

COURSE CATALOG NUMBERING SYSTEM

The three-letter prefix stands for the discipline or department of study.

Three numbers:

000-099 = Developmental Courses

100-899 = College Transfer and Career/
Technical Courses

900-999 = Special Topics** and OJT

BUS-102 Introduction to Business	(3 s.h.)
Description _____	
_____ (45-0)	
<i>Equivalent to 15-101, BUSN-101.</i>	

← The credit value of the course.

← Total lecture/lab hours

← Previous course numbers

ACC	Accounting	HCR	Heating and Air Conditioning
ADM	Administrative Assistant	HIS	History
ADN	Associate Degree Nursing	HIT	Health Information Technology
AGA	Agriculture - Agronomy	HSC	Health Sciences
AGB	Agriculture - Farm Management	HSV	Human Services
AGC	Agriculture - Comprehensive-Miscellaneous	HUM	Humanities
AGE	Agriculture - Equine	IND	Industrial Technology
AGM	Agriculture - Mechanics	JOU	Journalism
AGP	Agriculture - Precision Agriculture	LIT	Literature
AGS	Agriculture - Animal Science	MAP	Medical Assistant
ANT	Anthropology	MAS	Masonry
ART	Art	MAT	Mathematics
AUT	Automotive Technology	MFG	Manufacturing
BCA	Business Computer Application	MGT	Management
BIO	Biology	MKT	Marketing
BMA	Building Maintenance	MLT	Medical Lab Tech
BUS	Business	MUA	Music - Applied
CFR	Computer Forensics	MUS	General Music
CHM	Chemistry	NET	Computer Networking
CIS	Computer Programming	PEA	Physical Education Activities
CON	Construction	PEC	Coaching Officiating
CRJ	Criminal Justice	PEH	General Physical Education and Health
DRA	Film and Theatre	PEV	Intercollegiate Physical Education
ECE	Early Childhood Education	PHI	Philosophy
ECN	Economics	PHS	Physical Science
EDU	Education	PHY	Physics
EGT	Engineering Technology	PNN	Practical Nursing
ELT	Electronics	POL	Political Science
EMS	Emergency Medical Services	PSY	Psychology
ENG	English Composition	PTA	Physical Therapist Assistant
ENV	Environmental Science	RDG	Reading
FIN	Finance	SDV	Student Development
FIR	Fire Science	SOC	Sociology
FLS	Foreign Language - Spanish	SPC	Speech
GEO	Geography	TLDI	Tool and Die Technology
GRA	Graphic Communications	WEL	Welding
HCM	Hospitality, Culinary & Management		

**XXX-949A-C Special Topics

1-3 s.h.

Special Topics courses are offered in each discipline. Students may submit a proposal for a special project to an instructor. With the instructor's approval and the consent of the Division Chair and the Vice President for Academic Affairs, credit may be given upon satisfactory completion of the project. Course may be repeatable for credit. (15 to 45-0) *Equivalent to XXXX-900A-C.* NOTE: All Special Topics courses, unless otherwise indicated, are elective credit.

Course Descriptions--

ACC-111 Introduction to Accounting (3 s.h.)
A basic understanding of the process of collecting and using financial information in a business. (45-0) *Equivalent to 15-109, ACCT-101.*

ACC-121 Principles of Accounting I (3 s.h.)
A financial accounting course: analyzing transactions, matching principle, adjusting and closing entries, financial statements, receivables, inventories, fixed assets and intangible assets, current liabilities, corporations (capital stock transactions, dividends, income and taxes, stockholder's equity, investment in stocks), bonds payable, investment in bonds. (45-0) *Equivalent to 15-150, ACCT-120.*

ACC-122 Principles of Accounting II (3 s.h.)
Prerequisite: ACC-121, Principles of Accounting I, or equivalent. A managerial accounting course that covers Statement of Cash Flows, financial statement analysis, job order and process cost systems, cost behavior, budgeting, standard costing, differential analysis and product pricing, capital investment analysis, activity-based costing, and just-in-time manufacturing. Emphasis is on management's use of accounting information. (45-0) *Equivalent to 15-151, ACCT-121.*

ACC-135 Personal Income Tax (3 s.h.)
Personal Income Tax is a course that introduces the student to the fundamentals of federal income tax regulations. Students engage in an in-depth study of the preparation of the individual income tax return. Emphasis is placed on the preparation of federal returns for individuals. The course is designed to help the student develop a broad understanding of the tax laws as they relate to the individual. Course content includes the examination of regulations pertaining to general tax return preparation and filing federal income tax returns for the individual. Students will prepare a variety of tax forms and schedules, including the calculation of deductions and credits. Annual tax law changes are also examined. (45-0)

ACC-161 Payroll Accounting (3 s.h.)
Prerequisite: ACC-111, Introduction to Accounting or ACC-121, Principles of Accounting I with a grade of C or above. A study of basic business taxes. Emphasis on payroll taxes including social security taxes, income taxes, and unemployment taxes; completion of quarterly and annual reports and a payroll simulation project. (45-0) *Equivalent to 15-155, ACCT-105.*

ACC-311 Computer Accounting (3 s.h.)
Prerequisite: ACC-111, Introduction to Accounting or ACC-121, Principles of Accounting I with a grade of C or above. Designed to provide students with realistic experience with automated accounting consisting of five systems: general ledger, accounts payable, accounts receivable, depreciation, and payroll. Students will simulate taking an accounting position in a company already using a computerized accounting system. (45-0) *Equivalent to 15-160, ACCT-106.*

ADM-105 Introduction to Keyboarding (1 s.h.)
Prerequisite: None. This course covers the development of keyboarding techniques using the touch method on the computer keyboard to learn/review the alphabetic keys. The keyboarding goal is a minimum rate of 20 words a minute with 3 or fewer errors on a two-minute timing. Students with little or no keyboarding skill would

begin at this level. This course has been designated as a pass/no pass course. (0-30) *Equivalent to BUSN-102, 15-112.*

ADM-108 Keyboarding Skill Development (1 s.h.)
Prerequisite: ADM-105, Introduction to Keyboarding, OR ability to keyboard at 20 words a minute. This course covers the development of the touch method on the computer keyboard to learn/review the alphabetic, numeric, and symbol keys. The keyboarding goal is a minimum rate of 30 words a minute with 3 or fewer errors on a three-minute timing. This course has been designated as a pass/no pass course. (0-30) *Equivalent to 15-113, BUSN-103.*

ADM-123 Document Formatting (3 s.h.)
Prerequisite: ADM-105, Introduction to Keyboarding, and/or ADM-108, Keyboarding Skill Development, OR keyboarding skill of 30 wpm (words a minute) with 3 or fewer errors on a 3-minute timed writing. This course covers the continued development of speed and accuracy on the alphabetic, numeric, and symbol keys. Students develop skills in formatting, producing, and proofreading the following documents: memos, letters, envelopes, tables, reports, and other miscellaneous business documents. (30-30) *Equivalent to 15-107, OFFC-701.*

ADM-131 Office Calculators (1 s.h.)
Study of the 10-key, electronic calculator following current trends in office technology. Course emphasizes use of the touch method, explains common calculator features, and practices mathematical skills necessary in business calculations. This course has been designated as a pass/no pass course. (5-20) *Equivalent to 15-110, OFFC-702.*

ADM-145 Advanced Desktop (3 s.h.)
Prerequisite: BCA-101, Introduction to Computers and Information Systems. Advanced topics in desktop computer applications will be studied in this course. Students will also examine integrated software packages such as Microsoft Office Professional in this class. They will utilize integrated software to solve several business problems presented to them allowing them to gain an understanding of integrated software, as well as other desktop applications, through hands-on experience. The course will be project-based, providing the student with a collaborative environment. (30-30) *Equivalent to 15-176, COMP-206.*

ADM-162 Office Procedures (4 s.h.)
Prerequisite: BCA-129, Basic Word Processing; and BUS-121, Business Communications. Office procedures and techniques necessary to perform general office duties. Includes using a word processor, developing transcription skills, using the Internet to access information, filing, handling telephone services, discussing professionalism, applying grammar rules, and taking care of general office administration. Students are expected to spend time outside of class working in the computer lab. (20-80) *Equivalent to 15-218, OFFC-830.*

ADM-205 Legal Office Procedures (5 s.h.)
Prerequisite: BCA-129, Basic Word Processing, and BUS-121, Business Communications. Management of a lawyer's office that includes topics covering general legal documents, personal and real property, business organizations and meetings, bankruptcies, wills and estates, civil cases, and family law. Includes using a word

processor, developing transcription skills, using the Internet to access information, filing, handling telephone services, discussing professionalism, applying grammar rules, and taking care of general office administration. Students are expected to spend time outside of class working in the computer lab. (60-30) *Equivalent to 15-122, OFFC-810.*

ADM-215 Medical Office Procedures (3 s.h.)

Prerequisite: BCA-129, Basic Word Processing, and BUS-121, Business Communications. Management of a medical office that includes preparing correspondence and patient records, using the Internet to access information, filing, handling telephone services, making and keeping appointments, developing transcription skills, composing letters, discussing professionalism, applying grammar rules, and taking care of general office duties. Also includes medical ethics and etiquette, medical law, and use of a computer for word processing. Students are expected to spend time outside of class working in the computer lab. (45-0) *Equivalent to 15-259, OFFC-850.*

ADN-101 Introduction to Nursing (1 s.h.)

Prerequisite: Acceptance into the ADN Program is a requirement for entrance into this class. An introduction to the philosophy and conceptual framework of the NIACC Associate Degree Nursing Program. The course includes basic concepts related to legal and ethical aspects of nursing, nursing roles, and current trends in health care. The student is introduced to wellness-illness theory, the therapeutic nurse-patient relationship and effective communication techniques. An introduction to caring concepts is also included. This course has been designated as a pass/no pass course. (15-0) *Equivalent to 90-106, ADNS-701.*

ADN-102 Nursing I (7 s.h.)

Prerequisite: ADN-101, Introduction to Nursing; BIO-186, Microbiology; and ENG-105, Composition I. Nursing I utilizes the nursing process with emphasis on assessment and nursing diagnosis in meeting client needs resulting from impairments relating to safety and comfort throughout the life span. Pharmacological concepts, diet modification, psychosocial concepts, and health maintenance are integral considerations in the progressive development of the student's knowledge and skills. Clinical experiences include opportunities to apply nursing roles and the nursing process in long-term care, pediatric, and community settings. (60-105) *Equivalent to 90-108, ADNS-702.*

ADN-103 Nursing II (10 s.h.)

Prerequisite: BIO-206, Anatomy and Physiology I with Lab; ADN-102, Nursing I; PSY-121, Developmental Psychology; and PSY-111, Introduction to Psychology; ENG-105, Composition I; BIO-186, Microbiology; ADN-101, Introduction to Nursing. Nursing II utilizes the nursing process with emphasis on planning in meeting client needs resulting from impairments relating to self-esteem and mobility throughout the life span. Pharmacological concepts, diet modification, psychosocial concepts, and health maintenance are integral considerations in the progressive development of the student's knowledge and skills. Clinical experiences include opportunities to apply nursing roles and the nursing process in maternal-newborn, pediatrics, medical-surgical, and community settings. (105-135) *Equivalent to 90-111, ADNS-703.*

ADN-104 Nursing IIA (1 s.h.)

Prerequisite: Graduate of approved Practical Nursing Program with a cumulative 2.5 GPA in previous nursing courses; hold current, unencumbered practical nurse license, plus successful completion of all freshman nonnursing courses. Provides introduction to program, differentiates roles of LPN and RN, reviews nursing process, presents specific communication techniques, and reviews content in laboratory setting. Students must obtain a passing grade in this course to continue into Nursing III, ADN-603. If a passing grade is not attained, the student will be required to register for Nursing II, ADN-103. This course has been designated as a pass/no pass course. (14-2) *Equivalent to 90-113, ADNS-704.*

ADN-603 Nursing III (12 s.h.)

Prerequisite: ADN-103, Nursing II; or ADN-104, Nursing IIA, or consent of Associate Degree Nursing faculty, plus all freshman year nonnursing courses. Nursing III utilizes the nursing process with emphasis on implementation in meeting client needs resulting from impairments relating to interpersonal interaction, oxygenation, and nutrition throughout the life span. Pharmacological concepts, diet modification, psychosocial concepts, and health maintenance are integral considerations in the progressive development of the student's knowledge and skills. Clinical experiences will include opportunities to apply nursing roles and the nursing process in a variety of care settings. (105-225) *Equivalent to 90-210, ADNS-801.*

ADN-604 Nursing IV (12 s.h.)

Prerequisite: ADN-603, Nursing III, or consent of Associate Degree Nursing faculty, plus SOC-110, Introduction to Sociology. Nursing IV utilizes the nursing process with emphasis on evaluation in meeting client needs resulting from impairments relating to nutrition, elimination, and sensory stimulation throughout the life span. Pharmacological concepts, diet modification, psychosocial concepts, and health maintenance are integral considerations in the progressive development of the student's knowledge and skills to meet the diverse needs of the client. Concepts of management, legal, and ethical aspects of the nursing profession and issues related to current trends are presented. Clinical experiences will focus on clients with complex needs. The management experience is the culmination of the student's academic and clinical education in which the student will have an opportunity to care for a group of clients and apply basic skills in leadership and conflict management. Clinical experiences will include opportunities to apply nursing roles and the nursing process in a variety of care settings. (105-225) *Equivalent to 90-211, ADNS-802.*

AGA-114 Principles of Agronomy (3 s.h.)

Topics covered include: plant anatomy and physiology; plant classification and ID; pest classification and ID; and pesticides, pest management, application equipment, calibration, laws/regulations. Students will take the Iowa Core Manual examination as a requirement for this course. (38-15) *Equivalent to 90-160, AGAS-701.*

AGA-154 Fundamentals of Soil Science (3 s.h.)

Introduction to the physical, chemical, and biological properties of soils with an emphasis on the functions of the soil as a medium to support plant life. A review of the sources and functions of major and minor plant elements, fertilizers and their properties, soil acidity, liming materials, and soil conservation. (38-15) *Equivalent to 90-186, AGAS-703.*

AGA-852 Principles of Crop Production (3 s.h.)
Production and management practices for corn, soybeans, small grains, and legume crops common to North Iowa agriculture. (38-15) *Equivalent to 90-161, AGAS-702.*

AGA-854 Crop Production Lab (1 s.h.)
Problem-solving approach to crop management. Principles and practices of agricultural science are used in the discussion of management problems and operations related to crop production at the NIACC Teaching Farm Lab. Students will participate in the management and operations of the NIACC Teaching Farm Lab. (0-30) *Equivalent to AGAS-805, 92-168.*

AGA-855 Site-Specific Crop Management (2 s.h.)
Prerequisite: AGA-154, Fundamentals of Soil Science, or its equivalent. Course covers advanced soil management. (30-0) *Equivalent to 92-261, AGPS-702.*

AGA-860 Soils and Crop Management (2 s.h.)
Prerequisite: AGA-154, Fundamentals of Soil Science, or its equivalent. Advanced plant nutrition, soil fertility, and nutrient management. (30-0) *Equivalent to 90-282, AGAS-801.*

AGB-101 Agricultural Economics (3 s.h.)
This course is designed for students seeking an Associate in Applied Science Degree in Agriculture. Students will study the role of agriculture in the American economy. Basic economic concepts, the composition and pricing of agricultural products, government and monetary policy will be discussed. A study of this country's agricultural economic policies with a look at how other countries' agricultural economic policies affect us. The economic decision-making process will be taught built upon the management function of planning, organizing, directing, and controlling. (45-0) *Equivalent to 90-183, AGBS-710.*

AGB-133 Introduction to Agricultural Business (3 s.h.)
Basic economic concepts, principles, and practices reflected in agriculture. An overview of the major components of an agricultural business organization and the economic fundamentals involved in organizing, operating, and managing an agricultural business. (45-0) *Equivalent to 90-170, AGBS-701.*

AGB-205 Introduction to Farm Operation (2 s.h.)
Introduction to Farm Operation is a unique study experience with hands-on-activities in the learning lab at NIACC. Students enrolled in this two-credit course participate in the management and operation of the NIACC Teaching Farm Lab. The primary objective of this course is to provide experience in the planning, purchasing, production, construction, maintenance, marketing, and investment decisions associated with a diversified Iowa farm operation. (8-45) *Equivalent to 90-264, AGCS-701.*

AGB-213 Ag Real Estate Evaluation (2 s.h.)
Farm appraisal is the systematic process of classifying and evaluating the characteristics of a farm in order to make a well-reasoned judgment of its value. This course provides students the opportunity to develop an understanding of real estate value and the application of the appraisal process to estimating the market value of agricultural and rural real estate. (30-0) *Equivalent to 92-189, AGBS-812.*

AGB-338 Salesmanship and Advertising (2 s.h.)
This course is designed for students seeking an Associate in Applied Science Degree in Agriculture. Sales presentations and advertising setups of agricultural goods and services will serve as a basis of discussion in this course. Students will study techniques of selling and advertising of agricultural goods and services, and have a firsthand chance to sell products to student/consumers during the course of the semester. (30-0) *Equivalent to 90-189, AGBS-815.*

AGB-436 Grain Merchandising (2 s.h.)
Elements of producer marketing of major Midwest crops with emphasis on formulating marketing goals and plans. Marketing tools, futures and option markets, speculation, hedging, and risk management. (30-0) *Equivalent to 90-185, AGBS-801.*

AGB-438 Ag Futures and Futures Options (2 s.h.)
Prerequisite: AGB-436, Grain Merchandising. Advanced commodity marketing concepts, principles, and terminology. (30-0) *Equivalent to 92-263, AGPS-820.*

AGB-465 Ag Finance Management (2 s.h.)
Prerequisite: ACC-111, Introduction to Accounting. Principles of farm management. Emphasis is given to decision making, implementation, and control in farm operations using economic principles, farm records, enterprise analysis, financial reports, and investment analysis procedures. (30-0) *Equivalent to AGBS-810, 90-285.*

AGB-861 Employment Relations & Business Decisions (2 s.h.)
This course is designed for students seeking an Associate in Applied Science Degree in Agriculture. Provides students with a management and supervisory learning experience. The course emphasizes the role of management in today's agribusiness environment. Principles of managerial control, coordination, communication, motivation, and organization are discussed. The role of management supervision and its influence on employee productivity, satisfaction, and organizational effectiveness is a major part of the course. (30-0) *Equivalent to 92-272, AGBS-840.*

AGE-116 Horse Essentials/Equine Management (2 s.h.)
General concepts of breed type and identification; the selection process; nutrition requirements; the reproduction cycle; the importance of genetics; general health; and management requirements will build a strong background for those interested in owning a horse of their own or pursuing a career in equine management. (30-0) *Equivalent to 92-264, AGES-701.*

AGM-120 Basic Agricultural Mechanics (2 s.h.)
Maintenance and management of agricultural machinery and power units. (23-45) *Equivalent to 92-273, AGMS-701.*

AGP-331 Precision Agriculture (2 s.h.)
Prerequisite: AGA-114, Principles of Agronomy, AGA-852, Principles of Crop Production, and demonstrated computer proficiency or permission from instructor. Precision agriculture is a management strategy that uses information technologies to bring data from multiple sources to bear on decisions associated with crop production. It should be viewed as a developing management system and not simply as an application of technology. GPS is considered the enabling tool for the entire Precision Agriculture system. GPS is

vital for yield monitoring, soil sampling, measuring field boundaries, and variable-rate application of crop nutrients and crop protection products. Students will be introduced to this and to other important technologies, with hands-on experience being provided using GPS receivers, scouting, navigation tools, and mapping software. (15-30) *Equivalent to AGPS-701, 90-267, AGP-333.*

AGS-109 Animal Science I (3 s.h.)

This course is designed to provide students with a general overview of the livestock industry. It identifies the ways in which domestic animals serve the basic needs of humans for food, fiber, shelter, protection, fuel and emotional well-being. Students will develop an understanding of and be able to apply the basic principles of animal selection, breeding, genetics, feeding, health, and husbandry practices. As a student, you will become familiar with the economic and social issues that confront the livestock industry. (45-0) *Equivalent to 70-112, AGSS-701.*

AGS-110 Animal Science I Lab (1 s.h.)

This course incorporates laboratory experiences designed to help students develop livestock husbandry skills, livestock facilities construction and maintenance skills, related livestock technology use skills, and group problem solving skills. This course is designed to be a companion for AGS-109, Animal Science I, and will provide students with hands-on experiences in each of the Animal Science units of study. Students will be able to apply the basic principles of animal selection, breeding, feeding, health, and husbandry practices. Students will coordinate specific animal improvement and marketing activities associated with the livestock species at NIACC. (0-30) *Equivalent to AGSS-701L.*

AGS-209 Animal Science II (3 s.h.)

This course applies advanced principles of livestock production and management. Areas of emphasis include: a review of animal husbandry practices, which result in greater performance and profit; livestock facilities requirements; production trends, animal health, and nutritional requirements for livestock produced in the Midwest; emphasis on swine and beef cattle production. (45-0) *Equivalent to 70-212, AGSS-702.*

AGS-210 Animal Science II Lab (1 s.h.)

This course incorporates laboratory experiences designed to help students develop livestock husbandry skills, livestock facilities construction and maintenance skills, related livestock technology use skills, and group problem solving skills. This course is designed to be a companion for AGS-209, Animal Science II, and will provide students with hands-on experiences in each of the Animal Science units of study. Students will be able to apply the basic principles of animal selection, breeding, feeding, health, and husbandry practices. Students will coordinate specific animal improvement and marketing activities associated with the livestock species at NIACC. (0-30) *Equivalent to AGSS-702L.*

AGS-227 Beef Cattle Production (2 s.h.)

This course is designed to help students identify the primary biological principles that contribute to raising productive beef cattle, to integrate biological and economic principles that comprise effective management decisions needed to produce profitable cattle, and to enhance the understanding and communication between all segments of the beef industry. The course material identifies the

primary management principles and practices needed by commercial and seed stock producers to raise productive and profitable cattle that can meet the specifications needed by the beef industry. (30-0) *Equivalent to AGSS-810, 90-293.*

AGS-240 Animal Health (2 s.h.)

This course provides a basic overview of animal health principles and practices that enable students to identify the major diseases of livestock, prescribe treatment and properly administer treatment. The course includes a review of animal insects, parasites, and reproductive management. The course allows students to develop strategies aimed at disease prevention, disease treatment and improved animal performance while providing concern for the animal's well being. (30-0) *Equivalent to AGSS-801, 92-166.*

AGS-301 Livestock Evaluation I (2 s.h.)

This course involves instruction in the selection of breeding animals of beef, swine, and other species and in the evaluation of market animals for slaughter. Specific reference will be made to performance data and factors determining carcass value. Communication and decision-making skills are practiced in the context of making livestock selection decisions. This course requires visits to farms, related companies, and events to observe the latest techniques and scientific principles associated with livestock selection and evaluation. Travel to and participation in competitive judging contests will be required. (8-45)

AGS-309A-B Livestock Production Lab I (1-2 s.h.)

Students will develop livestock husbandry skills associated with profitable beef and swine production. This hands-on experience emphasizes production practices that increase reproductive efficiency, insure herd health, increase pounds of market production, provide proper nutrition, and assure high market value. Students will assist in the selection, breeding, parturition, processing, feeding, fitting, and marketing of hogs and cattle. Students will evaluate, modify, and manage livestock facilities for maximum production efficiency. (0-30 to 60) *Equivalent to 92-270, AGSS-805A-B.*

AGS-310A-B Livestock Production Lab II (1-2 s.h.)

