., California State Teachers College; M.D.A.,
University of Iowa; University of Pittsburg; Carnegie
Institute of Technology; Skowhegen School of
Painting and Sculpture

THOMAS P. MURPHY

Director, Data Processing Services, Education
and Adm.
A.A., Kirkwood Community College

BARBARA J. MUSSMAN

Coordinator, Clubs & Organizations/Alumni Affairs
B.S., Iowa State University

JAMES H. NAGEL

Instructor, Occupational Therapy
A.A., Iowa Lakes Community College; U.S. Navy
Hospital Corps School; University of Iowa

RONALD E. NAPIER

Director, Enrollment Services
B.A., M.A., University of Iowa; Syracuse University

LYLE NATVIG

Dept. Head, Marketing and Management
B.A., University of Northern Iowa; M.A., University
of Iowa

KAY L. NEBERGALL

Coordinator, ABE/ESL, Community Education
B.A., Clarke College; M.A., University of Northern
Iowa

JACK E. NEUZIL

Department Head, Drafting and Design
B.S., Northern Illinois University; M.A., University of
Northern Colorado; University of Northern Iowa; Iowa
State University

CAROL A. NICOL

Child Development Associate Specialist
B.A., University of Iowa; Cornell College; University
of Northern Iowa

NORMAN R. NIELSEN

Vice President, Administration
A.A., Webster City Junior College; B.A., Buena Vista
College; M.A., Iowa State University

PAMELA S. NOVAK

Instructor/Coordinator, Orthopaedic Physician
Assistant Program
A.A.S., Kirkwood Community College

KENNETH NYE JR.

Instructor/Coordinator, Marketing
B.A., University of Northern Iowa; University of Iowa

PAMELA J. NYE

Instructor, Nursing
University of Northern Iowa; Mount Mercy College;
Allen Memorial School of Nursing

LARRY OLSON

CETA Team Manager
B.S., Winona State College

PATRICIA OTIS

Program Developer, Community Education
B.S., Chicago State University; Loyola University;
Iowa State University; William Penn College;
Northeast Missouri State University

NICHOLAS D. O'TOOLE

Supervisor, Custodial Services
B.A., Mount Mercy College; Upper Iowa College

STEVEN J. OVEL

Director, Development and Foundations
B.S., Iowa State University

DENNIS R. OWEN

Instructor, Electrical Equipment Servicing
Diploma, Kirkwood Community College

JAIME H. PADILLA

Instructor, Foreign Language
B.A., M.A., Southern Illinois University; University of
Iowa; University of Illinois

DONALD PAGE

Associate Dean, Student Services, and Director of
Counseling and Placement
B.A., University of Northern Iowa; M.S., Western
Illinois University; Ph.D., University of Iowa; Iowa
State University; California State University

TARRY L. PARRISH

Instructor/Coordinator, Physical Education/Recreation
Programs/Head Women's Basketball Coach
B.S., M.S., Northeast Missouri State University

LEO A. PAINE

Instructor/Coordinator, Automotive
B.S., Mankato State University
North Iowa Area Community College

THOMAS R. PECKOSH

Instructor, Horticulture
B.A., University of Iowa; Mount Mercy College; San
Jose State College

LEONARD (RAY) PEERY

Instructor, Semi-Trailer Truck Driving

JOHN W. PETERMANN

Instructor, Math
B.S., University of Wisconsin

BENNETT PILGRIM

Director, Plant Services

ERVIN PODUSKA

Instructor, Physics
B.S., Loras College; M.S., Iowa State University;
University of Iowa

DAVID POPELKA

Instructor/Coordinator, Machine Shop
Iowa State University

CHARLES PORTER

Instructor, Science/Math
B.S., Briar Cliff College

MORRIS M. POUNDS

Instructor/Coordinator, Agribusiness
A.S., Southeastern Community College; B.S., Iowa
State University

MARILYN PRICE

Instructor/Coordinator, Administrative Secretary
B.A., University of Northern Iowa; M.A., University
of Iowa