Students will develop livestock husbandry skills associated with profitable beef and swine production. This hands-on experience emphasizes production practices that increase reproductive efficiency, insure herd health, increase pounds of market production, provide proper nutrition, and assure high market value. Students will assist in the selection, breeding, parturition, processing, feeding, fitting, and marketing of hogs and cattle. Students will evaluate, modify, and manage livestock facilities for maximum production efficiency. (0-30 to 60) *Equivalent to 92-271, AGSS-806A-B.*

AGS-317 Animal Nutrition (2 s.h.)

Fundamentals of nutrition that deal with monogastric and ruminant animals. Materials covered will enable students to identify sources, composition and functions of various feedstuffs. Students will learn to evaluate and formulate livestock rations and will be able to make feeding recommendations based upon varying livestock, environment and management conditions. (30-0) *Equivalent to 90-171, AGSS-710.*

AGS-506 Swine Production (2 s.h.)
This course applies advanced principles of swine production and management. Areas of emphasis include: a review of swine husbandry practices, which result in greater performance and profit; livestock facilities requirements and maintenance, animal health, reproduction, and nutritional requirements. Students will have the opportunity to apply skills learned in the classroom to the swine operation at the NIACC Farm Lab. (30-0) *Equivalent to 90-169, AGSS-720.*

AGS-526A-C Swine A.I. Center Management (1-3 s.h.)
Students will be responsible for the operation and management of the Swine A.I. Center. During the period of instruction, students will develop skills associated with the artificial insemination of swine. This hands-on experience utilizes NIACC's industry-leading swine lab facility which includes housing of gilts, sows and boars; bright and easily accessible training areas, a fully equipped laboratory for semen processing, evaluation, extension, packaging, and storage. The course emphasizes boar management, training, reproductive physiology, semen collection, handling and processing; sow reproductive physiology, semen evaluation and packaging, artificial insemination techniques, semen marketing, and business management. (15 to 45-30 to 90) *Equivalent to 92-262, AGSS-815A-C.*

AGS-811 Animal Technologies (1 s.h.)
It is highly recommended that students have a strong foundation in Computer Applications, Animal Science I and II, or demonstrated proficiency in each area. This course is designed for students seeking an Associate of Science Degree in Agriculture. Students will be involved with techniques and technologies that enable better management decision-making and improved economic efficiency of agricultural operations. Included in the course are Animal Reproductive Technologies, Embryo Transfer, Estrus & Ovulation Synchronization, Electronic Heat Detection, Quality Assurance Evaluation, and Food Safety. (10-15) *Equivalent to AGSS-816.*

ANT-105 Cultural Anthropology (3 s.h.)
This course embraces cultures from all continents; highlights major human subsistence patterns; and illustrates human adaptation to the environment, from the beginning of human history to the present. Individual studies enable students to experience cultures in-depth. The student's goal is to understand one's own culture from a historical perspective and to analyze the forces of today in terms of how those forces may affect the future of earth and mankind. (26-38) *Equivalent to SOCS-115, 80-160.*

ART-101 Art Appreciation (3 s.h.)
An introductory course designed to give a better understanding of art as an important force in present-day living. Aims to develop an appreciation of art and creative thinking through lectures, readings, and visual aids. Experimentation with a variety of tools, techniques, and materials is a meaningful part of the course. Recommended for nonart majors. Entry-level course. (45-0) *Equivalent to 10-101, ARTS-101.*

ART-102 Art for Elementary Education (3 s.h.)
Prerequisite: ART-101, Art Appreciation, or permission of instructor to remove prerequisite. This course is designed for elementary education majors or those who are planning to work with children

pre-K to grade 6. Focuses on instructional planning for art studio and response activities with emphasis on interdisciplinary and multicultural approaches. Components are artistic development of children, peer teaching, field observation, and foundations of art education. (45-0) *Equivalent to 10-112, ARTS-103.*

ART-115 Graphic Design (3 s.h.)
Prerequisite: ART-120, Two-Dimensional Design, or permission of instructor. Creative problem solving through the exploration of aesthetic and technical aspects of graphic design using computer-aided design software. (20-50) *Equivalent to 10-202, ARTS-202.*

ART-116 Graphic Design II (3 s.h.)
Prerequisite: ART-115, Graphic Design. As a continuation of ART-115, Graphic Design, this course will emphasize the conceptual skills necessary to effectively integrate the principles of visual perception to design projects. Emphasis will be given to the role of color as it relates to visual communication. The theoretical, psychological and cultural aspects of color will be studied in the context of their application to appropriate graphic design decisions. Design software such as but not limited to Adobe InDesign, Photoshop, Illustrator and QuarkXpress will be utilized. (45-0)

ART-120 Two-Dimensional Design (3 s.h.)
Students/artists explore the process of visual problem solving through participation in class critiques of individual projects. Perception and structure: exploring visual order emphasizing two-dimensional concepts. (20-50) *Equivalent to 10-201, ARTS-201.*

ART-131 Digital Publication Design (3 s.h.)
Prerequisite: ART-115, Graphic Design, and GRA-173, Typography, or permission of instructor. Utilizing the skills gained in previous courses, Digital Publication Design will explore how to use conceptual design skills to systematically integrate photographs, type and illustration using page composition software, such as Adobe InDesign. The student will achieve an understanding of printing processes, pre-press, and post-press production, as well as paper specification. (45-0)

ART-133 Drawing (3 s.h.)
The development of visual perception in objective and subjective representation. Study of line, form, texture, and value in a variety of media stressing an individual's creative development. Entry-level course. (20-50) *Equivalent to 10-120, ARTS-120.*

ART-143 Painting I (3 s.h.)
Prerequisite: ART-120, Two-Dimensional Design; ART-133, Drawing; or ART-101, Art Appreciation. Beginning course planned to familiarize the student with the basic materials and tools of painting, the elements of pictorial organization, and the individual's creative development. Each student is encouraged to cultivate his or her own visual vocabulary. (45-0) *Equivalent to 10-210, ARTS-210.*

ART-144 Painting II (3 s.h.)
Prerequisite/Corequisite: ART-143, Painting I. Continuation of ART-143. Independent research, reading, and personal exploration of media and techniques. (45-0) *Equivalent to 10-211, ARTS-211.*

ART-173 Ceramics (3 s.h.)
An introductory course involving hand-building, wheel-throwing, glazing, and firing. Slides, lectures, and demonstrations. Ceramics facilities are located in the MacNider Museum, Mason City. (20-50) *Equivalent to 10-130, ARTS-130.*

ART-186 Digital Photography (3 s.h.)
Digital photography has rapidly become a critical part of journalism, graphic design, web-site design, and fine art. This course covers the anatomy of the digital camera and what features to look for before you buy, how to compose quality photos in a digital environment, adjusting/modifying photos on the computer using Adobe Photoshop and preparing photos for use in printed materials and on the Internet. (45-0) *Equivalent to ARTS-186.*

ART-187 Creative Photography (3 s.h.)
An investigation into the relationship of basic photographic techniques to design, perception, and aesthetics. Each student is encouraged to cultivate his or her own visual vocabulary while working on photographic projects. (20-50) *Equivalent to 10-150, ARTS-150.*

ART-188 Creative Photography II (3 s.h.)
Prerequisite: ART-187, Creative Photography. Emphasis on exploring photographic materials in the development of a personal vision. Technical subject covered: lighting, advanced printing, and camera techniques. Only offered spring semesters. (20-50) *Equivalent to 10-151, ARTS-151.*

ART-203 Art History I (3 s.h.)
Prerequisite: None. This course is *not* required as a prerequisite for ART-204, Art History II. The study of the development of the visual arts of western civilization including painting, sculpture, architecture, and crafts from prehistoric origins through Gothic. (45-0) *Equivalent to 10-102, ARTS-104.*

ART-204 Art History II (3 s.h.)
The study of the development of the visual arts of western civilization including painting, sculpture, architecture, crafts, and photography from the Renaissance through the present time. (45-0) *Equivalent to 10-103, ARTS-105.*

AUT-104 Introduction to Automotive Technology (3 s.h.)
Prerequisite/Corequisite: AUT-115, Automotive Shop Safety. Instruction in service procedures, information and equipment. Classroom and laboratory activities emphasize routine vehicle maintenance in the care of fluids, tires, batteries, lighting, belts, hoses, filters, and cooling systems. (30-60) *Equivalent to AUTO-701, 98-144.*

AUT-115 Automotive Shop Safety (1 s.h.)
This course is designed to acquaint the student with the proper personal and shop safety procedures needed to function in an automotive shop. Tool identification, tool care, and maintenance will be covered along with careers and career options in the automotive industry. Policies, procedures and orientation will also be included in this course. (15-5)

AUT-163 Automotive Engine Repair (3 s.h.)
Prerequisite/Corequisite: AUT-104, Introduction to Automotive Technology. Instruction/laboratory procedures for engine repair diagnosis, removal, disassembly, inspection, overhaul and reassembly of automotive and/or light truck engines according to manufacturer's specifications. (15-90) *Equivalent to AUTO-711, 98-148.*

AUT-205 Automotive Automatic Trans/Transaxle (5 s.h.)
Prerequisite/Corequisite: ELT-115, Electronic Concepts, or instructor's permission. Instruction in diagnosis, maintenance, and overhaul of major automatic transmissions and transaxles in various makes of automobiles. (45-90) *Equivalent to AUTO-801, 98-179.*

AUT-303 Automotive Manual Drive Trains and Axles (3 s.h.)
Prerequisite/Corequisite: AUT-104, Introduction to Automotive Technology. Instruction/laboratory procedures for servicing, diagnosing, and repairing/replacing standard transmissions and clutches, transaxles, and differentials. (15-90) *Equivalent to AUTO-712, 98-149.*

AUT-403 Automotive Suspension & Steering (3 s.h.)
Prerequisite/Corequisite: AUT-104, Introduction to Automotive Technology. Instruction/laboratory service procedures for inspection, adjustments, alignment, repair and/or replacement of suspension and steering components. (15-90) *Equivalent to AUTO-703, 98-146.*

AUT-503 Automotive Brake Systems (3 s.h.)
Prerequisite/Corequisite: AUT-104, Introduction to Automotive Technology. Instruction in the theory and operating principles of drum, disc, hydraulic and anti-lock brake systems (ABS). Laboratory procedures for inspecting, testing, diagnosing, repairing and/or replacing conventional, power, and ABS brake system components. (15-90) *Equivalent to AUTO-702, 98-145.*

AUT-612 Automotive Electrical Systems I (3 s.h.)
Prerequisite/Corequisite: AUT-104, Introduction to Automotive Technology and ELT-115, Electronic Concepts. Instruction in the electrical and electronic principles and testing procedures as applied to automotive circuits and microprocessors. Laboratory procedures to include the utilization of wiring schematics and test equipment for diagnosing and repairing instrumentation, electrical accessory, and lighting systems. (30-60) *Equivalent to 98-147, AUTO-710.*

AUT-657 Automotive Electrical Systems II (5 s.h.)
Prerequisite/Corequisite: AUT-612, Automotive Electrical Systems I, or instructor's permission. Strong mechanical aptitude. Instruction in operation, service, and troubleshooting of automotive electronic/electrical circuits and systems; to include starting, charging, and ignition systems. (45-60) *Equivalent to AUTO-810, 98-209.*

AUT-703 Automotive Heating/Air Conditioning (3 s.h.)
Prerequisite/Corequisite: ELT-115, Electronic Concepts, or instructor's permission. Instruction in theory and operation of automotive heating and air-conditioning systems including heat transfer and pressures. Laboratory procedures for servicing and maintaining heating and air conditioning systems and controls utilizing approved refrigerant recovery/recycling equipment and methods. (30-60) *Equivalent to AUTO-715, 98-133.*

AUT-832 Automotive Fuel Delivery Systems (3 s.h.)
Prerequisite/Corequisite: ELT-115, Electronic Concepts, or instructor's permission; and strong mechanical aptitude. Instruction in the fundamentals of operation and service of complete fuel systems, including storage, delivery, and metering. (30-30) *Equivalent to AUTO-802, 98-208.*

AUT-840 Automotive Computerized Controls (3 s.h.)
Prerequisite/Corequisite: ELT-115, Electronic Concepts, or instructor's permission. Instruction in electronics theory as it applies to automotive computers, sensors, and control devices, with emphasis on developing an organized approach to diagnostics. (30-30) *Equivalent to AUTO-720, 98-180.*

AUT-857 Advanced Engine Performance (6 s.h.)
Prerequisite/Corequisite: AUT-840, Automotive Computerized Controls, or instructor's permission. Strong mechanical aptitude. Instruction in the theory and operating principles of automotive computerized engine control systems and other advanced electronic systems with emphasis on utilizing relevant vehicle data and service information, lab and oscilloscopes, DVOMs, and scan tools to test/diagnose/repair system malfunctions. (60-90) *Equivalent to AUTO-821, 98-212.*

AUT-865 Automotive Engine Performance Testing (5 s.h.)
Prerequisite/Corequisite: AUT-840, Automotive Computerized Controls, or instructor's permission. Strong mechanical aptitude. Instruction in the theory and operating principles of automotive emission systems with emphasis on utilizing relevant vehicle data and service information, lab and oscilloscopes, DVOMs, and scan tools to test/diagnose/repair system malfunctions. (45-90) *Equivalent to AUTO-820, 98-211.*

BCA-100 Computer Literacy (1 s.h.)
Prerequisite: None. This course is intended to familiarize the student with Windows-based personal computers including introductory file control and management using Windows, exposure to different software, and basics on how to use the Internet. Students with little or no computer background are encouraged to take this course. This course has been designated as a pass/no pass course. (0-30) *Equivalent to 15-114, COMP-100.*

BCA-101 Intro to Computers and Information Systems (3 s.h.)
Emphasis on computer literacy and business applications of computer software. Students do business problems using electronic spreadsheets, word processing software, database management software, and presentation software. Students also are exposed to web use, file management, and simple web page development. (45-0) *Equivalent to 15-140, COMP-110.*

BCA-103 Management Information Systems (3 s.h.)
Prerequisite: BCA-101, Introduction to Computers and Information Systems, or permission of the instructor. The primary goal of MIS is to prepare students to be productive participants in an information society. The course is designed to develop a broad understanding of business information systems, various ways to discern information from an information system, and look at ways to distribute this information. The student will also learn the basic principles and techniques for developing simple computer-based information systems for managerial decision support systems

through an extensive group project component of the course. (45-0) *Equivalent to 15-141, COMP-111.*

BCA-118 Introduction to the PC (1 s.h.)
This course provides an introduction to the desktop PC, its parts and basic operation. The student learns how to operate the computer, work within the windows environment, and manipulate files. Course exercises will include using the MS Office Suite, including Word, Excel, Access, and Outlook to process documents, lay out spreadsheets, compile databases, and send e-mail. Students also learn to explore the Internet to research information. (10-20) *Equivalent to COMP-701, 91-159.*

BCA-119 Computer Orientation (1 s.h.)
Introduction to basic computer hardware and software functions. Emphasis on using the computer as a tool to create personal and business documents. Introductory Windows, word processing, spreadsheet, presentation, and Internet units give students an opportunity to view software capabilities and use some of the features. (15-15) *Equivalent to 96-162, COMP-702.*

BCA-129 Basic Word Processing (2 s.h.)
This course is designed to introduce students to computers and the fundamentals of word processing. The students will progress from basic through intermediate features of word processing software. Also Open Entry. (20-20) *Equivalent to 15-211, COMP-105.*

BCA-136 Advanced Word Processing (3 s.h.)
Prerequisites: BCA-215, Computer Business Applications, and BCA-129, Basic Word Processing. Students will learn intermediate to advanced functions of Microsoft Word including customizing templates, recording macros, creating on-screen forms, managing long documents, creating hyperlinks, and publishing on the World Wide Web. Upon completion of the course, the students may be prepared to take the Microsoft Office Specialist expert exam. (30-30) *Equivalent to 15-136, COMP-207.*

BCA-152 Electronic Spreadsheets (3 s.h.)
Prerequisite: BCA-101, Introduction to Computers and Information Systems, or BCA-215, Computer Business Applications. Learn the fundamentals of spreadsheets, databases, and business graphics using appropriate software. (30-30) *Equivalent to 15-175, COMP-115.*

BCA-163 Microsoft Access (1 s.h.)
This course is designed to take students through the core competencies for Microsoft Access in preparation for the Microsoft Office Specialist (MOUS) certification test. (5-20) *Equivalent to 15-225, COMP-113.*

BCA-170 Personal Information Management (2 s.h.)
The course is designed to take students through the core competencies for Microsoft Outlook in preparation for the Microsoft Office Specialist certification test. (15-30) *Equivalent to 15-227, COMP-112.*

BCA-174 Basic Presentation Software (1 s.h.)
This course is designed to take students through the core competencies for Microsoft PowerPoint in preparation for the Microsoft Office Specialist (MOUS) certification test. (5-20) *Equivalent to 15-226, COMP-114.*

BCA-182 Intro to Microsoft Publisher 2002 (1 s.h.)

Introduction to Microsoft Publisher 2002 demonstrates layout and design techniques to create brochures, newsletters, and publish a web site to the Internet. This course has been designated as a pass/no pass course. (5-20) *Equivalent to 15-244, BUSN-252.*

BCA-184 Comprehensive Web Page Design Software (3 s.h.)

Prerequisite: CIS-224, Server Side Scripting, or permission of the instructor. This course will build on the students' prior Internet Programming knowledge and give them an overview of various web application development resources, tools, languages, and technologies. Students will be introduced to various current tools and technologies available to a Web Developer for development and begin to understand the situations each works best in. Emphasis will be on compare and contrast techniques, proper planning, relating the syntax and elements to other tools and languages, knowledge transfer, how interaction takes place, design, and developing an understanding and use of programming resources. (45-0) *Equivalent to 15-199, ECOM-225.*

BCA-185 Beginning Web Page Development (3 s.h.)

This class covers the basics of building a web page. Students will learn basic coding with HTML and explore web development products such as Nvu to build a web page. Students will also learn how to post a web page on web server to be seen on the Internet, add graphics, change fonts, add colors, develop navigation, and design tables. (45-0) *Equivalent to 15-137, ECOM-100.*

BCA-203 E-Commerce Cases (4 s.h.)

Prerequisite: Sophomore status in the E-Commerce, Web Design and Development program or permission of instructor. Investigate current E-Commerce basics and real life scenarios regarding electronic business practices. This capstone course will tie together previous E-Commerce courses to real life applications. (60-0) *Equivalent to 15-194, ECOM-220.*

BCA-215 Computer Business Applications (3 s.h.)

Emphasis on business applications of computer software. Students do business problems using word processing, electronic spreadsheet, and database management software. Students are also exposed to Windows operating systems, presentation software, and the Internet. (45-0) *Equivalent to 15-134, COMP-101.*

BCA-270 Learn to Buy and Sell on eBay (1 s.h.)

Learn to Buy and Sell on eBay demonstrates skills of entitling, creating advertisements, uploading photographs, conduct financial transactions and protect against fraud. This course has been designated as a pass/no pass course. (5-20) *Equivalent to 15-245, BUSN-253.*

BCA-280 Introduction to QuickBooks (1 s.h.)

Introduction to QuickBooks provides a traditional approach to small business accounting by creating a chart of accounts, reconciling checking accounts, creating invoices, receipts, statements, a payable registry, inventory, a receivables registry, and generating reports. This course has been designated as a pass/no pass course. (5-20) *Equivalent to BUSN-254, 15-246.*

BCA-601 Create a Website (1 s.h.)

Create a Website will demonstrate how to create, build, design, and implement a functional website for business, personal, and nonprofits. This course has been designated as a pass/no pass course. (8-14)

BCA-602 Microsoft Excel (1 s.h.)

Microsoft Excel demonstrates building a spreadsheet using mathematical formulas, functions, wizards, graphs, charts, and databases. This course has been designated as a pass/no pass course. (8-14)

BCA-603 Microsoft Access for the Workplace (1 s.h.)

Using Microsoft's powerful database, Access, business people can create, store, and locate any amount of information. Learn to create tables, forms, queries, reports, and relationships. This course has been designated as a pass/no pass course. (8-14)

BIO-102 Introductory Biology (3 s.h.)

Study of organismic biology including organization, metabolism, and reproduction of living systems. Includes evolutionary patterns, inheritance, ecosystems, and structure-function relationships among organisms. (45-0) *Equivalent to BIOL-101, 70-101.*

BIO-103 Introductory Biology Lab (1 s.h.)

Prerequisite: Credit for or current enrollment in BIO-102, Introductory Biology. This is a lab component intended to supplement Introductory Biology. (0-30) *Equivalent to BIOL-102, 70-102.*

BIO-123 Inquiry Into Life Science (3 s.h.)

Prerequisite: EDU-216, Introduction to Teaching. This course is specifically designed for education majors. Topics include ecosystems, plants, gene, homeostasis, microbes and metabolism. These topics are presented while modeling effective pedagogy when it comes to teaching science. The course is modeled on the *Teaching Standards and Content Standards of the National Science Education Standards*. (30-30) *Equivalent to 70-190, BIOL-103.*

BIO-151 Nutrition (3 s.h.)

Prerequisite: three credit hours of high school inorganic chemistry. Physiology or biology helpful, but not essential. Basic math skills will be employed. Introduces the science of human nutrition and its application to the role of the nurse, other allied health professional or educator in promoting good nutrition throughout the life span. Emphasis is placed on the study of macro and micro nutrient needs; and the use of science-based evidence for evaluation of findings and adoption of applications promoting sound nutritional practices among patients, clients and the community at large. Some principles of diet modification are presented as they relate to common chronic health problems, such as heart disease and diabetes. (45-0) *Equivalent to 70-200, BIOL-205.*

BIO-152 Health and Nutrition (3 s.h.)