WILLIAM PROCHASKA

Instructor, Dental Laboratory Technology
A.A.S., Kirkwood Community College

RUSSELL PROFFITT

Director, Heritage Agency on Aging
B.A., Park College; M. Div., Princeton Theological
Seminary

DONNEITA RAMSEY

Instructor, Nursing
R.N., Swedish Hospital School of Nursing; Iowa
State University; Kirkwood Community College;
University of Minnesota; University of Northern Iowa

JILL RANSHAW

Librarian/Public Services
B.A., University of Cincinnati; M.A., University of
Iowa

RONALD RATH

Associate Dean, Iowa City Learning Center
B.A., M.A., University of Northern Iowa; Iowa State
University

CURTIS G. RAWSON

Instructor, Data Processing Education
B.S., University of Iowa; Union College

DONALD REHDER

Instructor, Data Processing
B.A., Coe College; Sir George Williams College; Iowa
State University

LUKE REICHERT

Counselor
B.A., Conception Seminary; M.A., Northeast
Missouri State University; University of Missouri;
University of Iowa; University of Northern Iowa

CAROL ROEMIG-HEUSINKVELD

Student Services Coordinator, Skill Center
B.S., University of Iowa

WILLIAM ROSBERG

Instructor, Social Science
B.A., Augustana College; M.A., University of Iowa;
Ed.D., Nova University

LOWELL RUTZ

Director, Community Education Services
B.A., Coe College; M.A., University of Iowa

RICHARD L. SAND

Admissions Advisor
B.A., Buena Vista College; Black Hills State College;
South Dakota State University

NANCY J. SAUERMAN

Instructor, Psychology
B.A., University of Iowa; University of Texas

JUDITH R. SCHANK

Pre-employment Counselor/CETA
B.A., Briar Cliff College

EDGAR SCHERICH

Instructor, Farm Equipment Mechanics
B.S., Iowa State University

DAVID SCHOENBECK

Instructor, Auto Body
Iowa State University

HARRY SCOTT

Counselor
B.S., Drake University; M.E.D., Ph.D., University of
Pittsburgh; University of Iowa; Iowa State University

ROGER SEAMANDS

Programmer Analyst
B.A., University of Iowa; Webster City Junior College

THOMAS SEARS

Instructor, History
B.A., Cornell College; S.T.B., Boston University;
M.A., University of Iowa

GARY SHIELDS

Instructor, Math/Science
B.S., Northwest Missouri State University; M.A.,
University of Northern Iowa

FRED SHILHANEK

Head, Graphics and Printing
Kirkwood Community College

ARDEN SHINDOLL

Instructor, Agribusiness
B.S., Iowa State University; M.S., University of Iowa

DALE SIMON

Instructor/Coordinator, Accounting, Finance
B.S., Minot State College; M.A., University of Iowa;
C.P.A.

ALICE SIMS

Instructor, Nursing
A.A., Graceland College; B.S., University of
Missouri; R.N., Independence Hospital and
Sanitarium; University of Northern Iowa; University of
Iowa

DOUGLAS M. SLAUSON

Coordinator, Computer Literacy Center
Diploma, Kirkwood Community College

CALVIN SMITH

Instructor, Welding
Kirkwood Community College

STEPHEN L. SMITH

Instructor, Data Processing Education
Mount Mercy College; Kirkwood Community College;
University of Iowa

JOEL SNELL

Instructor, Sociology and Criminology
B.A., Omaha University; M.A., University of
Nebraska; South Dakota State University

BONNIE SPEAR

Instructor, Medical Assisting
R.N., Fresno General Hospital School of Nursing;
Kirkwood Community College; School of Mines;
University of Iowa

STEVE SPRAGUE

Program Developer, Community Education
B.S., Iowa State University

DAVID J. SPYR

Instructor, Data Processing
B.S.E.E., Ph.D., University of Iowa

VICTOR STATELER

Instructor, Electronics Engineering Technology
B.S.E.E., University of Illinois; Iowa State University;
University of Iowa