The science of health and its application to the individual, home, community, and school. Elementary physiology, nutrition, dependency, and current health problems of national concern. (45-0) *Equivalent to 70-110, BIOL-105.*

BIO-157 Human Biology (4 s.h.)
Course provides overview of human biology for nonscience majors. Includes lecture and laboratory-based study of cells, tissues, organs, and systems with emphasis on interrelatedness. Coverage also includes genetics, and aspects of various human diseases. (45-30) *Equivalent to 70-111, BIOL-108.*

BIO-186 Microbiology (4 s.h.)
Morphology, physiology, taxonomy, and relationship of microorganisms to disease. In-depth laboratory study and suitable lecture material with applications to agriculture, industry, and medicine. (45-30) *Equivalent to 70-109, BIOL-109.*

BIO-196 Intro to Bio-Technology (4 s.h.)
The purpose of this course is to help students understand the importance and impact of bio-technology on our lives. Students will be introduced to bio-science's impact on society and made to realize that technologies, like the tools they are manifested in, can be used "for better or for worse." The benefits of bio-science will be discussed in six major categories: agriculture, industry, medicine, environmental, forensic, and advancement of knowledge. (45-30)

BIO-202 Biology I (4 s.h.)
Prerequisite/Corequisite: concurrent enrollment in CHM-153, College Chemistry I, or CHM-166, General Chemistry I, is strongly encouraged. This course, with the addition of BIO-203, Biology II, is a detailed lecture and laboratory-based study of the fundamental principles of biology, including the study of ecology and environmental issues, cell structure and function, energy transfer, inheritance, and evolution. (45-30)

Note: Students enrolling in Biology I or II should plan on taking both semesters of the sequence at NIACC, preferably during the same academic year. Problems may result for the student who takes one Biology semester at NIACC and the other semester at a different institution. *Equivalent to 70-105, BIOL-201.*

BIO-203 Biology II (4 s.h.)
Prerequisite: BIO-202, Biology I or permission of instructor. This course, with the addition of Biology I, is a lecture and laboratory-based study of evolution and the diversity of life. (45-30)

Note: Students enrolling in Biology I or II should plan on taking both semesters of the sequence at NIACC, preferably during the same academic year. Problems may result for the student who takes one Biology semester at NIACC and the other semester at a different institution. *Equivalent to 70-108, BIOL-202.*

BIO-206 Anatomy and Physiology I (4 s.h.)
Prerequisite: Human Biology or Introductory Biology highly recommended, but not required. A lecture and laboratory-based study of the human body emphasizing the complementary nature of structure and function, molecular and cellular interactions, homeostasis, and metabolic processes. Includes a study of cells, tissues, membranes, skeletal, muscular, and reproductive systems. (45-30)

Note: Students enrolling in Anatomy and Physiology I or II should plan on taking both semesters of the sequence at NIACC. Problems

may result for the student who takes one A&P semester at NIACC and the other semester at a different institution. *Equivalent to 70-250, BIOL-220.*

BIO-207 Anatomy and Physiology II (4 s.h.)
Prerequisite: BIO-206, Anatomy and Physiology I, or permission of instructor. A continuation of BIO-206, Anatomy and Physiology I. Includes a study of the circulatory, respiratory, digestive, endocrine, urinary, and nervous systems. Cat, heart, kidney, brain, and eye dissections are performed in the laboratory. (45-30)

Note: Students enrolling in Anatomy and Physiology I or II should plan on taking both semesters of the sequence at NIACC. Problems may result for the student who takes one A&P semester at NIACC and the other semester at a different institution. *Equivalent to 70-251, BIOL-221.*

BIO-922A-D Field Studies in Biology (1-4 s.h.)
Prerequisite: permission of the instructor. Field-based exploration of fundamental concepts of ecology and biology through active investigation. Use of nature centers, field professionals, parks, and the environment itself for learning and interpretation. Past trips include Belize, tropical ecology; Washington state, temperate rainforest and tide pool ecology; northern Minnesota, boreal forest ecology. (5-30 to 120) *Equivalent to 70-204, BIOL-922A-D.*

BMA-168 Steam Plant Operations I (Low Pressure Boilers)(2 s.h.)
This course presents principles of safe operation and maintenance of low-pressure boiler systems and prepares students for the state certification exam. This is a pass/no pass course. (30-0)

BMA-169 Steam Plant Operations II (High Pressure Boilers) (2 s.h.)
This course provides an overview of high pressure boiler operations and is used as a preparatory course for the state boiler technician exam. This is a pass/no pass course. (30-0)

BUS-102 Introduction to Business (3 s.h.)
An overview of the phases and functions of the business enterprise. Units of instruction include the organization, financing, production, and contemporary issues in business. The course provides an awareness and understanding of the complexities of the business world. (45-0) *Equivalent to 15-101, BUSN-101.*

BUS-107 Business Careers (1 s.h.)
A preparatory course that helps students plan for the world of work. Instruction focuses on: planning a career in business, searching for a job, preparing career search documents, interviewing, job securement, and job-keeping skills. This is a pass/no pass course. (15-0)

BUS-121 Business Communications (3 s.h.)
This course will help the student become an effective communicator in the business world. Basic written communication will be emphasized through practice in grammar structure, vocabulary building, and organization of thoughts. These skills will then be implemented when the student plans and writes business letters and interoffice memorandums. A secondary emphasis will be placed on oral communication, listening skills, and nonverbal communication. (45-0) *Equivalent to 15-212, ENGL-705.*

BUS-134 The Successful Entrepreneur (2 s.h.)

Students will learn the personal traits and characteristics necessary to succeed in the fast-paced environment. This course will examine the various skills and habits necessary for being a successful entrepreneur. Various case studies will be examined as to why some businesses fail while others succeed. Students will identify their individual strengths and weaknesses and will learn what area they need to work on to insure success in an entrepreneurial venture. Students will be exposed to many types of entrepreneurial ventures, and will generate personal preferences for the types of ventures they would like to own. (30-0)

BUS-136 Creativity, Innovation & Opportunity Analysis (2 s.h.)

This course will teach students to assess the current economic, social, and political climate for entrepreneurial ventures. Students will be able to explain how demographic, creativity, innovation, technology and social changes create business opportunities. Students will assess the personal appropriateness of their business idea based on their strengths and skills, and professional and financial goals. An initial market assessment will be made and students will test their concepts through basic market research. (30-0)

BUS-142 Planning the Entrepreneurial Venture (3 s.h.)

Prerequisite: BUS-102, Introduction to Business; BUS-134, The Successful Entrepreneur; BUS-136, Creativity, Innovation and Opportunity Analysis; and, ACC-111, Introduction to Accounting or ACC-121, Principles of Accounting I. Planning the Entrepreneurial Venture is a blended-learning course designed to teach students how to research, develop, and write detailed start-up Business Plans, which can be used to create successful businesses. The blended-learning environment provides a dynamic, interactive experience that combines the flexibility of Internet-based e-learning with the benefits of face-to-face instruction. (45-0)

BUS-143 FastTrac® NewVenture™ (2 s.h.)

Recommended: Students must have a specific business concept they would like to pursue or have taken BUS-102, Introduction to Business, BUS-134, The Successful Entrepreneur, BUS-136, Creativity, Innovation and Opportunity Analysis. FastTrac® NewVenture™ assists the start-up entrepreneur in developing a business concept and evaluating it through each step of the business planning process. This is a course designed to teach students how to research, develop, and write detailed start-up Business Plans, which can be used to create successful businesses. This course has been designated as a pass/no pass course. (35-0)

BUS-144 FastTrac® GrowthVenture™ (2 s.h.)

Prerequisite: Students must have a business they have been operating for two years or longer. FastTrac® GrowthVenture™ assists entrepreneurs in evaluating their current business framework and determining the changes needed to improve performance and grow their business. This course has been designated as a pass/no pass course. (35-0)

BUS-151 Introduction to E-Commerce (3 s.h.)

Prerequisite: BCA-101, Introduction to Computers and Information Systems, or permission of the instructor. This course provides students with foundational skills and general information about electronic business solutions on the World Wide Web. Topics will include features of Internet marketing, sales, computer graphics,

and network security. Students will also be introduced to Internet-related programming concepts and tools used to create web-based solutions. (45-0) *Equivalent to 15-191, ECOM-101.*

BUS-158 Internet Law (3 s.h.)

Prerequisite: BCA-101, Introduction to Computers and Information Systems, or permission of the instructor. An overview of the legal issues which have arisen in response to Internet usage, particularly those legal issues which impact web-based commerce. Specific issues studied include jurisdiction, copyright, trademarks, contract, taxation, securities, offerings, privacy, obscenity, defamation, security, and computer crime. (45-0) *Equivalent to 15-197, BUSN-122.*

BUS-161 Human Relations (3 s.h.)

The study of how people satisfy both personal growth needs and organizational goals. Human Relations looks at what can be done to anticipate problems, resolve them, or prevent them from happening. Emphasis is on practical knowledge which can be applied at work or at home. Significant developments in recent years have increased the importance of interpersonal skills in almost every type of setting; these trends provide support for the necessity of acquiring competence in human relations. (45-0) *Equivalent to 15-241, BUSN-105.*

BUS-185 Business Law I (3 s.h.)

Law as applied to business transactions and business relationships. An introduction to jurisprudence and the courts, contracts, commercial paper, sales, and security agreements. (45-0) *Equivalent to 15-120, BUSN-120.*

BUS-186 Business Law II (3 s.h.)

Prerequisite: BUS-185, Business Law I recommended. A continuation of BUS-185. Agency, corporations, partnerships, bailments, real property, wills, trusts, insurance, bankruptcy, and government regulation of business. Some information on international law and liability of accountants and other professionals. (45-0) *Equivalent to 15-121, BUSN-121.*

BUS-194 Advanced Professional Leadership Development (1 s.h.)

This course is designed for the experienced business manager and supervisor or the employee that is on the management fast track. This course involves the study of the major management functions of building and leading teams, communications, financial management, coaching and mentoring, presentation skills, business writing, organizational design, managing change, strategic planning, quality management, creative thinking, and negotiation skills. Course is repeatable for credit to a maximum of 3 credit hours. (15-0) *Equivalent to 15-231, BUSN-201.*

BUS-225A-E Business Internships (1-5 s.h.)

Prerequisites: 1. Students must enroll in and pass BUS-107, Business Careers. 2. Students must have completed and filed an Application for Employment with their Internship Coordinator. 3. Students must have their proposed experience approved by the Internship Coordinator before they may register and begin. Business Internships is a learning experience which is: 1. based on practical work experience, 2. related directly to the student's program of study, 3. individualized to enable the student to gain valuable work experience and help determine career choices, and 4. geared to the student's academic knowledge, personal development

and professional preparation. Instructor's consent required. Course is repeatable for a maximum of 15 credit hours. (0-60 to 300)

BUS-255 60-Hour Real Estate Pre-license (3 s.h.)

This pre-license course is required by the Iowa Real Estate Commission prior to examination for an Iowa Real Estate Salesperson License. Upon completion of this curriculum, participants will be exposed to principles of real estate, terminology, mathematical calculations, procedures and ethics necessary to enable them to understand the real estate profession. This course prepares them to take the Real Estate Salesperson Examination, and to function as a well informed real estate salesperson. (30-30) *Equivalent to 15-207, BUSN-210.*

BUS-260 Introduction to Insurance (3 s.h.)

Principles of insurance and risk, including personal and business viewpoints in regard to life, health, property, and liability risks. (45-0) *Equivalent to 15-190, INSS-101.*

BUS-266 Property and Casualty Insurance (3 s.h.)

Prerequisite/Corequisite: BUS-260, Introduction to Insurance. This course is designed to provide instruction that will provide a high level of understanding of property and casualty insurance. Topics covered include fire, homeowners, dwelling, auto, business and professional liability, crime and fidelity, worker's compensation, and applications from a personal and commercial perspective. (45-0) *Equivalent to 15-195, INSS-102.*

BUS-267 Life, Health, and Disability Insurance (3 s.h.)

Prerequisite/Corequisite: BUS-260, Introduction to Insurance. This course is designed to provide instruction in a variety of areas giving the student a good understanding of life insurance, health insurance, and the role and application of both within the industry. (45-0) *Equivalent to 15-200, INSS-103.*

BUS-298 Seminar in Entrepreneurship (3 s.h.)

Prerequisite: BUS-134, The Successful Entrepreneur, and BUS-136, Creativity, Innovation and Opportunity Analysis. Course will combine group discussions with an actual case project at a local entrepreneurial firm. Students will have an opportunity to apply business skills learned throughout their NIACC program as they complete a project for a local entrepreneurial venture. Students also will discover key entrepreneurial success characteristics. (15-60) *Equivalent to 15-173, ENTR-103.*

CFR-100 Computer Forensics I (3 s.h.)

Prerequisite: NET-113, IT Essentials, or permission of instructor. This course deals with the preservation, identification, extraction, documentation and interpretation of computer data. Topics covered include evidence handling, chain of custody, collection, preservation, identification and recovery of computer data. This course will feature the use of Helix forensics tools. (60-0)

CHM-122 Introduction to General Chemistry (4 s.h.)

Prerequisite: MAT-063, Elementary Algebra, or equivalent. A one-semester college chemistry course which surveys important concepts and topics of chemistry. Among these are the metric system of measurement, atomic theory of matter, energy levels and atomic structure, the periodic table, ionic and molecular compounds, ionic and covalent bonding, chemical reactions, and reaction equations

and calculations. Laboratory work is an important part of this course. High school chemistry is not a prerequisite. This course is not intended for science majors (but may be appropriate as preparation for a more thorough beginning chemistry course). (45-30) *Equivalent to 70-140, CHEM-101.*

CHM-153 College Chemistry I (5 s.h.)

Prerequisite: MAT-063, Elementary Algebra, or equivalent. First semester of a two-semester sequence intended for nonscience majors. Introduction to the basic concepts and facts of chemistry. Topics include the metric system of measurement, atomic theory of matter, energy levels and atomic structure, the periodic table, ionic and molecular compounds, ionic bonding, covalent bonding and molecular structure, classification of chemical reactions, and reaction equations and chemical calculations. This course treats these topics in more depth than Introduction to General Chemistry (CHM-122); however, high school chemistry is NOT a prerequisite. Laboratory work is an important part of this course. (45-60) *Equivalent to 70-135, CHEM-110.*

CHM-154 College Chemistry II (5 s.h.)

Prerequisite: CHM-153, College Chemistry I, or equivalent. The continuation of CHM-153, College Chemistry I, this is the second semester of a two-semester sequence intended for non-science majors. Topics include a review and extension of first-semester material on chemical calculations, reaction rates, chemical equilibrium and acid-base chemistry, electron-transfer (oxidation-reduction) reactions and electrochemical cells, and, as time permits, introductions to organic and biological chemistry. Laboratory work is an important part of this course. (45-60) *Equivalent to 70-136, CHEM-111.*

CHM-166 General Chemistry I (5 s.h.)

Prerequisite: satisfactory completion of one year of high school chemistry; MAT-102, Intermediate Algebra, or the equivalent. Atomic structure, stoichiometry, thermochemistry, reactions in aqueous solution, chemical bonding and molecular structure, structure-property relationships. (45-60) *Equivalent to 70-137, CHEM-210.*

CHM-176 General Chemistry II (5 s.h.)

Prerequisite: CHM-166, General Chemistry I, or equivalent. Physical properties (gases, liquids, solids), chemical equilibrium and kinetics, acid-base chemistry, chemical thermodynamics, electrochemistry, introduction to organic chemistry and polymers. (45-60) *Equivalent to 70-138, CHEM-211.*

CHM-263 Organic Chemistry I (5 s.h.)

Prerequisite: CHM-154, College Chemistry II, or CHM-176, General Chemistry II. Survey of the major classes of organic compounds emphasizing molecular structure, stereochemistry, reaction mechanisms and synthesis. Laboratory work includes procedures of distillation, solvent extraction, chromatography, polarimetry and the use of both macroscale and microscale laboratory glassware. (45-60) *Equivalent to 70-274, CHEM-220.*

CHM-273 Organic Chemistry II (5 s.h.)

Prerequisite: CHM-263, Organic Chemistry I. Continuation of CHM-263, Organic Chemistry I, including spectroscopic methods for molecular structure determination. Laboratory work involving

the procedures introduced in CHM-263 and the use of infrared spectroscopy and gas chromatography for compound identification. (45-60) *Equivalent to 70-275, CHEM-221.*

CIS-119 Introduction to Programming (4 s.h.)

Prerequisite: CIS-125, Intro to Programming Logic with Language, or permission of the instructor. This course provides students exposure to computer program design, structure, development, and troubleshooting through an examination of such topics as logic concepts, variables, input/output, interactive constructs, conditional flow, modular design, create and manage databases, debugging, cgi scripting, object-oriented programming, and the comparison of programming languages. (60-0) *Equivalent to 15-168, ISTS-105.*

CIS-125 Intro to Programming Logic with Language (3 s.h.)

Prerequisite: BCA-101, Introduction to Computers and Information Systems, or permission of the instructor. A fundamental requirement for people in the Information Technology field is the ability to organize a solution to a problem. This, in and of itself, is a difficult task. Often, however, this skill takes a backseat to learning code or is lost in the complexity of the task. Intro to Programming Logic w/Language concentrates on the process of developing a logical algorithmic solution to a problem. (45-0) *Equivalent to 15-196, ISTS-125.*

CIS-155 Introduction to Video Game Testing (3 s.h.)

Intro to Video Game Testing defines the steps involved in taking the basic idea for a video or computer game through the formal steps of definition and implementation. The course is meant to provide the overview of how testing is incorporated into video game production and development. Basic testing concepts will be introduced to the students. Students will develop their working video game. The students will then thoroughly test other students' video games. (45-0)

CIS-156 Testing Concepts (4 s.h.)

Prerequisite: CIS-155, Introduction to Video Game Testing. Covers the basics of testing, including the test plan, the steps in fully testing new software throughout the product lifecycle, and ensuring complete adherence to client requirements. The following areas will be covered: test phases, effective testing, combinatorial testing, test flow diagrams, clean room testing, and test trees. (60-0)

CIS-172 Java (4 s.h.)

Prerequisite: CIS-119, Introduction to Programming, or permission of the instructor. This course introduces students to doing purely object-oriented programming using the Java syntax. Emphasis is placed on using Java for web development. Students learn how to create their own objects and employ these objects as solutions to common real world-based web problems using applications and applets. Students will learn to create interactive elements and simple GUI elements. Use of the java.awt components, event-handling model, containers, and layout managers will also be emphasized. File handling techniques and multithreading will be presented, along with JavaBeans. Applications and applets will be built from button up to facilitate in deeper understanding of the concepts used in OOP. (60-0) *Equivalent to 15-204, ISTS-220.*

CIS-210 Web Development I (3 s.h.)

This course covers comprehensively the latest version of HTML. Students will learn good coding practices and be introduced to web development tools and FTP programs. Students will also be introduced to CSS (Cascading Style Sheets), image management, browser helper applications, and basic JavaScript. (45-0) *Equivalent to 15-169, ECOM-110.*

CIS-211 Web Development II (3 s.h.)

Prerequisite: CIS-210, Web Development I, and CIS-125, Intro to Programming Logic w/Language, or permission of instructor. This course will teach the fundamentals of client-side web scripting with JavaScript. Students will learn about browser-related object models and their associated properties, events, and methods. Students will work with these models to create documents on the fly, create pop-up documents, manage images, manage framesets, create roll-overs, enable and validate form elements, manage cookies, create and maintain basic databases, define and enable custom objects, and create various web-related tools. Creating e-mail, writing files, and accessing databases using user form input and server-side scripting will also be addressed. (45-0) *Equivalent to 15-186, ECOM-120.*

CIS-224 Server Side Scripting (4 s.h.)

Prerequisite: CIS-119, Introduction to Programming, and CIS-332, Database and SQL, or permission of the instructor. Students will learn to develop and implement web applications using server side scripting with emphasis on a single language. Additional server side scripting languages and technologies will be discussed. Much of the languages object model and methods will be covered with focus on how to work with these objects and procedures. Students will gain hands-on experience while writing real world-based web applications from the ground up. Database basics will also be learned along with SQL. Simple databases will be created for use with web application back-ends. Students will learn to access and modify their databases by building front-ends for them using server side scripting and embedded SQL. Sufficient time will be spent building solutions that require using ASP, HTML, JavaScript, and various other server side scripting technologies together. (60-0) *Equivalent to 15-203, ECOM-203.*

CIS-246 Intermediate Testing Concepts (4 s.h.)

Prerequisite: CIS-156, Testing Concepts, or permission of instructor. Instruction in manual testing, hardware testing, and cross-platform testing. Manual testing is and will always be the cornerstone to effective testing. Cross-platform testing includes learning techniques for ensuring software quality on more than one machine type. Testing environments will include Windows/Mac/Linux computers and various video-gaming consoles. (60-0)

CIS-275 Advanced Testing Concepts (3 s.h.)

Prerequisite: CIS-246, Intermediate Testing Concepts, or permission of instructor. Instruction in testing automation, capture playback testing, performance testing, regression testing and defect triggers. (45-0)

CIS-276 Testing Cases (4 s.h.)

Prerequisite: CIS-246, Intermediate Testing Concepts, or permission of the instructor. Should be taken last semester of student's Testing program of study. Investigate current testing procedures

and real life scenarios regarding software and product testing business practices. This capstone course will tie together previous testing courses to real life application. (60-0)

CIS-332 Database and SQL (3 s.h.)

Prerequisite: BCA-101, Introduction to Computers and Information Systems, or permission of the instructor. This course introduces students to database concepts, with topics such as database structure and design, planning, modeling, database software and servers, SQL, reports, fault tolerance, and administration being covered. Exposure to current and popular database systems will be provided. (45-0) *Equivalent to 15-174, COMP-205.*

CON-107 Construction Safety (2 s.h.)

This course covers Safety and Health Standards for the Construction Industry (29 CFR Part 1926). Safety in the construction industry is as essential to securing the well being of the company as it is to protecting the welfare of the worker. Changes in the labor market, insurance costs, and OSHA compliance requirements make it imperative that supervisors and workers receive adequate safety training to develop, practice, and maintain safe working conditions at construction work sites. (30-0) *Equivalent to BUIL-700, 91-161.*

CON-110 Construction Drawing (1 s.h.)

Students will learn about the fundamentals of drawing using manual and computer-aided drafting skills. Construction Drawing is designed to give students the skills necessary to produce a set of working drawings. Students will learn to draw plans, sections, elevations, details, and schedules. (15-0) *Equivalent to BUIL-705, 91-173.*

CON-112 Blueprint Reading/Estimating (3 s.h.)

Residential and commercial blueprint reading and materials estimating covers understanding drawings, the language of construction. Students learn how to gather and use information from prints and drawings to estimate quantities of materials and perform construction work processes. (45-0) *Equivalent to BUIL-720, 91-198.*

CON-117 Building Codes and Standards (2 s.h.)

This course covers construction-related building codes and standards. Presentations illustrate which of the various codes and standards affect specific types of construction. Students learn how competent construction workers bear responsibility for knowing, understanding, and complying with codes and standards during all phases of the construction process. (30-0) *Equivalent to BUIL-715, 91-174.*

CON-144 Carpentry I (8 s.h.)

General skills instruction covers safety; hand tools; power tools; print reading; builders level, transit, and laser; scaffolding; rigging; arc welding, cutting, and burning. Residential skills instruction covers site work; building layout; form work; floor and sill framing; wall and ceiling framing; roof framing; stair construction; exterior walls, soffits, and cornice construction; roof coverings; window and door installation; cabinet fabrication; and running trims and hardware installations. (60-210) *Equivalent to BUIL-703.*

CON-145 Carpentry II (8 s.h.)

General skills instruction covers safety; hand tools; power tools; print reading; builders level, transit, and laser; scaffolding; rigging; arc welding, cutting, and burning. Commercial skills instruction

covers site work; building layout; footing, wall, stair, column, beam, and deck form constructions; wood and steel stud framing; exterior walls and canopy constructions; cabinet fabrication; wood and steel jamb, window, door, millwork, and hardware installations; office partition, and acoustical ceiling installations. (60-210) *Equivalent to BUIL-710.*

CON-211 Carpentry Fundamentals I (3 s.h.)

General skills instruction covers safety; basic hand tools; basic power tools; job site safety; print reading; construction materials and systems; construction fasteners and processes; residential construction practices; and commercial construction practices. (15-60) *Equivalent to BUIL-701, 91-151.*

CON-212 Carpentry Fundamentals II (3 s.h.)

General skills instruction covers safety; basic hand tools; basic power tools; job site safety; print reading; construction materials and systems; construction fasteners and processes; residential construction practices; and commercial construction practices. (15-60) *Equivalent to BUIL-702, 91-152.*

CRJ-100 Introduction to Criminal Justice (3 s.h.)

Arrest, search and seizure; review of court systems; procedures from incident to final disposition; principles of constitutional, federal, state, and civil laws as they apply to and affect law enforcement. (45-0) *Equivalent to CRIM-107, 80-291.*

CRJ-105 Intermediate Criminal Investigation (3 s.h.)

Prerequisite: CRJ-141, Criminal Investigation. An overview of essential topics in private or public criminal justice careers. Units of instruction include crime scene forensic techniques, investigation of drug crimes, interview and interrogation skills, report writing, community policing, police ethics and contemporary issues in criminal justice. (45-0)

CRJ-110 Patrol Procedures (3 s.h.)

Examining the responsibilities, techniques, and methods utilized by the uniformed police patrol officer. (45-0) *Equivalent to CRIM-105, 80-192.*

CRJ-130 Criminal Law (3 s.h.)

The philosophy and basis for law; the historical development of criminal law and procedures; the structure, definitions, and criminal laws of Iowa. (45-0) *Equivalent to CRIM-101, 80-190.*

CRJ-141 Criminal Investigation (3 s.h.)

The examination of fundamental investigative techniques, and the application of these techniques to specific investigative situations. (45-0) *Equivalent to CRIM-108, 80-292.*

CRJ-216 Employment Strategies for Criminal Justice (1 s.h.)

Prerequisite: Student must be registered in the Criminal Justice Program. This course prepares students for the steps involved in securing a position in criminal justice fields. It is an introduction to the job search process, including the resume, cover letter, and job interview. It also covers information unique to the criminal justice selection process. (15-0)

CRJ-230 Evidence (3 s.h.)
The kinds and degrees of evidence and the rules governing the admissibility of evidence in court. (45-0) *Equivalent to CRIM-106, 80-290.*

DRA-119 Introduction to Theatre, TV and Film (3 s.h.)
A survey of dramatic theatre, television, and film. (45-0) *Equivalent to DRAM-101, 85-150.*

DRA-145 Oral Interpretation (3 s.h.)
Meets either Communications or Humanities requirement. Analyzing prose, poetry, and drama selections for their logical and emotional content, and learning platform techniques to present this material to an audience. (45-0) *Equivalent to 30-110, LITS-110.*

ECE-103 Introduction to Early Childhood Education (3 s.h.)
This course provides an overview of the philosophy and history of early childhood education and gives an understanding of early childhood programming in developmentally appropriate practice in addition to evaluating the essentials of early childhood education. Topics include childcare settings, the role of the child care professional, and related career fields. This course leads to CDA Certification. (45-0) *Equivalent to 20-125, EDUC-125.*

ECE-131 Home & School Relationships in Early Childhood (3 s.h.)
Home & School Relationships in Early Childhood provides techniques for developing home, school, and community relationships to encourage the learning and well-being of each child. Birth through age 8 is emphasized. This course leads to CDA Certification. (45-0) *Equivalent to EDUC-128.*

ECE-133 Child Health, Safety, and Nutrition (3 s.h.)
This course blends current theory with practical applications on health, safety, and nutrition in group child care settings. Topics include: indoor and outdoor safety principles and assessments, childhood communicable diseases, nutrition analysis, menu planning, health and hygiene practices, care of the ill or injured child, identification of child abuse, and sound mental and physical health education practices. Students must obtain certification in CPR/First Aid by completion of the course. This course leads to CDA Certification. (45-0) *Equivalent to 20-126, EDUC-126.*

ECE-150 Curriculum for Young Children (3 s.h.)
This course provides techniques for creating meaningful curriculum for children from infancy through age eight. Developing appropriate activities in literature, math, science, social studies, art, sensory centers, music, puppetry, and dramatic play will be included. This course leads to CDA Certification. (45-0) *Equivalent to EDUC-130.*

ECE-176 Child Development (3 s.h.)
This course combines academic theory, scientific discoveries and practical applications as it presents the developmental progress of children in three domains—biosocial, cognitive and psychosocial. This course leads to CDA certification. (45-0) *Equivalent to 20-127, EDUC-127.*

ECE-243 Early Childhood Guidance (3 s.h.)
This course provides behavioral principles, guidance techniques, and methods of discipline applicable to young children. Observation techniques for behavior management with both individual children

and in classroom setting will be included. This course leads to CDA Certification. (45-0) *Equivalent to EDUC-129.*

ECN-115 Personal Finance (3 s.h.)
Introduction to financial planning, using financial services and your income wisely, protecting your assets, increasing your income through savings and investments, and planning for retirement. The primary emphasis is on investments. These include, but are not limited to stocks, bonds, real estate, and financial derivatives. (45-0) *Equivalent to ECON-101, 80-135.*

ECN-120 Principles of Macroeconomics (3 s.h.)
An introductory study of how people use scarce resources to satisfy unlimited wants. After an introduction to economics, the emphasis is on the determination of national income, output, employment, and the general price level in the national economy including an examination of the money and banking system. (45-0) *Equivalent to 80-133, ECON-110.*

ECN-130 Principles of Microeconomics (3 s.h.)
Prerequisite: ECN-120, Principles of Macroeconomics. An introductory study of how people use scarce resources to satisfy unlimited wants. The emphasis is on the behavior and decision making by individual consumers, entrepreneurs, workers, and other resource owners in the product and resource markets and the resulting effects on the efficiency with which resources are used. (45-0) *Equivalent to 80-134, ECON-111.*

EDU-216 Introduction to Teaching (3 s.h.)
An introductory course in teacher education that gives students a clear view of the skills and knowledge they will need to be successful professionals. The course covers the place of the school in the community, basic philosophy including foundations and the future, the organization and administration of schools, and the nature of the curriculum. Purposeful classroom observations provide practical experience. (30-30) *Equivalent to 20-101, EDUC-101.*

EDU-235 Children's Literature (3 s.h.)
Prerequisite: ENG-102, Composition and Speech I, or ENG-105, Composition I, and ENG-103, Composition and Speech II, or ENG-106, Composition II, or comparable courses or approval of instructor. EDU-216, Introduction to Teaching, is also a prerequisite. A study of Children's Literature by genre. An emphasis on teaching literature in the classroom will be a major component of the course. Purposeful school visitations will provide practical experience. This course meets some education program requirements. (45-0) *Equivalent to 30-210, EDUC-201.*

EDU-242 Educational Measurement and Evaluation (2 s.h.)
Prerequisite: EDU-216, Introduction to Teaching. This introductory course in educational measurement and evaluation will provide a survey of the following topics: assessment instruments, test preparation, and use of standardized measures. (30-0) *Equivalent to 20-110, EDUC-210.*

EDU-246 Including Exceptional Students (3 s.h.)
Prerequisite: EDU-216, Introduction to Teaching. An introductory discussion of issues and practices regarding the inclusion of diverse student populations in general education settings. Topics include integration, mainstreaming, and inclusion. Emphasis is

placed on addressing the needs of all students, i.e. general education, special education, gifted, at risk, and multicultural. Formal and informal projects explore adaptive strategies for the curriculum, classroom, and social skill development. (45-0) *Equivalent to 20-120, EDUC-220.*

EDU-250 Educational Media and Classroom Computing (3 s.h.)

Prerequisite: None; however, prior education courses are recommended. The production and use of instructional media/computer technology and their relationship to educational strategies. (30-30) *Equivalent to 20-195, EDUC-195.*

EGT-102 Orientation to Engineering (0 s.h.)

Designed to help freshmen better understand engineering and assist them in choosing their area of specialization. Presentations by guest engineers from industry who discuss their areas of the profession. Field trips to a selected engineering department of North Iowa industrial firms. (Class meets one hour per week.) This course has been designated as a pass/no pass course. (15-0) *Equivalent to 25-110, ENGR-100.*

EGT-119 Mechanics of Materials (3 s.h.)

Prerequisite: EGT-129, Statics for Engineering. Plane stress, plane strain, stress-strain relationships, and elements of material behavior. Application of stress and deformation analysis to members subject to centric, torsional, flexural, and combined loadings. Elementary considerations of theories of failure, buckling. (45-0) *Equivalent to 25-251, ENGR-232.*

EGT-129 Statics for Engineering (3 s.h.)

Prerequisite: MAT-210, Calculus I, with a grade of C or higher. Corequisite: MAT-216, Calculus II; and PHY-212, Classical Physics I. Scalar and vector quantities, forces, moments of forces, couples, and force systems; equilibrium, centroids and centers of gravity; analysis of structures; internal forces, shear and bending moments; friction; moments of inertia of areas. (45-0) *Equivalent to 25-231, ENGR-231.*

EGT-181 Engineering Problems/FORTRAN (3 s.h.)

Corequisite: MAT-121, College Algebra; or MAT-128, Precalculus; or MAT-210, Calculus I. Development of skills, standards, and orderly methods of solving engineering problems. SI and English measurement and unit conversion. Estimation and calculation with approximate numbers. Significant figures. Graphing and curve-fitting of technical data. Using logarithmic and trigonometric functions. Introduction to engineering economics and statistics. Solution of engineering problems using the FORTRAN language. (30-30) *Equivalent to 25-111, ENGR-111.*

EGT-192 Engineering Graphics and Design (3 s.h.)

Prerequisite: EGT-181, Engineering Problems with FORTRAN, with a grade of C or higher. The integration of fundamental engineering graphics, computer-aided design (CAD), and engineering design. CAD drawing of orthographic views and isometric pictorials; and basic dimensioning. Techniques for visualizing, analyzing and communicating 3-D geometries. Application through creative design projects with written and oral reports. (15-75) *Equivalent to 25-112, ENGR-112.*

ELT-115 Electronic Concepts (3 s.h.)

Electronic Concepts is an introductory survey of electricity and electronics suitable for students interested in pursuing a career in such technical fields as electronics, automotive, HVAC, and other fields that require knowledge of basic electrical/electronic concepts. Topics include safety, shop and lab practices, motors and controls, direct and alternating current, and semiconductor and digital electronics. Course work consists of problem solving, computer-assisted instruction, computer simulation, and hands-on exercises with industrial grade equipment. (30-30) *Equivalent to 96-132, INDU-701.*

ELT-124 Advanced PLCs and System Integration (3 s.h.)

Corequisite: ELT-170, Introduction to PLC's. Advanced topics in programmable logic controllers using the Allen-Bradley SLC500 and RSLogix 500 programming software including analog I/O and PID control. Application of RSLinx to establish communications and DH485 LAN networking. Controller Area Networking (CAN) using DeviceNET programming and integration using RSNetwork. PanelVIEW programming and integration using the Allen-Bradley PanelView 500 and PanelBuilder32. Projects involving practical field devices and program development. (30-45) *Equivalent to EMST-803, 91-203.*

ELT-133 Electric Motor Drives (2 s.h.)

Prerequisite: ELT-210, Motor Control Circuits. Study of AC general purpose variable speed drives, AC vector (spindle) drives, and AC servo drives. Hands-on exercises provide experience with typical components and interconnections needed to implement various control systems. Concepts of system stability, frequency response, feedback, damping, position and speed control are covered. System troubleshooting. Multiple Entry/Multiple Exit enrollment. (15-31) *Equivalent to 96-157, EMST-815.*

ELT-170 Introduction to PLC's (3 s.h.)

Prerequisite: ELT-210, Motor Control Circuits; ELT-309, Digital Circuits. Introduction to programmable logic controllers (PLC's) using the Allen Brady SLC500 and RSLogix 500 programming software, elementary ladder logic and discrete I/O instructions, counters, timers, program development techniques, and troubleshooting. Advanced topics in programmable logic controllers including program control instructions, math operations, sequencers, and data manipulation. This course is offered on campus as an instructor-supervised/student-paced format and is also offered online. Students enrolled in this course should expect to spend 75-90 hours (5-6 hours/week) to complete the course. If in an on-campus section, that time will be spent in the Electromechanical Systems Technology Lab. (30-45) *Equivalent to EMST-802, 91-202.*

ELT-190 Intro to Tech Computing & CAD (3 s.h.)

Prerequisite/Corequisite: Ability to key-enter the equivalent of 25 words/minute at a computer keyboard. Introduction to Technical Computing and CAD is designed to familiarize the student with microcomputer basics relating to occupations in the industrial/technical area. Topics include computer hardware, operating systems, commands and tasks, disk organization and access, word processing, spreadsheets, and two-dimensional computer-aided drafting (CAD). The student should expect to spend 5-6 hours per week in the Electromechanical Systems Technology lab to accomplish the required modular learning labs. (15-60) *Equivalent to EMST-701, 91-104.*

ELT-210 Motor Control Circuits (3 s.h.)
Prerequisite: ELT-382, Electronic Circuit Analysis. Introduction to industrial electrical motor and control circuitry. Emphasis placed on AC single- and three-phase circuit and transformer theory and industrial applications. Applications include various types of control elements. Study of the National Electrical Code as it pertains to manufacturing/industrial environment. Fundamental skills in electrical wiring and raceway techniques are learned through lab and/or project exercises. This course is offered in an instructor-supervised/student-paced format. Students enrolled in this course should expect to spend 75-90 hours (5-6 hours/week) in the Electromechanical Systems Technology Lab to complete the course. (15-69) *Equivalent to EMST-710, 91-105.*

ELT-309 Digital Circuits (3 s.h.)
Prerequisite/Corequisite: ELT-382, Electronic Circuit Analysis. Study of number systems related to digital circuits, Boolean Algebra/Karnaugh Maps. Combinational logic including AND, OR, NAND, NOR, NOT, and XOR. Combinational circuits decoders. Basic sequential elements including SR, D, JK, and Master-Slave flipflops. Sequential circuits including registers and counters. Memory circuits and applications. Analog to digital (A/D) and digital to analog (D/A) conversion, and elementary interfacing. Design, analysis, and computer simulation. This course is offered in an instructor-supervised/student-paced format. Students enrolled in this course should expect to spend 75-90 hours (5-6 hours/week) in the Electromechanical Systems Technology Lab to complete the course. (15-63) *Equivalent to EMST-712, 91-214.*

ELT-382 Electronic Circuit Analysis (3 s.h.)
Prerequisite/Corequisite: MAT-770, Applied Math, and MAT-771, Applied Math II. Study of the nature of electricity involving both direct and alternating current. DC circuit analysis utilizing more advanced techniques such as: superposition, Thevenin's and Norton's theorems. AC circuit analysis involving RL, RC, and RLC circuits, inductive and capacitive reactances, resonance, and transformer fundamentals. Computer circuit simulation of both DC and AC circuits is stressed along with an application of electronic test equipment; oscilloscopes, meters, and power supplies. This course is offered in an instructor-supervised/student-paced format. Students enrolled in this course should expect to spend 75-90 hours (5-6 hours/week) in the Electromechanical Systems Technology Lab to complete the course. (15-60) *Equivalent to EMST-702, 91-175.*

ELT-550 Analog Devices (4 s.h.)
Prerequisite: ELT-382, Electronic Circuit Analysis. Study of diodes, bipolar transistors and field effect transistors (JFETs and MOSFETs) as they are used in both AC and DC electronic circuits. Applications such as power supplies, switching circuits and amplifier circuits are covered. Advanced topics in electronic devices including operational amplifiers (op amps), active filters, thyristors, and voltage regulation are covered. Practical circuit analysis of the devices under study is covered. Computer simulation of the devices under study is covered. Both circuit analysis and measurement techniques using meters and oscilloscopes are stressed. This course is offered in an instructor-supervised/student-paced format. Students enrolled in this course should expect to spend 100-120 hours (7-8 hours/week) in the Electromechanical Systems Technology Lab to complete the course. (15-91) *Equivalent to EMST-711, 91-179.*

ELT-710 Computer Automated Manufacturing (3 s.h.)
Prerequisite/Corequisite: ELT-790, Fluid Power and ELT-124, Advanced PLCs and System Integration. Capstone projects in Electromechanical Systems Technology: project identification, planning, and implementation, as well as, group dynamics, project structure, and troubleshooting techniques. Projects may include, but are not limited to automation, control, manufacturing, or educational hardware for program use. The integration of robots, instrumentation, computers, and programmable logic controllers, human/machine interface, communications, and other industrial systems. (15-65) *Equivalent to EMST-816, 91-206.*

ELT-734 Industrial Instrumentation (4 s.h.)
Prerequisite/Corequisite: ELT-170, Introduction to PLC's; ELT-309, Digital Circuits. The student studies modern instrumentation techniques as they apply to the manufacturing environment and uses industrial sensors, transducers, and related components. Instrumentation labs use a variety of control techniques and may include RSLogix500, DeviceNet, and Panel Builder. The labs are self-paced but students should expect to spend 5-6 hours/week in the lab. Lectures are scheduled at a specific time every week. (15-90) *Equivalent to EMST-817, 91-207.*

ELT-745 Maintenance Shop Operations (3 s.h.)
The student is introduced to shop equipment generally found in the industrial maintenance environment. The student uses safe setup and produces parts with metal saws, drills, grinders, basic welding and cutting, thread repair, anchors and fasteners. The student use of mechanical prints to identify parts in assembly and repair situations is practiced, along with the use of catalogs to find and order repair parts, study of bearings and seals, applications, and failure analysis. (15-61) *Equivalent to 96-156, EMST-805.*

ELT-750 Facilities Maintenance (3 s.h.)
Prerequisite: ELT-210, Motor Control Circuits. The student studies topics specific to maintenance of facilities. Topics include project estimating issues including installation, cost, and time. The student reads building schematics and blueprints, studies the fundamentals of HVAC with lab exercises, and researches construction issues including sprinkler, electrical, and plumbing systems. Field trips provide a general compare and contrast of industry facility maintenance systems. (45-0) *Equivalent to 96-155, EMST-820.*

ELT-790 Fluid Power (3 s.h.)
Prerequisite/Corequisite: MAT-770, Applied Math, and MAT-771, Applied Math II. Students gain knowledge and hands-on experience with hydraulic and pneumatic components and circuits; the transmission of force through fluids; conversion of force to pressure; the control of power and systematic methods of troubleshooting and testing hydraulic and pneumatic systems. This is an instructor-supervised/student-paced format. The student should expect to spend 5-6 hours per week in the Electromechanical Systems Technology Lab to complete the course. (15-65) *Equivalent to EMST-703, 92-118.*

ELT-895 Electromechanical Internship (2 s.h.)
Prerequisite: sophomore status in the Electromechanical Systems Technology Program and permission of internship coordinator. Supervised work experience in a business or industry, which normally is four weeks in duration. Work must be related to the major

field of study; i.e., electricity/electronics, industrial maintenance, installation or service of control systems, etc. (0-160) Instructor's consent required. *Equivalent to EMST-801, 91-110.*

EMS-110 EMS First Responder (2 s.h.)

Prerequisite: At least 17 years of age at the time of enrollment. Proficient in writing, reading, and speaking English. Hold or eligible to obtain a driver's license. Physically and emotionally capable of performing basic emergency care skills. Current certification at the Basic Cardiac Life Support Health Care Provider Module with the American Heart Association or permission obtained by the instructor. A 45-hour emergency care course which emphasizes life-threatening emergencies, wounds, fractures, medical and environmental emergencies, and other emergency situations as outlined by the U.S. DOT. (20-26) *Equivalent to EMSS-100, 89-170.*

EMS-220 EMT Basic I (4 s.h.)

Prerequisite/Corequisite: Be at least 17 years of age at the time of enrollment. Be proficient in writing, reading, and speaking English. Hold or be eligible to obtain a current driver's license. Be physically and emotionally capable of performing basic emergency care skills. Current certification at the Basic Cardiac Life Support Health Care Providers Course with the American Heart Association. Physical examination required prior to beginning hospital clinicals with immunizations and hepatitis B vaccine or waiver. This class provides the student with the necessary knowledge and skill to perform basic emergency care and transport. It includes an introduction/preparation module, airway management module, patient assessment module, medical/behavioral emergencies module, and obstetrical/gynecological emergencies module. Six hours of clinical in the hospital is also included. (47-24-6) *Equivalent to 89-195, EMSS-101.*

EMS-224 EMT Basic II (2 s.h.)

Prerequisite/Corequisite: Be at least 17 years of age at the time of enrollment. Be proficient in writing, reading, and speaking English. Hold or be eligible to obtain a current driver's license. Be physically and emotionally capable of performing basic emergency care skills. Current certification at the Basic Cardiac Life Support Health Care Providers Course with the American Heart Association. Physical examination required prior to beginning hospital clinicals with immunizations and hepatitis B vaccine or waiver. Must have completed EMT Basic I (EMS-220). This class is a continuation of EMT Basic I. It includes a trauma module, infants and children module, and operations module. Twelve hours of clinical in the hospital is also included. (20-14-12) *Equivalent to 89-196, EMSS-102.*

EMS-311 EMT Intermediate 85 (4 s.h.)

Prerequisite: EMT-B State of Iowa Certification. This class provides the student with advanced skills to provide emergency care and transport. It includes roles and responsibilities, legal aspects, EMS system and communications, patient assessment, advanced airway management, shock management, including intravenous therapy and defibrillation. It also includes 45 hours of clinical/field experience. (30-30-45) *Equivalent to 89-175, EMSS-110.*

EMS-411 EMT-P: Part I (6 s.h.)

Prerequisite: EMS-220, EMT Basic I, EMS-224, EMT Basic II, State of Iowa Certification. This course provides the student with advanced prehospital training. It includes roles and responsi-

bilities, overview of human systems, emergency pharmacology, airway management, patient assessment, and trauma management (including PHTLS). (60-60) *Equivalent to EMSS-120, 89-171.*

EMS-412 EMT-P: Part II (7 s.h.)

Prerequisite: EMS-411, EMT-P: Part I. This course is a continuation of EMS-411, EMT-P: Part I. It includes respiratory, cardiac, diabetic, neurological, toxicological, abdominal, gynecological, behavioral, pediatric, geriatric and obstetrical emergencies. (71-69) *Equivalent to EMSS-121, 89-172.*

EMS-413 EMT-P: Part III (3 s.h.)

Prerequisite: EMS-411, EMT-P: Part I, and EMS-412, EMT-P: Part II. This course includes 68 hours of hospital clinical experience and 67 hours of field experience. (0-0-90-45) *Equivalent to EMSS-122, 89-173.*

EMS-414 EMT-P: PART IV (3 s.h.)

Prerequisite: EMS-411, EMT-P: Part I; EMS-412, EMT-P: Part II; EMS-413, EMT-P: Part III. This course includes 67 hours of hospital clinical experience and 68 hours of field experience. (0-0-45-90) *Equivalent to EMSS-123, 89-174.*

ENG-015 Elements of Writing (4 s.h.)

A developmental writing course designed for students referred by orientation assessment or by instructors. Emphasis is on writing; students will learn strategies for recognizing and compensating for individual writing problems. Students complete the course by meeting the minimum entrance requirements for Composition & Speech I. Credit earned will not satisfy the requirements for an Associate Degree and will not be used in calculating the cumulative grade point average for graduation. This course has been designated as a pass/no pass course. (60-0) *Equivalent to ENGL-094, 30-090.*

ENG-046 Communications/Reading & Writing Enrich (4 s.h.)

Prerequisite: Consent of instructor. This Enrich course will focus on strategies that enable adult students to understand and apply reading skills to printed material, and to express ideas clearly and correctly in writing. Applications will be in daily life, at work, and in leisure activities. This course has been designated as a pass/no pass course. (60-0) *Equivalent to 30-048, ENRI-045.*

ENG-047 Communications/Reading & Writing Enrich II (4 s.h.)

Prerequisite: Consent of instructor. This Enrich course will focus on strategies that enable adult students to understand and apply reading skills to printed material and to express ideas clearly and correctly in writing. Applications will be in daily life, and in leisure activities. Emphasis will be on decoding, vocabulary building, and writing. This course is designed to follow Communication Through Reading and Writing Enrichment, ENG-046 but may be taken without that prerequisite. This course has been designated as a pass/no pass course. (60-0) *Equivalent to 30-049, ENRI-046.*

ENG-102 Composition and Speech I (4 s.h.)

Improvement of skills in reading, writing, speaking, and listening, with an emphasis on expository methods of development and personal experience as supporting material. Students will use word processors and the Writer's Workbench analyses programs, the Writer's Workbench STEPS programs, and the structuring sentences video series. Students must meet minimum competency requirements

in writing and speaking to receive a grade of C or higher. (60-0) *Equivalent to ENGL-101, ENGL-104, 30-101, ENG-105.*

ENG-103 Composition and Speech II (4 s.h.)

Prerequisite: ENG-102, Composition & Speech I. Students must have earned a C or higher grade in Composition & Speech I before enrolling in Composition & Speech II. A continuation of ENG-102, Composition & Speech I, with an emphasis on argumentative and persuasive writing and speaking, on research methods, and on language. Students will use word processors, Writer's Workbench analyses, Writer's Workbench STEPS, and sentence structuring videos. Students must meet minimum competency requirements in writing and speaking to receive a grade of C or higher. (60-0) *Equivalent to ENGL-102, 30-102, ENG-106, ENGL-105.*

ENG-105 Composition I (3 s.h.)