LARRY STATLER

Assistant Dean, Agricultural Technologies
B.S., M.S., Iowa State University; Iowa Wesleyan
College

NARGI STEINBRECH

Instructor, Health Occupations Technologies
R.N., Mount Mercy College; Kirkwood Community
College

DR. BILL F. STEWART

President
B.S., Southern Oregon College, M.Ed., University of
Oregon; Ed.D., University of Oregon

DAVID STOTELMYRE

Instructor, Machine Shop
Kirkwood Community College

MARY L. STRONG

Instructor, Nursing Education
A.D.N., North Iowa Area Community College;
University of Iowa

JOHN SWANSON

Director, Special Projects; Community Education
B.S., M.S., Northern Illinois University

SHERRY SWANSON

Instructor/Coordinator, Fashion Merchandising
B.A., M.A., University of Northern Iowa

WILLIAM R. SWIM JR.

Counselor
B.A., William Penn College; M.A., University of Iowa

BARRIE SWINBANK

Instructor/Coordinator, Ag. Production
A.A.S., Kirkwood Community College; B.S., Iowa
State University

SHARON TAUKE

Instructor/Coordinator, Secretarial Programs
B.S., Mount Mercy College; M.A., University of Iowa; A.R.T., American Medical Record Association

JACK TERNDRUP

Instructor/Coordinator, Handicapped Services
B.A., M.A., Eastern Illinois University

ORVILLE THEIN

Manager, Technical Services

BYRON H. THOMAS

Dept. Head, Anamosa Reformatory Education Program
B.S., Iowa State Teachers College; M.A., University of Utah; Ph.D., University of Iowa; Buena Vista College; Appalachian State University

BEULA B. THOMPSON

Instructor/Tutor, Specialized Support Services Program

B.S., Mount Mercy College; Kirkwood Community College; Clarke College; New York University; Upper Iowa University; LaVerne University; Marycrest College; University of Iowa

RITA TIEDT

Instructor/Evaluator, Skill Center

B.S., Southwest Missouri State University; Iowa State University; University of Iowa; University of Missouri

RON L. TOYNE

Instructor, Industrial Technologies

B.A., University of Northern Iowa; Iowa State University

LARRY K. TROUT

Instructor, Water/Wastewater

Diploma, Kirkwood Community College

ANGIE S. TURNER

College Nurse

R.N., B.S.N., Mount Mercy College

RICHARD TYLER

Instructor, Machine Shop

STEVEN V. ULLRICK

Admissions Advisor

A.A., Kirkwood Community College; B.A., Coe College

DAVID URE

Coordinator, Right to Read, Reformatory

B.A., University of Northern Iowa; M.A., Pittsburg State University; Drake University; Grand View College; University of Iowa

GORDON A. URQUHART

Instructor, Economics

B.A., M.S., University of Aberdeen; University of Iowa

DENNIS USHER

Director, General Interest Programs, Community Education

B.A., University of Northern Iowa

CAROL VITIELLO

Instructor, Social Sciences

B.A., Newark State College; M.A., University of Iowa

ERVIN VON SPRECKEN

Instructor, Welding

Kirkwood Community College

JUDITH VON SPRECKEN

PLAN Instructor, Reading

B.A., Upper Iowa University; Iowa State Teachers College; University of Iowa

KATHERINE WACKER

Instructional Developer

B.A., University of Northern Colorado; University of Iowa

WALTER WALKER

Instructor, Graphic Arts

Drake University; Iowa State University

PATRICIA A. WARD

Instructor/Coordinator, Office Education

B.A., University of Northern Iowa

JOEL WELLS

Instructor, Welding

A.S., Kirkwood Community College; B.A., Mount Mercy College; University of Iowa

HANNA WESTON

Instructor, Social Sciences

B.A., Oberlin College; M.A., Columbia University; University of Iowa

GEORGE WHEAT

Instructor, Agriculture Continuing Education

B.A., University of Iowa

JOHN C. WHITE

Dean, Student Affairs

B.A., M.A., Ph.D., University of Iowa; Colorado State University

MARY K. WHITE

Instructor/Evaluator, Skill Center

A.A., Ellsworth Junior College; B.S., Northwest Missouri State

CLIFFORD P. WHITELEGG

Instructor, Instrumental Music

B.A., M.A., Montclair State College; Berklee College of Music; Boston Conservatory; Utica College of Syracuse University; North Texas State University