Improvement of skills in reading, writing, and listening with an emphasis on expository methods of development and personal experience as supporting material. Students may be requested to use word processors and the Writer's Workbench analyses programs, the Writer's Workbench STEPS programs, and the structuring sentences video series. Students must meet minimum competency requirements in writing to receive a grade of C or higher. (45-0) *Equivalent to ENGL-104, ENGL-101, 30-101, ENG-102.*

ENG-106 Composition II (3 s.h.)

Prerequisite: ENG-105, Composition I, or ENG-102, Composition and Speech I. Students must have earned a C or higher grade in Composition I or Composition and Speech I before enrolling in Composition II. A continuation of ENG-105 Composition I, with an emphasis on argumentative and persuasive writing, on research methods, and on language. Students may be requested to use word processors, Writer's Workbench analyses, Writer's Workbench STEPS, and sentence structuring videos. Students must meet minimum competency requirements in writing to receive a grade of C or higher. (45-0) *Equivalent to ENGL-102, ENGL-105, 30-102, ENG-103.*

ENG-221 Creative Writing (3 s.h.)

Prerequisite: ENG-102, Composition and Speech I, or ENG-105, Composition I, or comparable course or approval of instructor. A practical workshop in writing and rewriting manuscripts in preparation for submitting for publication. Emphasis on nonfiction articles and short stories but also covers poetry, plays, and screenplays. (45-0) *Equivalent to 30-205, ENGL-205.*

ENG-701 Communications I (3 s.h.)

Study designed to assist students in improving and/or refining skills in the areas of reading, writing, listening, and speaking to help meet communication needs in college and for success and advancement in a career. (45-0) *Equivalent to 95-130, ENGL-701.*

ENG-702 Communications II (3 s.h.)

Prerequisite: ENG-701, Communications I or equivalent. Further study designed to assist students in improving and/or refining skills in the areas of reading, writing, listening, and speaking to help meet communication needs in college and for success and advancement in a career. (45-0) *Equivalent to 95-131, ENGL-702.*

ENV-110 Environmental Science (3 s.h.)

The study of ecological principles and the interrelationships among populations, resources, and pollution in developing a sustainable society. Lecture and laboratory-based topics include: population, ecology, soil, water, land, air, and energy resources, plus air, water, soil, and waste management. Environmental decision-making strategies to resolve current and future environmental issues are stressed. (30-30) *Equivalent to ENVR-101, 70-104.*

FIN-101 Principles of Banking (3 s.h.)

Fundamental bank functions presented in a descriptive fashion so that the beginning banker may view the chosen profession in broad (and operational) perspective. (45-0) *Equivalent to 15-170, BUSN-140.*

FIN-210 Analysis and Valuation of Stocks (1 s.h.)

The Analysis and Valuation of Stocks is a comprehensive course designed to provide you with conventional and advanced techniques in researching and valuing stocks. Starting off with the basics, you will learn how to read financial statements and calculate financial ratios, and then move on to perform industrial comparisons, value stocks, and conduct economic and industrial research. This course is taught in a manner that uses everyday language, simple, yet insightful analogies, and a just-the-facts attitude that you will understand and appreciate. By the end of this course, you will have a strong foundation in the analysis and valuation of stocks. (5-20) *Equivalent to 15-272, BUSN-250.*

FIN-214 Stocks, Bonds, and Investing: Oh My! (1 s.h.)

Stocks, Bonds, and Investing: Oh My! emphasizes preemptive planning for a financial account by comprehending financial markets through identifying how financial markets operate. This course has been designated as a pass/no pass course. (5-20) *Equivalent to 15-247, BUSN-255.*

FIR-155 Fire Protection Technology (4 s.h.)

This course will familiarize the student with the different types of building construction as they relate to fire protection. Also covered will be: private fire protection systems, municipal water systems, state and local codes. (65-15) *Equivalent to 70-115, FIRE-102.*

FIR-184 Hazardous Material Technician (3 s.h.)

This course will be oriented toward preparing emergency response team members to perform advanced control, containment, and/or confinement operations; understand hazard and risk assessment techniques; know how to identify materials using field response plan; understand the various roles within the incident command system; properly identify, select, and use specialized chemical protective clothing; and perform decontamination activities on personnel equipment. (30-30) *Equivalent to 70-116, FIRE-103.*

FIR-210 Incident Command System (1 s.h.)

This course is designed to meet the needs of fire officers and managers with responsibilities to use, deploy, implement, and/or function within an incident command system. This program addresses the need for incident management systems, an overview of the structure and expandable nature of ICS, and understanding of the command skills needed by department officers to effectively use ICS guidelines, and scenario practice. (15-0) *Equivalent to 70-117, FIRE-104.*

FIR-231 Fire Behavior/Investigation (4 s.h.)
This course is designed to assist in training firefighters and fire officers to properly determine the origin and cause of fire. (45-35) *Equivalent to 70-113, FIRE-101.*

FIR-281 Fire Instructor I (2 s.h.)
This course develops the participants' attitudes, knowledge, skills, and abilities to effectively implement and manage tactical operations. Develop a basic understanding of fire fighting strategies and tactics. (24-24) *Equivalent to 70-119, FIRE-105.*

FLS-141 Elementary Spanish I (4 s.h.)
Designed for students with little or no previous study of Spanish. Focus is on acquainting the student with fundamentals, including pronunciation, basic grammar needed to express activities in the present and near future. Basic vocabulary will be learned to enhance speaking, listening, writing, and reading skills. Increase global awareness by video shorts and short readings. (45-30) *Equivalent to 35-110, SPAN-101.*

FLS-142 Elementary Spanish II (4 s.h.)
Prerequisite: FLS-141, Elementary Spanish I or minimum of one year of high school Spanish. Designed as a continuation of Elementary Spanish I. Focus is on reinforcing students' knowledge in fundamentals, including pronunciation, basic grammar needed to express activities in the present and near future. Basic vocabulary will be learned to enhance speaking, listening, writing, and reading skills. New grammar includes being able to communicate in the past tenses, and giving commands for common verbs. Students are expected to use as much Spanish as possible with classmates and the instructor. (45-30) *Equivalent to 35-111, SPAN-102.*

FLS-241 Intermediate Spanish I (4 s.h.)
Prerequisite: FLS-142, Elementary Spanish II or minimum of two years of high school Spanish. Designed as a comprehensive grammar review, composition, and speaking course. Builds on aural-oral skills, increased vocabulary, and reading short pedagogical (using vocabulary and grammar students are familiar with) stories and authentic language literature. (45-30) *Equivalent to 35-211, SPAN-201.*

FLS-242 Intermediate Spanish II (4 s.h.)
Prerequisite: FLS-241, Intermediate Spanish I or minimum of three years of high school Spanish with instructor approval. Designed as a comprehensive grammar review, composition, and speaking course. Builds on aural-oral skills, increased vocabulary, and reading short pedagogical stories and authentic language literature. (45-30) *Equivalent to 35-212, SPAN-202.*

FLS-261 Advanced Spanish I (3 s.h.)
Prerequisite: FLS-242, Intermediate Spanish II; or four years of high school Spanish with instructor approval. Students will become more comfortable speaking by Q & A, impromptu speaking. Reading skills will be enhanced by reading original short stories and cultural and historical selections from the text. Use of visual aids, video shorts, speaking, and reading will increase vocabulary competency. Grammar study and activities will increase language accuracy and expression. Use of exams will be limited; students will be graded on in-class discussion and homework completion.

Students will at times use the Internet to find and interpret articles from Hispanic newspapers. A final oral (optional) and written evaluation will determine the student's progress in the above-mentioned areas. (30-30) *Equivalent to 35-260, SPAN-260.*

FLS-262 Advanced Spanish II (3 s.h.)
Prerequisite: FLS-261, Advanced Spanish I, or four satisfactory years of high school Spanish with instructor approval. Students are expected to maximize their use of Spanish in the classroom. Guided dialogs as well as extemporaneous speaking will increase fluency. Original texts from various Hispanic countries will be used to gain cultural understanding, vocabulary, and provide topics for classroom discussion. By end of semester, students should be able to express themselves in speech and writing using all verb tenses. Short creative writings will be done. Articles from Hispanic countries will be used to expose students to a wide range of events and cultural differences. The use of contemporary music and videos will enhance student listening comprehension. Limited use of tests will be used along with in-class participation and out-of-class work to evaluate student progress. This semester's reading will include one drama, "En la ardiente oscuridad." Mexican movies, such as "el Mariachi" and "El Profe (Cantinflas)", will be viewed for which students will write a summary. Projects may include transcription of a song or video segment, or researching a topic of a current event in a Hispanic country. Every student should demonstrate improvement in all four skills --reading, writing, listening, and speaking. (30-30) *Equivalent to 35-261, SPAN-261.*

GEO-124 Regional Geography of the Nonwestern World (3 s.h.)
A regional study of the physical and cultural spatial patterns of Middle America, South America, North Africa/Southwest Asia, South Asia, East Asia, Southeast Asia and the Pacific World. (45-0) *Equivalent to GEOG-103, 80-152.*

GEO-125 Regional Geography of the Developed World (3 s.h.)
A regional study of the physical and cultural spatial patterns of Europe, Australia, Russia, and Anglo-American. (45-0) *Equivalent to GEOG-102, 80-151.*

GEO-131 Physical Geography (3 s.h.)
An introductory systems course in geography that acquaints the student with spatial relationships that exist in the physical environment. Topics include: geographic tools, weather and climate, land forms, soils, water resources, plants, and animals. Lab experience included. (45-0) *Equivalent to GEOG-101, 80-150.*

GRA-108 Visual Communication (3 s.h.)
Prerequisite: CIS-210, Web Development I, or BCA-185, Beginning Web Page Development, or permission of the instructor. Visual Communication is an introduction to visual problem solving and communication through print and the World Wide Web. This course will cover basic technical terminology, an overview of software and equipment for graphic design and an introduction into digital imagery. The goal is to expand student competency in basic visual and technical skills, developing and understanding of how perception relates to communication and expose students to current issues related to design. (45-0) *Equivalent to 15-201, ECOM-115.*

GRA-117 Principles of Illustration (3 s.h.)

Prerequisite: ART-120, Two-Dimensional Design, ART-133, Drawing, and ART-143, Painting I. This course will emphasize the research and conceptual development skills needed to complete successful illustrations for publications in print or on the web. It will explore the various techniques used by contemporary illustrators, including traditional methods such as drawing and painting as well as digital processes. This course will require students to have good drawing skills and basic skills in painting. Skills in digital illustration programs such as Adobe Illustrator and Photoshop will be developed. (45-0)

GRA-151 Web Design (3 s.h.)

Prerequisite: GRA-108, Visual Communication or permission of the instructor. This course is an expansion of graphic design concepts merging traditional page design, typography, and digital imagery into the concepts and practices of web design. This studio course will cover the preparation of digital images, compositional dynamics, and sequencing of images into a complete working web design. Students will work with current graphic and digital imaging software and web authoring software. (45-0) *Equivalent to 15-202, ECOM-201.*

GRA-166 Web Animation (3 s.h.)

Prerequisite: GRA-108, Visual Communication, or permission of instructor. Animation can be an important part of information transfer from a Web site to the viewer. Topics will include when animation is an appropriate tool to use, when animation should be avoided, what tools are the current standard for Web animation, and how animation can be used to present information. The class will be project-based, with the student solving animation-related problems based on real business situations. Students will be expected to animate their solutions using current software. Animations will be judged on their completeness, correctness, and professionalism. (45-0) *Equivalent to 15-206, ECOM-205.*

GRA-173 Typography (3 s.h.)

Prerequisite: ART-115, Graphic Design, or permission of instructor. Because type takes the place of the spoken word in many forms of visual communication, it is critical that it be understood. This course introduces the student to the history and principles of good typographic design and how these principles can be used effectively in all forms of communication that depend on the printed word, including web design, publication design and advertising design. (45-0)

GRA-194 Design Studio Applications (3 s.h.)

Prerequisite: ART-116, Graphic Design II, GRA-117, Principles of Illustration, and ART-131, Digital Publication Design, or permission of instructor. Building upon the knowledge gained throughout the Graphics Communications program, this capstone course takes students into the field to address real graphical problems for non-profits in the community. Students will meet with representatives of the organization to determine need, address the need in a professional manner that solves the client problem, and complete the process through printed or electronic media. (45-0)

GRA-299 Electronic Portfolio (3 s.h.)

Prerequisite: CIS-210, Web Development I, or BCA-185, Beginning Web Page Development, or permission of instructor. Electronic Portfolio will help prepare the student for the next step, whether that

is moving into the work force or presenting to the teachers at a four-year institution. Skills taught in this class will include final touches to the electronic portfolio, career-advancement skills, resume writing, and interviewing. Student will be expected to present themselves as professionals in various ways, including speaking to members of the business community and various members of the NIACC staff. The course culminates in a formal presentation of the electronic portfolio to staff and business people. (30-30) *Equivalent to 15-220, ISTS-250.*

HCM-103 ServSafe Food Safety (1 s.h.)

ServSafe is nationally recognized and accepted by more federal, state, and local jurisdictions than any other food safety training program. The course includes latest science-based information and industry best practices. It incorporates new manager job task analysis--tasks that industry, academic and regulatory experts deem essential to the role of food service professionals who are responsible for ensuring an operation is serving safe food. It equips future managers with food safety knowledge they can share with their employees. (15-0) *Equivalent to FOOD-703, 90-248.*

HCM-135 Food Production (4 s.h.)

Professional cooking is a course designed to provide a foundation for students in developing their cooking competence. This course will show students what they need to know and how to cook in order to manage restaurant and food service operations. Units covered include cooking meats and game, poultry, fish, seafood, vegetables, and salads. (45-30)

HCM-205 Dinner and Front of the House (3 s.h.)

Prerequisite: HCM-135, Food Production. This is a capstone, project-driven course where all of the students will complete the entire planning process and execution of a formal dinner event. (15-60) *Equivalent to FOOD-802, 90:257.*

HCM-232 Culinary Nutrition (2 s.h.)

Provides up-to-date information on nutrition and diet. This course covers topics about biotechnology, vitamins, minerals, and organic foods. The course presents a broad range of facts on the nutritional value of foods, as well as coverage on the nutritional value of foods from other parts of the world. (30-0) *Equivalent to FOOD-704, 90-249.*

HCM-236 Culinary Arts and Book of Yields (2 s.h.)

This course will provide students with an introduction to chefs' technical references to inventory and portion control. (30-0)

HCM-239 Customer Service (2 s.h.)

The course will introduce students to all aspects of customer service in the hospitality industry. In addition, the course will assist each student in developing a proper customer service attitude, while taking them through activities to meet the high standards of customer service. (30-0)

HCM-283 Controlling Food Service Costs (2 s.h.)

Provide students with a wide-ranging knowledge and specific solutions they need to keep costs low and margins high. Provide instruction in food and beverage sanitation, production, and service methods. (30-0)

HCM-325 Human Resources Management & Supervision (2 s.h.)

This course provides skills-based information in a clear and logical way, covering all of the essential topics and responses to the changing needs of the hospitality supervision industry today. (30-0) *Equivalent to 90-246, FOOD-701.*

HCM-607 Hospitality & Restaurant Management (2 s.h.)

Hospitality marketing is the performance of business activities that direct the flow of goods and services from product to consumer. The marketing role in a hotel or restaurant is concerned about understanding customer needs, creating a product-service mix that satisfies these needs. (30-0) *Equivalent to 90-251, FOOD-706.*

HCR-115 Residential Heating Systems (4 s.h.)

Corequisite: ELT-115, Electronic Concepts, or instructor's permission. The purpose of this course is to introduce the student to the various types of residential heating systems. Areas and concepts covered include combustion theory, basic air distribution, furnace construction, filters, humidifiers, installation techniques, and maintenance procedures. (30-105) *Equivalent to 96-128, HVAC-701.*

HCR-150 Commercial Heating Systems (5 s.h.)

Prerequisite: HCR-115, Residential Heating Systems, or instructor's permission. This course covers large heating systems used in commercial, institutional, and industrial applications. Types of equipment include hot water and low-pressure steam boilers and rooftop heating units. (30-135) *Equivalent to 96-230, HVAC-803.*

HCR-155 Troubleshooting Heating Systems (3 s.h.)

Prerequisite: ELT-115, Electronic Concepts, or instructor's permission. The purpose of this course is to introduce the student to the fundamentals of troubleshooting by utilizing a practical and systematic approach to locate and repair heating system malfunctions. The student will also have the opportunity to study, in detail, the motors and controls used in today's heating systems. Topics to be covered include basic electric circuits, electrical test meters, motors and controls, diagnosis of electrical and mechanical malfunctions, and special emphasis on writing diagrams. (15-90) *Equivalent to 96-129, HVAC-702.*

HCR-205 Air-Conditioning Principles (2 s.h.)

A study of the theory of air-conditioning. Includes psychometrics, heat gain/loss problems, and equipment sizing. (15-45) *Equivalent to 96-134, HVAC-710.*

HCR-210 Residential Air-Conditioning Systems (4 s.h.)

Prerequisite: ELT-115, Electronic Concepts, or instructor's permission. The purpose of this course is to introduce the student to the various types of residential air-conditioning and heat pump systems. Areas and concepts covered include refrigeration, air-conditioning, heat pump theory, heat pump construction, installation techniques, and maintenance procedures. (30-105) *Equivalent to 96-138, HVAC-711.*

HCR-235 Commercial Air-Conditioning Systems (5 s.h.)

Prerequisite: HCR-210, Residential Air-Conditioning Systems, or instructor's permission. This course covers large cooling systems

used in commercial, institutional, and industrial applications. Types of equipment include water chillers, multistage reciprocating units, and an introduction to absorption systems. (30-135) *Equivalent to 96-234, HVAC-812.*

HCR-240 Troubleshooting Air Conditioning Systems (3 s.h.)

Prerequisite: ELT-115, Electronic Concepts, or instructor's permission. The purpose of this course is to introduce the student to the fundamentals of troubleshooting by utilizing a practical and systematic approach to locate and repair air-conditioning and heat pump system malfunctions. The student will also have the opportunity to study, in detail, the motors and controls used in today's air-conditioning and heat pump systems. Topics to be covered include basic electric circuits, electrical test meters, motors and controls, diagnosis of electrical and mechanical malfunctions, and special emphasis on wiring diagrams. (15-90) *Equivalent to 96-139, HVAC-712.*

HCR-510 Sheet Metal Fabrication (2 s.h.)

Corequisite: HCR-705, Technical Graphics, and HCR-150, Commercial Heating Systems. The student performs basic sheet metal fabrication, gas piping, plastic piping, copper piping and venting pertaining to climate control devices. Working safely and neatly performing field tasks in a laboratory atmosphere enhances the student "job readiness." (15-45) *Equivalent to 96-140, HVAC-802.*

HCR-705 Technical Graphics (2 s.h.)

Corequisite: HCR-510, Sheet Metal Fabrication, and HCR-150, Commercial Heating Systems. A development of blueprint skills students will need to interpret and sketch various drawings including, construction, mechanical, pneumatic, electrical, plumbing, and duct patterns. He/she will use simple sketching aids and appropriate templates to aid them in their development of drawings. The end result of these efforts will be the understanding of graphic drawings as a means of communicating information in their field of work. (30-0) *Equivalent to HVAC-801, 91-124.*

HCR-806 Controls I (3 s.h.)

Major emphasis is on four basic types of control systems: pneumatic, electronic, electro mechanical, and digital as applied to residential and commercial heating and air-conditioning practices. (30-60)

HCR-807 Controls II (3 s.h.)

Prerequisite: ELT-115, Electronic Concepts. This course presents a more advanced study of electrical controls and their applications and an introduction to electronics and the controls used in HVAC systems. (30-60)

HCR-923 Systems Design (3 s.h.)

This course utilizes the knowledge base students have gained throughout the program to create a heating and cooling systems at either the residential or commercial level. (15-60)

HIS-112 Western Civilization: Ancient-Early Modern (4 s.h.)

A study of the major social, political, economic, cultural, and philosophical movements in the Western World from the beginning of civilization to 1648. (60-0) *Equivalent to HIST-201, 80-201.*

HIS-113 Western Civilization: Early Modern to Present (4 s.h.)
A study of the major social, political, economic, and philosophical movements in the Western World from 1648 to the present. (60-0) *Equivalent to HIST-202, 80-202.*

HIS-151 U.S. History to 1877 (3 s.h.)
A survey course covering the social, political, and economic history of American civilization from the Age of Discovery through Reconstruction. (45-0) *Equivalent to HIST-101, 80-140.*

HIS-152 U.S. History Since 1877 (3 s.h.)
A survey course covering the social, political, and economic history of the United States since 1877. (45-0) *Equivalent to HIST-102, 80-141.*

HIS-254 American Indian History (3 s.h.)
American Indian History is an ethnographic and historical survey of the social, cultural, and political systems developed by Native Americans north of Mexico, and the developing relationship of these systems with those of the European-Americans. Native religion and world view, agricultural and hunting practices, material culture, trade, diplomacy and political structures are examined, as are the mutual impact on both societies resulting from contact with and interaction between native North Americans and Europeans and their descendants. (45-0) *Equivalent to HIST-110, 80-144.*

HIS-257 African American History (3 s.h.)
The course chronicles the experience of African Americans in the history of the United States. Topics include African heritage, the slave trade, slavery in the Antebellum South, the Civil War and emancipation, the Jim Crow era, the birth of racial advancement organizations, the development of twentieth-century urbanization and nationalism, and the struggle for civil rights, political power and cultural expression from mid century to the present. (45-0) *Equivalent to HIST-111.*

HIT-210 Basic Medical Insurance & Coding (2 s.h.)
Prerequisites: HSC-120, Medical Terminology I and HSC-150, Body Structure and Function OR equivalent work experience OR permission from instructor. This course will provide the students with an overview of medical health insurance claims submission guidelines and basic coding procedures. In addition, the student will work through a number of relevant case studies. (30-0) *Equivalent to 15-250, OFFC-851.*

HIT-246 Coding I (ICD-9) (3 s.h.)
Corerequisite: HSC-120, Medical Terminology I, and HSC-150, Body Structure and Function. Prerequisite: None. However, HIT-210, Basic Medical Insurance & Coding, or experience in medical coding is highly desirable. A study of the International Classification of Disease (ICD-9-CM) codes, using sample exercises and health records to develop skill and accuracy in coding guidelines required at health care settings. (45-0)

HIT-247 Coding II (CPT) (3 s.h.)
Prerequisite: HSC-120, Medical Terminology I; HSC-150, Body Structure and Function; HIT-246, Coding I, or experience in Medical Coding. This course is a continuation of the study of ICD-9-CM

(Coding I) emphasizing its use for prospective payment. Course work focuses on acquiring advanced skills in coding disease and procedures and abstracting medical data. The study of CPT/HCPCS will be emphasized including advanced concepts of coding and payment methodologies. (45-0)

HIT-630 Medical Transcription I (3 s.h.)
This course is designed to simulate medical transcription practices used in a healthcare environment. The main objective is to provide the student with knowledge of the content and formats of medical documents and reports typically dictated in physicians' offices, hospital clinics, and hospital ancillary and support facilities. (15-60) *Equivalent to 15-249, OFFC-852.*

HIT-631 Medical Transcription II (3 s.h.)
Prerequisite: HIT-630, Medical Transcription I. This course is designed to introduce students to hospital dictation. The students will progress through various levels of dictation including some advanced documents. (15-60) *Equivalent to 15-256, OFFC-853.*

HIT-632 Medical Transcription III (3 s.h.)
Prerequisites: HIT-630, Medical Transcription I. This course is designed to introduce students to live medical dictation from the clinical and radiology settings. The students will also be applying the issues of confidentiality and using medical reference books. (15-60) *Equivalent to 15-265, OFFC-854.*

HSC-108 Introduction to Health Professions (2 s.h.)
This course provides a brief historical view of health care in addition to an overview of today's health care delivery system and related health care issues. Ethical/legal issues and desirable professional skills and behaviors associated with health care workers are also addressed in this course. Direct observation and research of specific health careers in health care agencies is also a requirement. Specific immunizations and health history information may be required for the observational experience and should be discussed with your counselor prior to the course. This course has been designated as a pass/no pass course. (30-0) *Equivalent to HEAL-100, 89-159.*

HSC-120 Medical Terminology I (3 s.h.)
Introduction of basic medical terminology utilizing a programmed, word-building system to learn word parts to construct and analyze new terms. Emphasis is placed on spelling, definition, usage, and pronunciation. (45-0) *Equivalent to 15-251, HEAL-110.*

HSC-121 Medical Terminology II (3 s.h.)
Prerequisite: None. However, HSC-120, Medical Terminology I is highly desirable. A continuation of HSC-120. A brief review of basic medical terminology followed by a systems approach to learning terms associated with the anatomical, physiological, and pathological aspects of the body. (45-0) *Equivalent to 15-252, HEAL-111.*

HSC-144 Basic Pharmacology (2 s.h.)
Provides a basic foundation of the study of drugs including general concepts, biological factors affecting the action of drugs, and effects of medications on body systems. Includes allergy overview, the medication order, and discussion of legal and ethical issues related to pharmacology. (30-0) *Equivalent to 90-134, HEAL-701.*

HSC-150 Body Structure and Function (4 s.h.)
A basic study of the anatomy and physiology of the human body. Study progresses from the cell to tissues, organs, and systems with emphasis on their interrelatedness. Discussion includes some of the alterations that occur in illness. Usage of applicable medical terminology is stressed. (45-30) *Equivalent to 94-104, HEAL-704, HSC-150L.*

HSC-155 Laboratory Tests (2 s.h.)
To familiarize the student with clinical laboratory tests and their normal ranges in the areas of hematology, urology, and microbiology. The student will also learn basic surgical position terminology, instruments, and special organ studies. (30-0) *Equivalent to 90-140, HEAL-702.*

HSC-171 Nurse Aide Theory (2 s.h.)
Corequisite: HSC-174, Nurse Aide Clinical. This 75-hour nurse aide course has been designed to meet the training requirements of The Omnibus Budget Reconciliation Act of 1987 (OBRA) for aides working in nursing facilities (NF) and skilled nursing facilities (SNF). Emphasis in the course is on students achieving a basic level of knowledge and demonstrating skills to provide safe, effective resident care. The course has been developed in six units of study. The theory portion includes 30 hours of classroom time and 15 hours of laboratory practice. (30-0) *Equivalent to CNAS-101, 89-164.*

HSC-174 Nurse Aide Clinical (1 s.h.)
Corequisite: HSC-171, Nurse Aide Theory. The clinical experience includes 30 hours in a nursing facility. (0-45) *Equivalent to CNAS-102, 89-165.*

HSC-179 Medication Aide (3 s.h.)
Prerequisites: If employed in certified nursing facility - minimum of 6 months employment by facility sponsor, must be on state direct care workers registry, provide documentation from administrator of facility in which he/she is employed. If employed in residential or related type of licensed facility - minimum of 6 months employment by facility sponsor, evidence of successful completion of residential attendant course, provide documentation from administrator of facility in which he/she is employed. If employed in assisted living program: provide documentation from administrator of facility in which he/she is employed, strongly recommended to have completed 75-hour Nurse Aide Course or Residential Attendant Course. Aptitude for reading, writing, and mathematics. This is a 60-hour course consisting of 40 - 42 hours of classroom lecture and 18 - 20 hours of clinical experience. This course prepares people to safely administer nonparenteral medications in nursing facilities and related areas. The emphasis is on safe administration of medications. It qualifies the aide to administer medications in long term care, residential care, nursing facilities, skilled nursing facilities, adult day care and assisted living facilities. (42-18)

HSC-185 Activity Coordinator (4 s.h.)
A 60-hour course designed to prepare the participant to function as an entry level activity coordinator in a long-term care facility. This course is designated as pass/no pass. (60-0)

HSC-290 Supervising in Healthcare (3 s.h.)
Prerequisite: Must be current RN or LPN. This program is designed to enable the nurse to gain knowledge and develop skills necessary to manage personnel and clients in health care facilities. The program focuses on supervisory skills for nurses in long-term care. This course is designated as pass/no pass. (45-0)

HSV-152 Introduction to Counseling (3 s.h.)
Prerequisite: PSY-121, Developmental Psychology, SOC-110, Introduction to Sociology, and SOC-150, Introduction to Human Services. A survey of the basic theories and techniques of psychological counseling. This is a required course leading to the A.A. degree with a certificate in Human Services. (45-0)

HSV-153 Professional Ethics (3 s.h.)
Prerequisite: PSY-121, Developmental Psychology, SOC-110, Introduction to Sociology, and SOC-150, Introduction to Human Services. An in-depth study of ethical perspectives or a selected area of moral concern. Possible topics include bioethics; business and professional ethics; queer ethics; science, technology, and society; sexual ethics; and comparative religious ethics. This is a required course leading to the A.A. Degree with a certificate in Human Services. (45-0)

HUM-115 Encounters in Humanities (2 s.h.)
This course is designed to introduce students to the world of the humanities; describe the humanities genres and disciplines; provide a systematic method of assessing humanities artifacts; present opportunities to assess humanities artifacts; define methods of participating in the humanities. Four humanities genres are represented with their respective disciplines. (15-30) *Equivalent to 10-100, HUMA-100.*

HUM-139 British Life and Culture (3 s.h.)
Through NIACC's participation in the Iowa Community College Study Abroad Consortium, students have the opportunity for foreign study while remaining full-time NIACC students. Currently, the program is offered in London during the fall semester. British Life and Culture is a mandatory Humanities offering. On this program, students have the opportunity to earn 12 or more credit hours. Instructor's consent required. *Equivalent to HUMA-157, 89-157.*

IND-220 Metal Processing/Metallurgy (2 s.h.)
The student uses basic hand tools, drills, measuring tools, lathes, grinders, and welding equipment to build parts with practical applications in automotive service. (15-30) *Equivalent to INDU-705, 98-161.*

JOU-115 Introduction to Journalism (3 s.h.)
Introduction to Journalism is designed to help the student understand the role of the media in a democracy and how that role is accomplished. The student will also improve communication skills because the course stresses the fundamentals of news gathering, news writing, editing, and publication design. Students will have the opportunity to gain practical experience in news writing and interviewing. The course will stress print media. (45-0) *Equivalent to 30-121, JOUR-101.*

JOU-121 News Writing and Reporting (3 s.h.)
Prerequisite: JOU-115, Introduction to Journalism, and ability to type. News Writing and Reporting serves as a class designed to help the student improve his or her news gathering and reporting skills. Students will be expected to write stories for publication in *Logos*, the student news publication. Students will be expected to conduct interviews and utilize the computer programs used by the newspaper. (45-0) *Equivalent to 30-122, JOUR-102.*

JOU-145 Logos (1 s.h.)
Students may contribute to the student news publication, *Logos*, for 1-4 credits during their enrollment at NIACC. Credit may be earned through practical experience in reporting, photography, advertising, and other production-oriented work. Staff members are required to attend weekly staff meetings and meet a minimum number of contributions for a passing grade. (0-30) *Equivalent to 30-113, JOUR-113.*

LIT-130 African American Literature (3 s.h.)
Prerequisite: ENG-102, Composition and Speech I, or ENG-105, Composition I, or comparable course or approval of instructor. A study of the writings of major African Americans from pre-Civil War to contemporary times. Slave narratives, autobiographies, letters, short stories, poetry, and novels will be studied as works of literature. Discussion and writing will focus on the critical analysis of the works. (45-0) *Equivalent to 30-203, LITS-103.*

LIT-131 Native American Literature (3 s.h.)
Prerequisite: ENG-102, Composition and Speech I, or ENG-105, Composition I, or comparable course or approval of instructor. A study of the writings of major American Indians from precontact with Europeans to contemporary times. Legends, autobiographies, letters, speeches, poetry, novels and short stories will be studied as works of literature. Discussion and writing will focus on the critical analysis of the works. (45-0) *Equivalent to 30-204, LITS-104.*

LIT-132 Women of Color (3 s.h.)
Prerequisite: ENG-102, Composition and Speech I, or ENG-105, Composition I, or comparable course or approval of instructor. A study of the writings of contemporary women of color from this country and around the world. Autobiographies, short stories, poetry, plays, essays, and novels will be studied. Discussion and writing will focus on the critical analysis of the works. (45-0) *Equivalent to 30-206, LITS-105.*

LIT-150 World Literature I (3 s.h.)
Prerequisite: ENG-102, Composition and Speech I or ENG-105, Composition I, or comparable course or approval of instructor. Readings are drawn from several of the world's great civilizations up to the 18th Century. This course emphasizes prose and poetry from the religious and secular traditions of the Far East, South Asia, the Ancient Mediterranean, Northern Europe, and Ancient and Medieval I Near East. (45-0) *Equivalent to 30-201, LITS-201.*

LIT-151 World Literature II (3 s.h.)
Prerequisite: ENG-102, Composition and Speech I, or ENG-105, Composition I, or comparable course or approval of instructor. Readings are taken from works of short story, poetry, novel, and drama from around the world. The course will primarily focus upon

literature written from the early 18th Century to present. World Literature I is not required. (45-0) *Equivalent to 30-202, LITS-202.*

LIT-160 Short Story/Novel (3 s.h.)
Prerequisite: ENG-102, Composition and Speech I, or ENG-105, Composition I, or comparable course or approval of instructor. A study of selected works of fiction in the short story and novel as forms of literature. Discussion and writing emphasizing interpretation, critical analysis, and judgment/evaluation. (45-0) *Equivalent to 30-112, LITS-102.*

LIT-170 Poetry/Drama (3 s.h.)
Prerequisite: ENG-102, Composition and Speech I, or ENG-105, Composition I, or comparable course or approval of instructor. A study of selected works of poetry and drama as forms of literature. Discussion and writing emphasizing interpretation, critical analysis, and judgment/evaluation. (45-0) *Equivalent to 30-111, LITS-101.*

MAP-353 Clinical Procedures I (4 s.h.)
Assist physician with examinations and treatments, prepare patients for examinations and diagnostic procedures, administer first aid and CPR, maintain and use aseptic techniques, obtain and record patient data. Perform routine tests, autoclave instruments, and prepare sterile setups. If taking curriculum beyond a one-year period, this course should be taken during the final year of the curriculum. (45-30) *Equivalent to 90-141, MEDA-701.*

MAP-358 Clinical Procedures II (5 s.h.)
Prerequisite: MAP-353, Clinical Procedures I. A continuation of Clinical Procedures I with emphasis on pharmacology, administration of medications, electrocardiography and the circulatory system. Principles of radiography and nutrition. Collection and testing of laboratory specimens, including phlebotomy. If taking curriculum beyond a one-year period, this course should be taken during the final year of the curriculum. (45-75) *Equivalent to 90-142, MEDA-702.*

MAP-616 Medical Assistant Externship (6 s.h.)
A seven-week term of practical experience in selected physicians' offices, clinics, or laboratories. It offers the students an opportunity to perform various clinical and office procedures under the supervision of the physician or assistant and the instructor/coordinator. This course has been designated as a pass/no pass course. (15-225) *Equivalent to 90-208, MEDA-720.*

MAS-111 Masonry Lab I (3 s.h.)
A basic course in brick, block, stone, and manufactured masonry products. Topics to be covered include terminology, safety, masonry tools, masonry materials, mortar mixing, basic masonry skills, and basic wall construction techniques. This course has been designated as a pass/no pass course. (0-90)

MAS-211 Masonry Lab II (3 s.h.)
Prerequisite: MAS-111, Masonry Lab I. This course provides a continuation of the masonry skills learned in Masonry Lab I. Topics include constructing walls, wall corners, window skills, openings, composite walls, and similar structures using a variety of brick, block, stone, and manufactured masonry products with bonds and materials. This course has been designated as a pass/no pass course. (0-90)

MAT-030 Enrich Math I (2 s.h.)
Prerequisite: Consent of instructor. This Enrich course will focus on strategies that enable students to understand and apply mathematics in their daily lives, at work, and in their leisure hours. This course has been designated as a pass/no pass course. (30-0) Instructor's consent required. *Equivalent to ENRI-047, 40-038.*

MAT-031 Enrich Math II (2 s.h.)
Prerequisite: Consent of instructor. This Enrich course will focus on strategies that enable students to understand and apply mathematics in their daily lives, at work, and in their leisure hours. Focus will be on decimals, fractions, and percents. The course is designed to follow Enrich Math I, but may be taken without that prerequisite. This course has been designated as a pass/no pass course. (30-0) Instructor's consent required. *Equivalent to 40-039, ENRI-048.*

MAT-053 Pre-Algebra (4 s.h.)
Prerequisite: A score of 25 or higher on the Pre-Algebra Pretest or an ACT score of 12-14. This is a basic mathematics course that will prepare students for an entry-level math course and to use numbers effectively in other situations. Upon completion, students will be able to perform basic computational skills with whole numbers, fractions, decimals, percentages, and integers. Credit earned will not satisfy the requirements for an Associate Degree and will not be used in calculating the cumulative grade point average for graduation. Students will be allowed to register in Pre-Algebra upon referral from the instructor and/or appropriate diagnosis. (60-0) *Equivalent to MATH-040, 40-040.*

MAT-063 Elementary Algebra (4 s.h.)
Prerequisite: MAT-053, Pre-Algebra, with a grade of C or higher; OR COMPASS Pre-Algebra score of at least 49; OR ACT Math score of at least 16. This course is intended for students who have had no previous experience in algebra. Topics include: the real number system, linear and quadratic equations, exponents, factoring, rational expressions, graphing, systems of equations, radicals, the quadratic formula, square root manipulation, and application of concepts. Credit earned will not satisfy the requirements for an Associate Degree and will not be used in calculating the cumulative grade point average for graduation. (60-0) *Equivalent to 40-060, 40-119, MATH-060.*

MAT-089 Survey of Mathematics (3 s.h.)
Prerequisite: MAT-053, Pre-Algebra with a grade of C or higher; OR COMPASS Pre-Algebra score of at least 49; or ACT score of at least 15. This basic math course is for students with a minimum of one year of high school algebra and who are intending on taking Math for Liberal Arts. The course focuses on arithmetic skills, without a calculator, college study skills and an overview of topics from Math for Liberal Arts that include: problem solving, sets, elementary logic, number theory, algebra, percentages, and geometry. Credit earned will not satisfy the requirements for an Associate Degree and will not be used in calculating the cumulative grade point average for graduation. (45-0)

MAT-102 Intermediate Algebra (4 s.h.)
Prerequisite: MAT-063, Elementary Algebra, with a grade of C or higher; or COMPASS Algebra score of at least 51; or ACT Math score of at least 20. This course will prepare the student

for college algebra and trigonometry or other equivalent course work. Topics include properties of real numbers, linear and quadratic equations, graphs of polynomial functions, systems of equations, polynomials and rational expressions, inequalities, integral and rational exponents, radicals, and complex numbers. This course may not be used to satisfy core requirements. (60-0) *Equivalent to 40-120, MATH-100.*

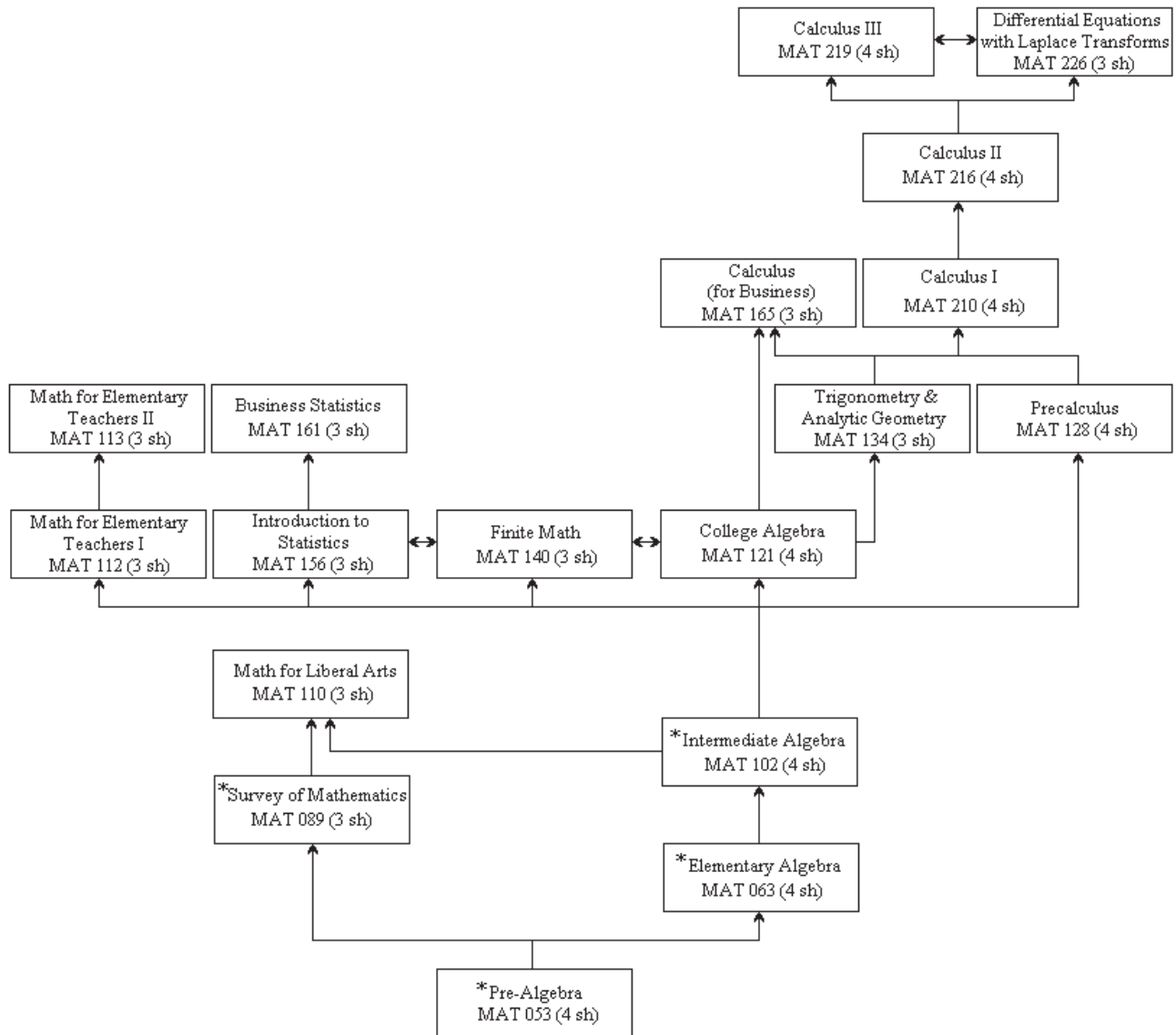
MAT-110 Math for Liberal Arts (3 s.h.)
Prerequisite: COMPASS Algebra score of at least 56 OR ACT Math score of at least 21. Math for Liberal Arts provides a survey of mathematics topics that includes sets, logic, probability, statistics, number theory, geometry, and consumer math. This course will fulfill 3 hours of Natural Science/Mathematics requirement for the A.A. Degree. (45-0) *Equivalent to MATH-101, 40-121.*

MAT-112 Math for Elementary Teachers I (3 s.h.)
Prerequisite: MAT-102, Intermediate Algebra, with a grade of C or higher or ACT Math score of at least 20 or COMPASS Algebra score of at least 51. This course focuses on the fundamental concepts that all K-6 teachers will teach. Students will develop mathematical tools of reasoning, problem solving, and communication. Specific topics include sets, numeration, operations with whole numbers, fractions, and decimals, proportional reasoning, and statistics. Students who have completed two years of high school algebra with at least C grades have met the prerequisite for this course. (30-30) *Equivalent to 40-122, MATH-104.*

MAT-113 Math for Elementary Teachers II (3 s.h.)
Prerequisite: MAT-112, Math for Elementary Teachers I with a grade of C or higher. This course focuses on fundamental concepts that all K-6 teachers will teach. Students will develop mathematical tools of reasoning, problem solving, and communication. Specific topics include reasoning and proof, algebraic thinking and probability, geometry, measurement and technology in elementary classrooms. (30-30) *Equivalent to MATH-105.*

MAT-121 College Algebra (4 s.h.)
Prerequisite: MAT-102, Intermediate Algebra with a C or better, OR Math ACT score of at least 21, or Compass Algebra score of 76 or better. This course is intended for students majoring in business, social science, biological sciences, liberal arts, and those mathematics students with insufficient background to begin the study of calculus. The course is a study of various classes of functions, their graphs, and applications. These include linear, polynomial, rational, root, inverse, exponential and logarithmic functions. Also included are systems of equations and inequalities, matrices, sequences and series, and the *Binomial Theorem*. Students who have completed two years of high school algebra with a grade of C or better, have met the prerequisites for this course. (60-0) *Equivalent to MATH-121.*

MAT-128 Precalculus (4 s.h.)
Prerequisite: COMPASS College Algebra score of at least 41 or ACT math score of at least 26. This course is intended to provide students with a summary of mathematics topics needed to study analytic geometry and calculus. The functional approach is emphasized. Topics covered include fundamentals of algebra, polynomial, rational, exponential, logarithmic, and trigonometric functions, analytic trigonometry, systems of equations, and analytic



* These courses do not satisfy the core requirements.

**North Iowa Area Community College
Mathematics Division
Course Flow Chart**

geometry of conics. Students who have successfully completed two years of high school algebra with a grade of C or better and one year of geometry may register for this class. (60-0) *Equivalent to MATH-161, 40-161.*

MAT-134 Trigonometry and Analytic Geometry (3 s.h.)

Prerequisite: MAT-121, College Algebra with a C or better, OR Math ACT score of at least 26. This course is a preparation course intended for students majoring in engineering, mathematics, physics, chemistry or certain vocational fields. The course is a study of both trigonometric and conic functions and equations. Both rectangular and polar coordinate systems are studied. (45-0) *Equivalent to MATH-134.*

MAT-140 Finite Math (3 s.h.)

Prerequisite: MAT-102, Intermediate Algebra, with a grade of C or higher; or COMPASS Algebra score of at least 76; or ACT Math score of at least 21. This course provides a sampling of applied mathematics topics from various disciplines. Some topics covered include elementary functions, linear systems, matrices, linear programming, set theory, and probability. (45-0) *Equivalent to MATH-125, 40-125.*

MAT-156 Introduction to Statistics (3 s.h.)

Prerequisite: MAT-102, Intermediate Algebra, with a grade of C or higher; or COMPASS Algebra score of at least 76; or ACT Math score of at least 21. This course is intended to introduce students to basic statistical concepts. It covers descriptive and inferential statistical methods, hypothesis testing on the mean and proportion, and linear regression. Students are also introduced to technology as it applies to introductory statistical methods. Students who have successfully completed two years of high school algebra with a grade of C or higher may register for this class. A graphing calculator is required. (45-0) *Equivalent to STAT-104, 40-140.*

MAT-161 Business Statistics (3 s.h.)