JERRY H. WHITMORE

Instructor, Accounting

B.A., Coe College; M.B.A., University of Wisconsin; C.P.A., State of Iowa

RALPH WILCOX

Instructor, International Trade

B.S., Kent State University; M.B.A., Case Western Reserve University; Ed.S., University of Iowa

MICHAEL R. WILLIAMS

Instructor, Data Processing

A.A., Mason City Jr. College

QUEEN J. WILLIAMS

Instructor, Language Arts

B.A., Kentucky Southern College; M.A., Murray State University

MARY WILSON

Instructor, English

B.A., Mount Mercy College; M.A., University of Iowa

JAMES WING

Head, Purchasing and Receiving

B.S., University of Northern Iowa

CAROL WOHLLEBEN

Instructor/Coordinator, Food Service

B.S., Institution of Management, Iowa State University

WILLIAM E. WOLFE

KEY Instructor, Auto Mechanics

WAYNE C. WOODS

Director, Student Activities

B.S., Portland State College; M.A., Lewis & Clark College

ANN M. WOODWARD

Instructor, Nursing Education

Diploma, St. Anthony's School of Nursing; B.S.N., University of Iowa

JOHN WORTMAN

Instructor, History

B.A., M.A., University of Iowa; Jagellonian University (Poland); University of Vienna

BETTY B. WURSTER

Instructor, Reading/Language Arts

B.A., University of Northern Iowa; M.A., University of Iowa

PAUL E. WYANT

Assistant Dean, Business Technologies

B.A., University of Northern Iowa; M.A., Ph.D., University of Iowa; University of Wisconsin; North Iowa Area Community College

MARGARET S. WYRICK

Instructor, Clerical-Receptionist Program

B.S., Mount Mercy College

GERALDINE YOCK

Coordinator, Bookstore Operations

ROBERT YOUNG

Assistant Dean, Math/Science

B.A., University of Northern Iowa; M.A., University of Northern Colorado; University of Iowa

JAMES W. ZACH

Instructor, Agriculture Mechanics

A.A.S., Kirkwood Community College

ANN ZERKEL

Instructor, English

B.A., M.A., Ed.S., Writers Workshop, University of Iowa

INDEX

A

Academic Calendar	10
Academic Progress	73
Academic Regulations and Policies	71
Accounting Program	16, 34
Accounting Technology Program	34
Accounting Courses	79
Accreditation	6
Administration and Management Courses	86
Administrative Secretarial Technology Program	35
Admission Requirements and Procedures	69
Adds and Drops Policy	73
Adult and Continuing Education	58
Adult Basic Education	60
Adult High School Completion	59, 77
Advanced Placement — Certified Professional Secretary	35
Agribusiness Technology Program	26
Agricultural Processing and Distribution Department	26
Agricultural Production and Mechanization Department	28
Agricultural Supply Clerk Program	27
Agricultural Technologies	26
Agriculture Courses	80
Allied Health Department	44
Alumni Association	9
Analytical Laboratory Program	51
Annual Fund Drives	9
Application Procedures	69
Architectural Drafting Program	49
Art Courses	89
Arts and Sciences Admission	69
Arts and Sciences Career Areas	15
Arts and Sciences Core Requirements	14
Arts and Sciences Core Courses	21
Arts and Sciences Programs	13
Assignments and Examinations	74
Associate of Applied Science Degree	25
Associate of Arts Degree	14
Associate of Science Degree	14
Athletics	68
Auditing Courses	72
Automotive Collision Repair Program	52
Automotive Mechanics Program	53
Automotive Specialist Program	53
Automotive Technology Program	53