Prerequisite: MAT-156, Intro to Statistics, or by approval of instructor. Business Statistics looks at the use of statistical methods as an analytical tool in business situations. Data collection, sampling, data analysis, estimation, hypothesis testing, regression and correlation analysis, multinomial experiments and contingency tables, analysis of variance, and nonparametric statistics are covered. The use of calculators and statistical software is incorporated into the course. The course is intended to follow an introductory statistics course. A graphing calculator is required. (45-0) *Equivalent to 15-210, STAT-201.*

MAT-165 Calculus (3 s.h.)

Prerequisite: MAT-128, Precalculus, with a grade of C or higher; or MAT-121 College Algebra; or COMPASS College Algebra score of at least 41; or ACT Math score of at least 28. This course uses calculus techniques with an emphasis on applications to business, the social sciences, the life sciences, and also to certain career programs. Types of functions included in the course are polynomial, rational and root, exponential and logarithmic. Topics include derivatives and their uses, and integrals and their applications. Students who have successfully completed two years of algebra with a grade of C or higher, one year of geometry, and at least one semester of pre-calculus in high school may register for this class. A graphing calculator is required. (45-0) *Equivalent to 40-240, MATH-240.*

MAT-210 Calculus I (4 s.h.)

Prerequisite: MAT-128, Precalculus, with a grade of C or higher; or MAT-121, College Algebra and MAT-134, Trigonometry and Analytic Geometry; or COMPASS Trigonometry score of at least 51; or ACT Math score of at least 28. Topics include analysis of functions, limits, derivatives and integrals of algebraic, logarithmic, exponential, and trigonometric functions, and applications of differentiation. (60-0) *Equivalent to 40-251, MATH-251.*

MAT-216 Calculus II (4 s.h.)

Prerequisite: MAT-210, Calculus I, with a grade of C or higher. This course is a continuation of MAT-210. Topics include applications of the definite integral; principles of integration evaluation; improper integrals; modeling with differential equations; and infinite sequences and series. The availability of a graphical calculator is highly recommended. (60-0) *Equivalent to 40-252, MATH-252.*

MAT-219 Calculus III (4 s.h.)

Prerequisite: MAT-216, Calculus II, with a grade of C or higher. This course is a continuation of MAT-216. Topics include graphs and analysis of the conic sections, polar coordinates and parametric equations, three dimensional space, vectors and vector-valued functions, partial derivatives, multiple integrals, and topics in vector calculus. (60-0) *Equivalent to 40-253, MATH-253.*

MAT-226 Differential Equations with Laplace Transforms (3 s.h.)

Prerequisite: MAT-216, Calculus II, with a grade of C or higher. Topics include analytic methods for solving first and second order ordinary differential equations, higher order linear differential equations (including Laplace Transforms) and systems of differential equations, numerical methods for approximating solutions of differential equations, and applications using differential equations. (45-0) *Equivalent to 40-261, MATH-261.*

MAT-710 Business and Financial Math (2 s.h.)

Mathematical applications that apply to a variety of business problems. Topics covered include mathematical fundamentals; accounting applications including banking, payroll, and taxes; figuring percentages related to commissions, discounts, and markups; business problems in credit and interest; business and personal insurance; inventory and turnover; financial statements; and employment tests. (30-0) *Equivalent to 90-105, MATH-701.*

MAT-763 Building Trades Math (3 s.h.)

The course covers adding, subtracting, multiplying, and dividing whole numbers, fractions, and decimals. The English system and the metric system are used in measuring linear lines, surface areas, and volume shapes. Exercises include applying math skills and measuring skills to lay out geometric shapes from construction drawings. (45-0) *Equivalent to MATH-703, 91-158.*

MAT-770 Applied Math (2 s.h.)

Prerequisite: Compass Pre-Algebra score of at least 49; or ACT math score of at least 16; or MAT-053 Pre-Algebra, with a grade of C or higher. This course covers essential topics in algebra, including ratio and proportion, and basic statistics. This course is offered during the first eight weeks of the fall semester and the first eight weeks of the spring semester. (30-0) *Equivalent to MATH-710, 91-122.*

MAT-771 Applied Math II (2 s.h.)

Prerequisite: MAT-770, Applied Math, with a grade of C or higher. This course covers essential topics in geometry and trigonometry. This course is offered during the second eight weeks of the fall semester and the second eight weeks of the spring semester. (30-0) *Equivalent to MATH-711, 91-123.*

MFG-108 Computer-Aided Drafting (2 s.h.)

Prerequisite/Corequisite: MFG-120, Machine Trade Print Reading I; MFG-130, Machine Trade Print Reading II; or instructor's permission. Students are introduced to computer-aided drafting and design as an essential tool utilizing and enhancing the student's existing drafting skills. This is accomplished by utilizing ESPRIT through the generation of two- and three-dimensional orthographic drawings as well as pictorial techniques in the CAD environment. Operating systems commands, cursor manipulation, direct display interaction, geometry creation and manipulation, file storage and retrieval, entity manipulation such as rotation and mirroring, and the use of printers are just a few of the hardware and software capabilities to be covered. (15-30) *Equivalent to 96-270, TLDI-804.*

MFG-110 3-D Modeling (2 s.h.)

Prerequisite: MFG-108, Computer-Aided Drafting, or instructor's permission. Students are introduced to solid modeling as an essential tool, utilizing and enhancing designing skills. This is accomplished through the generation of 3-D drawings created in Solid Edge. Operating systems commands, cursor manipulation, file storage and retrieval, entity manipulation, such as rotation, mirroring, editing, dimensioning, sections, sheet metal parts, and assemblies capabilities will be covered. (15-30) *Equivalent to 96-173, TLDI-805.*

MFG-120 Machine Trade Print Reading I (1 s.h.)

An introduction to the importance of prints in industry. Covers isometric drawings, orthographic projection, auxiliary views, detail and assembly drawing, dimensions and tolerances, and sectional views. Integrates the alphabet of lines and principles of sketching. Other information covered includes title blocks, drawing change systems, drawing notes, and material lists. (0-30) *Equivalent to 96-163, TLDI-701.*

MFG-130 Machine Trade Print Reading II (1 s.h.)

Prerequisite/Corequisite: MFG-120, Machine Trade Print Reading I. Continues Machine Trade Print Reading I with emphasis on geometric dimensioning and tolerancing and the interpretation of more advanced prints used in the construction of tool and die and mold building. (0-30) *Equivalent to 96-164, TLDI-702.*

MFG-195 Manufacturing Processes I (2 s.h.)

Knowledge and skills in manufacturing materials and the procedures used to produce products in today's modern industry. Introduction to measurement and quality assurance with an emphasis on tolerance, measurement, and calibration. Final project, create a product using manual metal cutting processes. (15-30) *Equivalent to INDU-715, 91-120.*

MFG-216 Survey of Machine Tool Practices I (4 s.h.)

The student safely uses basic measuring tools, machine tools, and layout/inspection tools. Emphasis is on turning machines, drills, and hand tools. Safety is taught and enforced as it applies to each

machine process. Proper terminology of the machinist trade is emphasized. The student follows blueprints to produce products within tolerances specified. (15-90) *Equivalent to 96-180, TLDI-760.*

MFG-217 Survey of Machine Tool Practices II (4 s.h.)

Prerequisite: MFG-216, Survey of Machine Tool Practices I. Continues Survey of Machine Tool Practices I. The student safely uses basic measuring tools, machine tools, and layout/inspection tools. Emphasis on basic milling machines. Safety is taught and enforced as it applies to each machine process. Proper terminology of the machinist trade is emphasized. The student follows blueprints to produce products within tolerances specified. (15-90) *Equivalent to 96-181, TLDI-761.*

MFG-218 Survey of Machine Tool Practices III (4 s.h.)

Prerequisite: MFG-216, Survey of Machine Tool Practices I; MFG-217, Survey of Machine Tool Practices II. The student safely performs cylindrical grinder and surface grinder operations. Using the grinders, the student makes round and flat surfaces to conform to the specified tolerances. Emphasis is placed on safety, proper use of tools, and using correct terminology of the machinist trade. (15-90) *Equivalent to 96-182, TLDI-762.*

MFG-219 Capstone Manufacturing Project (4 s.h.)

Prerequisite: MFG-216, Survey of Machine Tool Practices I - Pass with a C or better; MFG-217, Survey of Machine Tool Practices II - Pass with a C or better; MFG-218, Survey of Machine Tool Practices III - Pass with a C or better; MFG-302, CNC Fundamentals - Pass with a C or better. The goal is for the learner to build an approved multiple-part project using machine tools and communicate the successes and difficulties encountered in the project-building process. (15-90) *Equivalent to 96-193, TLDI-763.*

MFG-245 Machine Theory & Operations I (9 s.h.)

Prerequisite/Corequisite: MFG-120, Machine Trade Print Reading I, MAT-770, Applied Math, and MAT-771, Applied Math II. Covers theory and lab use of basic measuring and machining tools, layout inspection tools, as well as bench work. Safety is taught and enforced as it applies to each machine process. Proper terminology of the machinist trade is emphasized as well as following blueprints and holding tolerances through the use of a variety of machining processes to produce a product. (60-225) *Equivalent to 96-165, TLDI-703.*

MFG-248 Machine Theory & Operations II (7 s.h.)

Prerequisite: MFG-245, Machine Theory and Operations I; MAT-770, Applied Math; MAT-771, Applied Math II; MFG-120, Machine Trade Print Reading I. Corequisite: MFG-130, Machine Trade Print Reading II. Continues Machine Theory and Operations I. Covers more advanced principles in setup and operation of mills, lathes, and grinders, with an introduction to carbide tooling along with a continued emphasis on shop safety, communication, and cooperation. Stresses the interrelationship of manufactured mating parts. (45-195) *Equivalent to 96-166, TLDI-704.*

MFG-302 CNC Fundamentals (3 s.h.)

Prerequisite/Corequisite: MFG-248, Machine Theory and Operations II. Students must obtain a grade of C or better in MFG-248, Machine Theory and Operations II. Covers computer

numerical control (CNC) as it relates to milling machines, turning lathes, microcomputers, and related software. Emphasis on input language, codes, machine set-up and operation, inspection of parts, and communication of peripherals. (30-30) *Equivalent to 96-167, TLDI-705.*

MFG-312 Advanced CNC (2 s.h.)

Prerequisite/Corequisite: MFG-459, Injection Mold Making. A continuation of CNC and EDM fundamentals as well as mold making with additional instruction and practice in the use of CAD, wire, and ram electrical discharge machines in the construction of die and mold components. (15-45) *Equivalent to TLDI-814, 96-275.*

MFG-320 Computer-Aided Manufacturing (3 s.h.)

Prerequisite/Corequisite: MFG-108, Computer-Aided Drafting, MFG-302, CNC Fundamentals, MFG-423, Jig and Fixtures, and MFG-380, EDM Fundamentals. Students must obtain a grade of C or better in MFG-302, CNC Fundamentals. This program provides an introduction to (Process Modeling) utilizing the CNC graphics programming system. Using engineering drawings, students program various parts for CNC mills, CNC lathes, and CNC EDM. Related topics include job planning, tool selection, construction of a process model, tool path verification, simulation, quality control, CAD, CAM data transfer, and CNC code generation. (15-60) *Equivalent to TLDI-811, 96-272.*

MFG-380 EDM Fundamentals (2 s.h.)

Prerequisite/Corequisite: MFG-302, CNC Fundamentals, and MFG-423, Jig and Fixtures. Students must obtain a grade of C or better in MFG-302, CNC Fundamentals. The students are introduced to the electrical discharge machines, both wire and ram-type. Emphasis on how these tools are used in the manufacturing of punch and die components and injection mold cores and cavities. (15-45) *Equivalent to 96-172, TLDI-803.*

MFG-408 Basic Die Making (8 s.h.)

Prerequisite/Corequisite: MFG-423, Jig and Fixtures. This course is a continuation of MFG-423, Jig and Fixtures with instruction and practice in building a progressive or compound die. Emphasis is placed on the tool building procedures learned in MFG-423, Jig and Fixtures and toward fabricating dies. Instruction is given on the considerations involved in developing die components, such as calculation of die clearances, bend allowance, cutting forces, press tonnage requirements, and practice in building a complete functional die. (45-225) *Equivalent to TLDI-810, 96-271.*

MFG-423 Jig and Fixtures (5 s.h.)

Prerequisite/Corequisite: Students must obtain a grade of C or better in MFG-302, CNC Fundamentals, and MFG-248, Machine Theory and Operations II. This course is an introduction to the design of industrial tools and machining characteristics of tool components. The student is introduced to additional machining skills that will be encountered in typical machine shops in the building of molds, dies, jigs, fixtures, and precision machine parts. (30-160) *Equivalent to 96-171, TLDI-802.*

MFG-459 Injection Mold Making (9 s.h.)

Prerequisite/Corequisite: MFG-408, Basic Die Making; MFG-460, Plastic Materials. The student is introduced to the field of mold making for plastic injection molds, blow molds, compression and

transfer molds, zinc and aluminum die casting molds. Focus is placed on mold theory, mold repair, identification and correction of mold problems, standardization of mold components, mold blueprint reading, and the machine shop skills necessary for mold making, as related to thermoplastic injection molds. In addition the student develops necessary basic skills for gating, venting, heating, cooling, stoning and polishing as well as other hands-on experiences necessary to manufacture mold plates, cores, cavities, and ejection systems. The student builds a prototype injection mold. (45-285) *Equivalent to TLDI-813, 96-274.*

MFG-460 Plastic Materials (1 s.h.)

This is a survey course designed to introduce the student to the field of plastics. This overview includes thermoplastics and thermoset materials along with the major processing methods being utilized by industry today. (15-0) *Equivalent to TLDI-812, 96-273.*

MFG-500 Statistical Process Control (1 s.h.)

Covers the current transformation methods of industry and business toward a complete quality control system. Management theory on quality, productivity, and controlled charting techniques are included. (15-0) *Equivalent to 96-170, TLDI-801.*

MGT-101 Principles of Management (3 s.h.)

BUS-102, Introduction to Business, is recommended. Provides students with a general introductory management learning experience. Role of management in today's business environment; management's influence on employee productivity, employee satisfaction and organizational effectiveness; major control devices of management. (45-0) *Equivalent to 15-142, BUSN-130.*

MGT-130 Principles of Supervision (3 s.h.)

This course is designed for individuals who hold, or who will hold, supervisory positions. The course involves the study of the major managerial functions (planning, organizing, staffing, directing, and controlling) and is augmented by other pervasive areas of supervision such as communication, motivation, decision making, and human relations. (45-0) *Equivalent to 15-144, BUSN-131.*

MGT-170 Human Resource Management (3 s.h.)

Course describes the transition from personnel management to human resources management. The focus is on the systematic process of recruitment, selection, developing, and appraising employees. (45-0) *Equivalent to 15-149, BUSN-132.*

MGT-220 Introduction to Sport Management (3 s.h.)

For individuals entering the sport and physical education profession, it is critical to understand the theory and practice of ethical management principles in sport/fitness organizations. Administrators need to understand marketing, financial and legal aspects regarding the management of facilities, events, and organizations. These principles are applied to organizations within interscholastic, intercollegiate, international and professional sport along with the health/fitness and community recreation industries. (45-0) *Equivalent to 15-126, SPOR-101.*

MGT-221 Current Issues in Sport (3 s.h.)

Prerequisite: MGT-220, Introduction to Sport Management. Sport, health/fitness, and recreation organizations have been facing many changes in recent years. These changes have exposed many

problems that these organizations must solve in order to ensure future success. This class is designed to expose students to these issues in order to prepare them for management careers in the sport, health/fitness, and recreation fields. (45-0) *Equivalent to 15-127, SPOR-120.*

MKT-110 Principles of Marketing (3 s.h.)

A study of the role of marketing in society as well as a study of target market (customer) determination and selection, product strategy, channels of distribution, pricing concepts, and promotional activities that are used in business today. (45-0) *Equivalent to 15-221, MRKT-101.*

MKT-140 Principles of Selling (3 s.h.)

This course is centered around the study of concepts and practices used by professional salespeople in today's market-driven economy. The course also includes a study of selling as a promotional strategy used by marketers. (45-0) *Equivalent to 15-223, MRKT-103.*

MKT-150 Principles of Advertising (3 s.h.)

The study of advertising process and its place in business and society. The course involves learning about the planning, creating and placement of advertising. The course also covers the topic of integrated promotion. (45-0) *Equivalent to 15-222, MRKT-102.*

MKT-160 Principles of Retailing (3 s.h.)

The study of the selling of goods and services to ultimate consumers, involving distribution, inventory control, site selection, pricing, and other topics pertinent to successful retail business operations. (45-0) *Equivalent to 90-125, RETL-701.*

MKT-170 Retail Buying (3 s.h.)

Buying duties and policies, how to buy, how much to buy, buying methods, source selection, price lines, and sales records. Product knowledge and analysis relative to the buying function and value analysis of products. (30-30) *Equivalent to RETL-801, 90-234.*

MLT-101 Introduction to Lab Science (2 s.h.)

This course introduces the basic concepts for education and career development in the field of laboratory science and the health care profession. Current health care systems and trends are emphasized along with the factors having current and future impact on medical laboratories. The organization and role of the clinical laboratory are explored, as well as medical ethics and conduct, employment opportunities, and professional organizations. (30-0) *Equivalent to PHYS-100, 70-100.*

MLT-120 Urinalysis (3 s.h.)

This course provides the foundation for the study of urine formation and its assessment along with the determination of the physical, chemical, and microscopic properties of urine in normal and abnormal states. Objectives also included are the development and evaluation of body fluids including cerebrospinal, synovial, serous, and amniotic fluids. (30-30) *Equivalent to 70-249, HEAL-105.*

MUA-120 Applied Piano (1 s.h.)

Individualized instruction in piano performance for students that are beginners. Instructional materials include a repertoire of basic piano

literature. Students register for 1 credit hour (one 30-minute lesson per week) which is repeatable to a maximum of 4 credit hours. (7.5-15) *Equivalent to MUSI-195, 50-195.*

MUA-285A-B Applied Voice (1-2 s.h.)

Individualized instruction in vocal performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional literature. Students may register for 1 credit hour (30-minute lesson per week) or 2 credit hours (two 30-minute lessons per week) which is repeatable to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours (music majors for 2 credit hours only). (7.5 to 15-15 to 30) *Equivalent to 50-156, MUSI-156A-B.*

MUA-286A-B Applied Flute (1-2 s.h.)

Individualized instruction in Flute performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (one 30-minute lesson per week) or 2 credit hours (one 60-minute lesson per week) each semester. The course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5 to 15-15 to 30) *Equivalent to 50-158, MUSI-158A-B.*

MUA-287A-B Applied Oboe (1-2 s.h.)

Individualized instruction in Oboe performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (one 30-minute lesson per week) or 2 credit hours (one 60-minute lesson per week) each semester. The course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5 to 15-15 to 30) *Equivalent to 50-159, MUSI-159A-B.*

MUA-288A-B Applied Clarinet (1-2 s.h.)

Individualized instruction in Clarinet performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (one 30-minute lesson per week) or 2 credit hours (one 60-minute lesson per week) each semester. This course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5 to 15-15 to 30) *Equivalent to 50-160, MUSI-160A-B.*

MUA-289A-B Applied Bassoon (1-2 s.h.)

Individualized instruction in Bassoon performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (one 30-minute lesson per week) or 2 credit hours (one 60-minute lesson per week) each semester. The course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5 to 15-15 to 30) *Equivalent to 50-161, MUSI-161A-B.*

MUA-290A-B Applied Saxophone (1-2 s.h.)
Individualized instruction in Saxophone performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (one 30-minute lesson per week) or 2 credit hours (one 60-minute lesson per week) each semester. The course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5 to 15 -15 to 30) *Equivalent to 50-162, MUSI-162A-B.*

MUA-291A-B Applied Trumpet (1-2 s.h.)
Individualized instruction in Trumpet performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (one 30-minute lesson per week) or 2 credit hours (one 60-minute lesson per week) each semester. The course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5 to 15 -15 to 30) *Equivalent to 50-163, MUSI-163A-B.*

MUA-292A-B Applied French Horn (1-2 s.h.)
Individualized instruction in French Horn performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (one 30-minute lesson per week) or 2 credit hours (one 60-minute lesson per week) each semester. The course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5 to 15 -15 to 30) *Equivalent to 50-164, MUSI-164A-B.*

MUA-293A-B Applied Trombone (1-2 s.h.)
Individualized instruction in Trombone performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (one 30-minute lesson per week) or 2 credit hours (one 60-minute lesson per week) each semester. The course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5 to 15 -15 to 30) *Equivalent to 50-165, MUSI-165A-B.*

MUA-294A-B Applied Euphonium (1-2 s.h.)
Individualized instruction in Euphonium performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (one 30-minute lesson per week) or 2 credit hours (one 60-minute lesson per week) each semester. The course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5 to 15 -15 to 30) *Equivalent to 50-166, MUSI-166A-B.*

MUA-295A-B Applied Tuba (1-2 s.h.)
Individualized instruction in Tuba performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour

(one 30-minute lesson per week) or 2 credit hours (one 60-minute lesson per week) each semester. The course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5 to 15-15 to 30) *Equivalent to 50-167, MUSI-167A-B.*

MUA-296A-B Applied Percussion (1-2 s.h.)
Individualized instruction in Percussion performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (one 30-minute lesson per week) or 2 credit hours (one 60-minute lesson per week) each semester. The course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. Does not include drum set. (7.5 to 15 -15 to 30) *Equivalent to 50-168, MUSI-168A-B.*

MUA-297A-B Applied Drum Set (1-2 s.h.)
Individualized instruction in Drum Set performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (one 30-minute lesson per week) or 2 credit hours (one 60-minute lesson per week) each semester. The course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5 to 15 -15 to 30) *Equivalent to 50-169, MUSI-169A-B.*

MUA-298A-B Applied Guitar (1-2 s.h.)
Individualized instruction in Guitar performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (one 30-minute lesson per week) or 2 credit hours (one 60-minute lesson per week) each semester. The course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5 to 15 -15 to 30) *Equivalent to 50-170, MUSI-170A-B.*

MUA-299A-B Applied Piano II (1-2 s.h.)
Prerequisite for MUA-299 is 1 credit hour of MUA-120, Applied Piano, or equivalent. Individualized instruction in instrumental performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (30-minute lesson per week) or 2 credit hours (60-minute lesson per week) each semester. Each course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5 to 15-15-30) *Equivalent to 50-157, MUSI-196A-B.*

MUS-100 Music Appreciation (3 s.h.)
Music Appreciation is concerned with the development of Western Classical Music that encompasses nearly 2500 years of history beginning in 400 BC and culminating in the 20th century. This course provides the student knowledge of six commonly recognized historical eras through lectures, recordings, videotapes, digital media, and possible guest speakers. (45-0) *Equivalent to 50-113, MUSI-101.*

MUS-105 Introduction to Music Theory (2 s.h.)
Prerequisite: previous instrumental or vocal music experience. Introduction to Music Theory is designed as a precourse to any music theory sequence. The course work will emphasize the circle of fifths, major scales, all forms of the minor scales, parallel and relative scale relationships, and music vocabulary. This course will also introduce the aural skills of scale identification, rhythmic dictation, and interval identification. (22.5-15) *Equivalent to 50-120, MUSI-120.*

MUS-122 Music Theory I (4 s.h.)
Prerequisite: Previous instrumental or vocal experience. Music Theory I examines all the basic materials of music which include notation, scales, intervals, chords, melody, harmony, rhythm and texture. Other areas of analysis take in cadence types, chordal inversions, figured bass harmonization and principles of part writing based on 18th century models. This course introduces fundamentals of the aural skills, ear training and sight singing. (45-60) *Equivalent to 50-121, MUSI-121.*