B

Banking Program	16
Beef Production Program	28
Beef Production Specialist Program	29
Benton Hall Learning Resource Center	8
Biological Science Courses	91
Bookstore	56
Business Administration Program	16
Business Technologies	34
Bus Service	66

C

Cafeteria	66
Certificates, Requirements for	25
Changes of Majors	73
Chemistry Courses	92
Child Care Center	65
Clerical Program	36

Clubs and Organizations	67
Co-Curricular Activities	67
College Magazine	67
College Transfer-Career Option Programs	16
College Parallel-Transfer Programs	15
College Work-Study	64
Communication Courses	93
Communications Electronics Program	54
Communications Technology Program	55
Communications Media and Technology Program	17
Communique, Student Newspaper	67
Community Education Centers	58
Community Education Division	57
Computer Literacy Center	8
Computer Operations Program	43
Computer Programming Technology Program	43
Computer Technology Program	55
Construction Courses	94
Cooperative Education Courses	92
Corrections Program	18
Corrections Courses	94
Correspondence Studies (High School)	60
Counseling Services	62
Course Descriptions	78
Course Load	71
Course Numbering System	78
Credit Assignments in Emergency Situations	73
Credit by Examination	21
Credit, Incoming, Transfer of	75
Criminal Justice Program	18
Crop Production Program	30
Crop Production Specialist Program	30

D

Dance Course	95
Data Processing Courses	96
Data Processing Technologies	43
Degree Requirements — Arts and Sciences	14
Degree Requirements — Vocational-Technical	25
Dental Assisting — Off Campus Programs	44
Dental Assisting Technology Program	44
Dental Courses	95
Dental Laboratory Technology Program	45
Developmental Services	63
Diploma, Requirements for	25
Drafting and Design Department	49
Drama Courses	98

E

Earth Science Courses	98
Economics Courses	96
Education Careers Program	19
Electrical Equipment Servicing Program	54
Electroencephalographic Technology Program	45
Electro-Mechanical Technology Program	54
Electronics Courses	100
Electronics Engineering Technology Program	55
Engineering Courses	99
English as a Second Language	21
Environmental Courses	102
Environmental Science Department	51
Equal Opportunity	69
Expanding Horizons for Women	9

F

Facilities 7
 Farm and Ranch Technology 28
 Farm Equipment Mechanization Technology 30
 Fashion Merchandising Program 42
 Fees and Tuition 70
 Filing a Graduation Application 77
 Financial Aid 64
 Fire Safety Courses 104
 Floriculture Program 31
 Food Service Management Technology Program 37
 Food Service Training Program 38
 Food Store Management Technology Program 38
 Foreign Languages Courses 103
 Foreign Student, Admission 70
 Foundations, Kirkwood 9

G

General Interest and Recreational Classes 58
 General Secretarial Program 36
 General Studies Degree Program 20
 General Studies Courses 106
 Geography Courses 105
 Grading System 72
 Graduation Requirements 75
 Grade Reports 72
 Graphic Arts Program 49
 Graphics Courses 105
 Grounds and Turf Management Technology Program 32
 Guide to College Programs 12

H

Handicapped Services Program 19
 Health Service, Student 65
 Health Technologies 44
 High School Completion, Adult 59
 History Courses 107
 History of College 6
 Home Economics Courses 106
 Horse Husbandry Program 28
 Horse Production Program 27
 Horse Science Technology Program 27
 Horticulture and Natural Resources Department 31
 Human Potential Labs 62
 Human Services Program 19
 Humanities Course 107

I

Incoming Transfer of Credit 75
 Incomplete Grade Policy 72
 Industrial Processes and Services Department 52
 Industrial Technologies 49
 Infant/Child Care Center 65
 Information Processing Program 36
 Institutional Programs 60
 Insurance, Student Accident and Health 65
 Interdisciplinary Studies Courses 107
 Interior Design Technology Program 39
 International Education 9
 International Students 70
 International Trade Program 16
 Intramurals and Recreation 68
 Iowa High School Equivalency Certificate 77

J

Jewelry Making and Repair Technology Program 50
 Journalism Courses 108

K

KCCK-FM Public Radio 8
 Kirkwood Alumni Association 9
 Kirkwood Foundations 9
 Kirkwood Scholarships 64
 Kirkwood Telecommunications System 9

L

Landscape/Nursery/Garden Center Technology Program 32
 Law Courses 109
 Law Enforcement Courses 108
 Law Enforcement Program 18
 League for Innovation 6
 Learning Resource Center 8
 Legal Assistant Program 20
 Legal Secretarial Program 36
 Library Services Courses 108
 Line Mechanic Program 30
 Literature Courses 109

M

Machinist Program 56
 Manufacturing Services Courses 111
 Management Information Systems Department 34
 Management and Marketing Department 37
 Management Development Technology Program 17, 39
 Marine and Small Engine Mechanics Program 54
 Marketing Program 17
 Marketing Courses 113
 Mathematics Courses 110
 Mechanical Design Technology Program 50
 Mechanics Courses 112
 Medical Assisting Program 46
 Medical Records Technology Program 37
 Medical Secretarial Program 36
 Medical/Surgical Courses 118
 Memorial Funds 9
 Metals and Manufacturing Courses 116
 Music Courses 120

N

National Direct Student Loans 64
 Non-credit Vocational and Adult Education 59
 Nursing Courses 121
 Nursing Department 48
 Nursing Technology 48

O

Occupational Therapy Assisting Technology Program 46
 Office Education Courses 122
 Orthopaedic Physician's Assisting Technology Program 47

P

Parking 66
 Parks and Natural Resources Technology Program 33
 Personal Achievement Department 62
 Personal Development Courses 124
 Personnel 130
 Philosophy and Mission of the College 5
 Philosophy and Religion Courses 126
 Physics/Astronomy Courses 125
 Placement Services 63
 Policy and Regulations 69
 Political Science Courses 126
 Practical Nursing Program 48
 Privacy Act 74
 Probation 74
 Psychology/Education Courses 126
 Purchasing Technology Program 37

R	
Re-admission	74
Real Estate Program	42
Record Retention Policy	74
Recreation Classes	127
Refund of Tuition	71
Rehabilitation Services	62
Religion, Philosophy Courses	126
Repeating Courses	72
Requital of Failing Grades	72
Residence Qualifications	70
Respiratory Therapy Technology Program	47
Retail Management Technology Program	41
Retail Marketing Program	42
Right-to-Read Program	60
ROTC Courses	79
S	
Secondary Programs	58
Secretarial Programs	35
Scholarships	64
Skill Center	63
Small Animal Services Program	28
Social and Special Events	68
Social Science Courses	129
Social Welfare Courses	129
Sociology Courses	128
Sports	68
Student Accident and Health Insurance	65
Student Activities	67
Student Association	67
Student Housing	65
Student Newspaper	67
Student Responsibility for Catalog Information	77
Supplemental Education Opportunity Grants	64
Supplementary Vocational Programs	59
Suspension	74
Swine Production Program	29
Swine Production Specialist Program	30
T	
Therapy Courses	129
Transcripts	77
Transfer Credit (Arts and Science)	75
Transfer Credit (Vocational-Technical)	75
Tuition and Fees	70
Tuition, Refund of	71
Truck Driving Program, Semi-Trailer	60
U	
Unit of Credit	71
V	
Veterans Education Benefits	25
Vocational-Technical Admission	70
Vocational-Technical Degree Requirements	25
Vocational-Technical Programs	23
W	
Waiver of Regulations	
Water and Wastewater Technology Program	51
Water and Wastewater Treatment Program	52
Welding Program	50
Withdrawal Policy	73
Work-Study Program	64
Women's Activities	9







Futures begin
at
KIRKWOOD