MUS-123 Music Theory II (4 s.h.)
Prerequisite: Final grade of C or better in MUS-122, Music Theory I, or instructor consent. A continuation of MUS-122, Music Theory II will examine in more detail the harmonic element of music. Discussions will include the harmonic progression, modulation and specific types of seventh chords as they relate to 18th century counterpoint. Continued development of ear training and sight-singing skills. (45-60) *Equivalent to 50-122, MUSI-122.*

MUS-140 Concert Choir (1 s.h.)
Concert Choir is open to all students interested in vocal music. The group performs one formal concert on campus each semester, as well as community performances, area high school assemblies, and community meetings. Course may be repeated for credit. (45-90) *Equivalent to 50-150, MUSI-150.*

MUS-144 Orchestra (1 s.h.)
The North Iowa Symphony Orchestra, sponsored by North Iowa Area Community College, rehearses one night each week in preparation for concerts and programs. Open to all interested NIACC students and adults in the North Iowa area. Some sections of the orchestra require an audition. Course is repeatable for credit to a maximum of 4 credit hours. (20-0) *Equivalent to MUSI-153, 50-153.*

MUS-145 Concert Band (1 s.h.)
The North Iowa Concert Band, sponsored by North Iowa Area Community College, rehearses one night each week in preparation for concerts and programs. Open to all interested NIACC students and adults in the North Iowa area. Course is repeatable for credit to a maximum of 4 credit hours. (20-0) *Equivalent to 50-152, MUSI-152.*

MUS-150 Chamber Ensemble (1 s.h.)
Course is designed to provide an opportunity to study and perform chamber literature of the last three centuries. Groups may vary in size from duets to sextets for brass, woodwind, string, or percussion instrumentalists. Also includes jazz combos. Time arranged. Course is repeatable for credit to a maximum of 4 credit hours. (15-0) *Equivalent to MUSI-155, 50-155.*

MUS-152 Vocal Ensemble--NIACC Singers (1 s.h.)
Corequisite: MUS-140, Concert Choir. NIACC Singers is an auditioned group for students with a high level of competency in vocal music. Auditions may be completed individually by contacting the professor. The group performs one formal concert on campus each semester, as well as community performances, area high school assemblies, and community meetings. Course may be repeated for credit. (0-60) *Equivalent to 50-151, MUSI-151.*

MUS-163 Instrumental Jazz Ensemble (1 s.h.)
The NIACC Jazz Ensemble rehearses two hours each week in preparation for concerts on campus, for area high school assemblies, festivals, and community events. Concentration on jazz repertoire from 1930 to the present. Open to all interested NIACC students by audition. Course is repeatable for credit to a maximum of 4 credit hours. (30-0) *Equivalent to MUSI-154, 50-154.*

MUS-212 American Musical Heritage (3 s.h.)
Prerequisite: MUS-100, Music Appreciation. This course is a scholarly examination of the history and roots of many vernacular genres inherent to contemporary American music. Students will obtain increased awareness of popular music's heritage: to appreciate its diversity; to perceive the underlying kinship of its many styles, to discover the cultural influences of North America, South America, Central America, Mexico, and Africa; and to sense its evolutionary momentum. (45-0)

MUS-222 Music Theory III (4 s.h.)
Prerequisite: Final grade of C or better in MUS-123, Music Theory II, or instructor consent. Students will meet five days a week for one hour. Students will develop analytical, written, aural, and sight-singing skills in music covering the Renaissance through the early Classical period. (45-30) *Equivalent to 50-123, MUSI-221.*

MUS-223 Music Theory IV (4 s.h.)
Prerequisite: Final grade of C or better in MUS-222, Music Theory III, or instructor consent. Students will meet five days a week for one hour. Students will develop analytical, written, aural, and sight-singing skills in music covering the late Classical through the 20th Century. (45-30) *Equivalent to 50-124, MUSI-222.*

NET-112 Technology Essentials (3 s.h.)
Have a computer that needs some help? Learn how to install memory, upgrade Windows, and scan for viruses. This hands-on course will teach you how to connect computers and share files, bring pictures onto your computer, hook up that scanner and printer, and create a home computer network. (45-0) *Equivalent to 15-143, ISTS-100.*

NET-113 IT Essentials (4 s.h.)
Presents an in-depth exposure to computer hardware and operating systems. Students learn the functionality of hardware and software components as well as suggested best practices for maintenance and safety issues. Students learn how to assemble and configure a computer, install operating systems and software, and troubleshoot hardware and software problems. This course helps students prepare for CompTIA's A+ certification exam, which covers the knowledge and skills essential for becoming a successful computer technician. (60-0)

NET-133 Operating System Software Basics (4 s.h.)
 Prerequisite: NET-113, IT Essentials, or permission of instructor. This course expands on concepts and skills learned in NET-113, IT Essentials, and provides the knowledge, skills, and abilities essential for a successful computer service technician at the advanced level. Students are provided theoretical information and hands-on experiences in advanced topics of computer troubleshooting and repair. Students will be presented with opportunities to identify and diagnose hardware and software problems; implement and test solution(s); and prepare appropriate documentation. (60-0) *Equivalent to 15-209, ISTS-131.*

NET-136 Operating Systems II (3 s.h.)
 Prerequisite: NET-113, IT Essentials, or permission of the instructor. This course addresses advanced topics such as file management, shell programming, security, network and service administration, fault tolerance, recovery, troubleshooting, and operating system structure. This will be accomplished by studying the Unix or Linux operating systems. (45-0) *Equivalent to 15-177, ISTS-111.*

NET-157 Network Design I (3 s.h.)
 Prerequisite: NET-233, CISCO Switches, or NET-201, Network LANs and WANs, or permission of instructor. This course leads to the CCDA certification. The CCDA certification (CISCO Certified Design Associate) indicates a foundation or apprentice knowledge of network design for the small office/home office (SOHO) market. CCDA certified professionals can design routed and switched networks involving LAN, WAN, and dial access services for businesses and organizations with networks of fewer than 100 nodes. (45-0) *Equivalent to 15-288, SRNE-202.*

NET-158 Network Design II (4 s.h.)
 Prerequisite: NET-157, Network Design I; NET-254*, CISCO Advanced Routing; NET-264, CISCO WAN Remote Access; and NET-274*, CISCO Switching, Multilayer, or permission of instructor. (*NET-260, Advanced Routing/Switching, can substitute for NET-254 and NET-274.) This course leads to the CCDP certification. The CCDP certification (CISCO Certified Design Professional) indicates advanced or journeyman knowledge of network design. With a CCDP, a network professional can design routed and switched networks involving LAN, WAN, and dial access services for businesses and organizations with 100 to more than 500 nodes. (60-0) *Equivalent to 15-289, SRNE-206.*

NET-160 Network Design & Documentation (3 s.h.)
 Prerequisite: NET-201, Network LANs and WANs, or permission of instructor. This course leads to the CCDA certification. The CCDA certification (CISCO Certified Design Associate) indicates a foundation or apprentice knowledge of network design for the small office/home office (SOHO) market. CCDA certified professionals can design routed and switched networks involving LAN, WAN, and dial access services for businesses and organizations with networks of fewer than 100 nodes. Advanced topics leading to CCDP certification (CISCO Certified Design Professional) will be covered. (45-0)

NET-201 Network LANs and WANs (4 s.h.)
 Prerequisite: NET-223, CISCO Routers or permission of instructor. LAN/WAN Technologies focuses on advanced IP addressing techniques (Variable Length Subnet Masking [VLSM]), Network

Address Translation [NAT], Port Address Translation [PAT, and DHCP]), intermediate routing protocols (RIP v2, single-area OSPF, EIGRP), command-line interface configuration of switches and routers, Ethernet switching, Virtual LANs (VLANs), Spanning Tree Protocol (STP), and VLAN Trunking Protocol (VTP). Also covered are WAN technology and terminology, PPP, ISDN, DDR, Frame Relay, and network management. Particular emphasis is given to students being able to demonstrate the ability to apply learning from CCNA1 and 2 to a network and to be able to explain how and why a particular strategy is employed. (60-0)

NET-213 CISCO Networking (4 s.h.)
 Networking Basics is the first of the four courses leading to the CISCO Certified Network Associate (CCNA) designation. CISCO Networking (CCNA 1) introduces CISCO Networking Academy Program students to the networking field. The course focuses on network terminology and protocols, local-area networks (LANs), wide-area networks (WANs), Open System Interconnection (OSI) models, cabling, cabling tools, routers, router programming, Ethernet, Internet Protocol (IP) addressing, and network standards. (60-0) *Equivalent to 15-156, ISTS-101.*

NET-223 CISCO Routers (4 s.h.)
 Prerequisite: NET-213, CISCO Networking, or permission of the instructor. Routers and Routing Basics is the second of four CCNA courses leading to the CISCO Certified Network Associate (CCNA) designation. CISCO Routers Networking II (CCNA 2) focuses on initial router configuration, CISCO IOS Software management, routing protocol configuration, TCP/IP, and access control lists (ACLs). Students will develop skills on how to configure a router, managing CISCO IOS Software, configuring routing protocol on routers, and set the access lists to control access. (60-0) *Equivalent to 15-157, ISTS-102.*

NET-233 CISCO Switches (4 s.h.)
 Prerequisite: NET-223, CISCO Routers, or permission of the instructor. Switching Basics and Intermediate Routing is the third of four courses leading to the CISCO Certified Network Associate (CCNA) designation. CISCO Switches (CCNA 3) focuses on advanced IP addressing techniques (Variable Length Subnet Masking [VLSM]), intermediate routing protocols (RIP v2, single-area OSPF, EIGRP), command-line interface configuration of switches, Ethernet switching, Virtual LANs (VLANs), Spanning Tree Protocol (STP), and VLAN Trunking Protocol (VTP). Particular emphasis is given to students being able to demonstrate the ability to apply learning from CCNA 1 and 2 to a network and to be able to explain how and why a particular strategy is employed. (60-0) *Equivalent to 15-158, ISTS-201.*

NET-243 CISCO Wide Area Network (WAN) (4 s.h.)
 Prerequisite: NET-233, CISCO Switches, or permission of the instructor. WAN Technologies is the last of four courses leading to the CISCO Certified Network Associate (CCNA) designation. CISCO Wide Area Network (WAN)(CCNA 4) focuses on advanced IP addressing techniques (Network Address Translation [NAT], Port Address Translation [PAT], and DHCP), WAN technology and terminology, PPP, ISDN, DDR, Frame Relay, network management and introduction to optical networking. Particular emphasis is given to students being able to demonstrate the ability to apply knowledge from CCNA 1, CCNA 2, and CCNA 3 to a network and to be able

to explain how and why a particular strategy is employed. In addition, the student will prepare for taking the CCNA Exam. (60-0) *Equivalent to 15-159, ISTS-202.*

NET-246 Perimeter Defense (3 s.h.)

Prerequisite: NET-223, CISCO Routers, or permission of instructor. This course introduces the network security specialist to the various methodologies for defending a network. The student will be introduced to the concepts, principles, types and topologies of firewalls including: packet filtering, proxy firewalls, application gateways, circuit gateways and stateful inspection. Students taking this class will be prepared to take the SECUR (Securing CISCO IOS Networks) and CSPFA (CISCO Secure PIX Firewall Advanced) exams in preparation for the CISCO Firewall Specialist. These exams also count toward security-professional-level CCSP certification. (CCSP - CISCO Certified Security Professional) (45-0)

NET-247 Internal Defense (3 s.h.)

Prerequisite: NET-246, Perimeter Defense, or permission of instructor. This course will expose the student to the various defense methodologies associated with Virtual Private Networks (VPN). Host Intrusion Detection Systems (HIDS) and Network Intrusion Detection Systems (NIDS) will be discussed along with in-depth coverage of incident handling and response. It will introduce the student to the best practices associated with properly securing business critical network systems using VPNs. (45-0)

NET-254 CISCO Advanced Routing (4 s.h.)

Prerequisite: NET-243, CISCO Wide Area Network (WAN), or NET-201, Network LANS and WANS, or permission of the instructor. This course focuses on advanced routing using CISCO routers connected in local-area networks (LANs) and wide-area networks (WANs) typically found at medium to large network sites. Upon completion of this training course, the student will be able to select and implement the appropriate CISCO IOS services required to build a scalable routed network. (60-0) *Equivalent to 15-277, SRNE-200.*

NET-260 Advanced Routing/Switching (6 s.h.)

Prerequisite: NET-201, Network LANS/WANS, or permission of the instructor. Advanced Routing/Switching introduces students to scaling IP networks and the process of deployment of the state-of-the-art campus LANs. The course focuses on the selection and implementation of the appropriate CISCO IOS services to build reliable scalable multilayer-switched LANs. Students will develop skills with VLANs, VTP, STP, inter-VLAN routing, multilayer switching, redundancy, CISCO AVVID solutions, QoS issues, campus LAN security, and emerging transparent LAN services. This hands-on, lab-oriented course stresses the design, implementation, operation, and troubleshooting of switched and routed environments. Also students learn to use VLSM, private addressing, and NAT optimize IP address utilization. Content is related to learning how to implement the RIPv2, EIGRP, OSPF, IS-IS, and BGP routing protocols. In addition the course details the important techniques used for route filtering and route redistribution. (90-0)

NET-264 CISCO WAN Remote Access (4 s.h.)

Prerequisite: NET-201, Network LANS & WANS, or NET-243, CISCO Wide Area Network (WAN), or permission of the instructor. Remote Access is the second of four courses leading to the CISCO Certified Network Professional (CCNP) designation. Network

Remote Access (CCNP 2) introduces students to the implementation of CISCO routers in WAN applications. The course focuses on the selection and implementation of the appropriate CISCO IOS services required to build intranet remote access links. Students will develop skills with the specific WAN technologies of analog dial-up, ISDN BRI and PRI, Frame Relay, broadband, and VPN. This hands-on, lab-oriented course stresses the design, implementation, operation, and level 1 troubleshooting of common WAN connectivity options. (60-0) *Equivalent to 15-278, SRNE-201.*

NET-274 CISCO Switching, Multilayer (4 s.h.)

Prerequisite: NET-254, CISCO Advanced Routing, or permission of instructor. CISCO Switching, Multilayer is the third of four courses leading to the CISCO Certified Network Professional (CCNP) designation. CISCO Switching Multilayer (CCNP 3) introduces students to the process of deployment of the state-of-the-art campus LANS. The course focuses on the selection and implementation of the appropriate CISCO IOS services to build reliable scalable multilayer-switched LANS. Students will develop skills with VLANs, VTP, STP, inter-VLAN routing, multilayer switching, redundancy, CISCO AVVID solutions, QoS issues, campus LAN security, and emergency transparent LAN services. This hands-on, lab-oriented course stresses the design, implementation, operation, and troubleshooting of switched and routed environments. (60-0) *Equivalent to 15-285, SRNE-203.*

NET-284 CISCO Support (4 s.h.)

Prerequisite: NET-260, Advanced Routing/Switching or NET-254, CISCO Advanced Routing and NET-274, CISCO Switching, Multilayer; NET-264, CISCO WAN Remote Access; or permission of the instructor. Network Troubleshooting is the last of four courses leading to the CISCO Certified Network Professional (CCNP) certification. Network Support (CCNP 4) teaches students about troubleshooting network problems. The course focuses on documenting and baselining a network, troubleshooting methodologies and tools, and Layers 1 to 7 troubleshooting. (60-0) *Equivalent to 15-286, SRNE-204.*

NET-301 Network Cases (Voice over IP) (4 s.h.)

Prerequisite: NET-201, Network LANS & WANS or NET-243, CISCO Wide Area Network (WAN). Network Cases is a capstone course drawing together key networking resources. The course primarily focuses on voice and data integration, Voice over IP (VoIP) specifically, and the technologies that make it function. Components and standards of VoIP, also referred to as IP Telephony, are covered along with the reasoning behind its use. (60-0)

NET-304 Windows Workstation Operating Systems (4 s.h.)

Prerequisite: NET-113, IT Essentials, or permission of the instructor. This course prepares the student to properly install, configure, upgrade, troubleshoot, and repair personal computer operating systems such as Microsoft Windows 2000 Professional and Microsoft Windows XP Professional. This course also addresses operating system interface controls; file system management; application management; network client configuration; and, operating system security. (60-0) *Equivalent to 15-182, ISTS-120.*

NET-314 Windows Server (4 s.h.)

Prerequisite: NET-304, Windows Workstation Operating Systems, or permission of the instructor. This course applies the students'

knowledge of computer networking, client operating systems, and server operating systems to the management of a complete Microsoft Windows network environment. Students will learn to manage client and server computers, storage resources, NTFS permissions, shared drives and printers, server performance and security, Active Directory objects, group policies, the Active Directory service, TCP/IP, name resolution protocols, applications, IIS, remote access, disaster recovery, and security. (60-0) *Equivalent to 15-163, ISTS-205.*

NET-324 Windows Network Management (4 s.h.)

Prerequisite: NET-314, Windows Server, or permission of the instructor. This course goes into detail on topics of network operating system such as design, planning, installation, configuration, security, performance, administration, troubleshooting, fault tolerance, and disaster recovery. Client setup, file and print sharing, directory services, remote access, along with other network services will be explored. Concepts learned in this course lead toward the Microsoft Certified Professional Exam #70-291 Managing a Microsoft Windows 2003 Network Environment. (60-0) *Equivalent to 15-184, ISTS-121.*

NET-375 Cyber Security Design Cases (3 s.h.)

Prerequisite: NET-246, Perimeter Defense, or permission of instructor. This course affords the network cyber security specialist the opportunity to conduct a vulnerability analysis upon a network using attack methodologies learned by the student in previous courses. The student must demonstrate the ability to design, plan, and execute a vulnerability analysis against an organized network, as well as develop security policies to sustain a corporate environment. The student must prepare a written report about the security design, attack methodology, and the tools and techniques used. (45-0)

NET-490 Inter/Intra - Applications (4 s.h.)

Prerequisite: NET-304, Windows Workstation Operating Systems, and NET-314, Windows Server, or permission of the instructor. This course enables students to design, set up, configure, and manage Internet and Intranet services such as Web, e-mail, DNS, security, and FTP along with gaining knowledge and insight into management of emerging Internet and Intranet technologies. Students will gain hands-on experiences in the installation, configuration, and management of applications such as Microsoft Internet Information Services (IIS), Apache Web Server, Microsoft Exchange Server, and Lotus Domino. (60-0) *Equivalent to 15-166, ISTS-206.*

NET-613 Information Data Assurance (3 s.h.)

Prerequisite: NET-213, CISCO Networking, or NET-113, IT Essentials, or permission of the instructor. This course will provide an overview of issues related to security in a networked environment, including such topics as security and disaster recovery, security within information services, security within an organization, virus protection, and Internet security/firewalls. (45-0) *Equivalent to 15-167, ISTS-210.*

NET-635 Ethical Hacking (3 s.h.)

Prerequisite: NET-613, Information Data Assurance, or permission of instructor. This course will go into more depth using the tools and concepts students were exposed to in Information "Data" Assurance. The student will be introduced to the concepts,

principles, and techniques supplemented by hands-on exercises for defending from an attack. These methodologies are presented within the context of properly securing the network. The course will emphasize network attack defense methodologies with the emphasis on student use of network attack techniques and tools. The concept of Systems Security Certified Practitioner (SSCP) will be strongly emphasized in this course along with several of the CISSP CBK domains. (Certified Information Systems Security Professional - Common Body of Knowledge). (45-0)

NET-690 Emerging Network Access Technologies (4 s.h.)

Prerequisite: NET-223, CISCO Routers, or permission of the instructor. This introductory course to Wireless LANs focuses on the design, planning, implementation, operation and troubleshooting of Wireless LANs. It covers a comprehensive overview of technologies, security, and design best practices with particular emphasis on hands-on skills in the following areas: Wireless LAN setup and troubleshooting; 802.11a, 802.11b, and 802.11g technologies, products and solutions; Site Surveys; Resilient WLAN design, installation and configuration; WLAN Security -- 802.1x, EAP, LEAP, WEP, SSID; Vendor interoperability strategies. (60-0) *Equivalent to 15-287, SRNE-205.*

NET-743 Fundamental Project Management (4 s.h.)

Fundamentals of Project Management defines a project and the role of projects in business. Students identify and demonstrate the basic knowledge areas of Project Management and the Project Management Framework. These knowledge areas focus on managing project components including: Integration, Scope, Time (scheduling), Cost, Quality, Human Resource, Communications, Risk, and Procurement. Fundamentals of Project Management clarifies the relationship between Project Management and other management disciplines including general management knowledge and practice, and application-area knowledge and practice. Students learn to apply the breakdown of project phases and processes and construct project plans that employ project phasing and knowledge areas. Students also learn to identify the aspects of project-based organizational systems and classify business organizations by type and project characteristics. Critical Path Method (CPM) project scheduling is learned and utilized to coordinate project planning, execution and analysis throughout a project life cycle. (60-0) *Equivalent to 15-290, ISTS-150.*

NET-782 Computer Users Support (3 s.h.)

Prerequisite: BCA-101, Introduction to Computers and Information Systems; NET-113, IT Essentials; or instructor approval. Introduces the concept of supporting personal computers as a career. Designed to help students target their customers and develop appropriate service skills. This course provides an introduction to end-user computing, computer user support, customer service skills, skills required for troubleshooting computer problems, common support problems, help desk operation, user support management, product evaluation strategies and standards, user needs analysis and assessment, installing end-user computer systems, training computer users, technical writing skills, and computer facilities management. (45-0) *Equivalent to 15-193, ISTS-230.*

PEA-100 Aerobics/Tae-Bo I (1 s.h.)

A one-hour lab class designed to increase the students' level of physical fitness and confidence through participating in three levels

of Tae-Bo. Tae-Bo is an aerobic form of exercise using basic self-defense techniques of punching and kicking to develop cardiovascular strength, flexibility, and muscular endurance. The class is set up to be progressive with three levels of Tae-Bo included. The three levels are: a basic level, an intermediate level, and an advanced level of Tae-Bo. Class activity will follow the "Billy Blanks Instructional Tae-Bo" videotapes. Class will meet twice each week for one hour. The course is repeatable for up to four credits. (2-28) *Equivalent to PHYE-132, 60-108.*

PEA-116 Bowling I (1 s.h.)

A one-hour lab class designed to teach the basic skills and knowledge of bowling through participation in a two hour per week bowling class. Student will be instructed on basic bowling techniques and scoring. Student will participate in various bowling activities such as a class bowling league and other group and individual competition. Class will meet at Mystic Lanes in Mason City. Student is required to pay a one-time bowling fee of \$45. The course is repeatable for up to four credits. (2-28) *Equivalent to PHYE-131, 60-107.*

PEA-146 Physical Fitness I (1 s.h.)

A lecture course designed to teach the student about the importance of being physically fit. The course material will provide insight into various methods of testing physical fitness as well as identifying what good physical fitness is. The student will be able to assess his/her own level of physical fitness. (15-0) *Equivalent to PHYE-113, 60-113.*

PEA-147 Physical Fitness I Lab (1 s.h.)

A lab course designed to increase a person's interest of his/her own level of physical fitness. The course provides activities with which the student can improve his/her level of physical fitness in the areas of strength, flexibility, and endurance. The student will be required to participate in class activities twice a week. (0-30) *Equivalent to PHYE-114, 60-114.*

PEA-187 Weight Training I (1 s.h.)

A lab course designed to increase the student's awareness and appreciation of weight training and its effect on physical well being. The course provides a structured environment for the student to learn proper lifting techniques and an awareness of the benefits associated with different types of lifts. The course is repeatable for up to four semester hours credit. (0-30) *Equivalent to PHYE-130, 60-102.*

PEA-190 Yoga/Stretching I (1 s.h.)

A lab course designed to increase the student's awareness and appreciation of yoga and its effect on physical and mental well being. The course provides a structured environment for the student to learn proper body alignment in the yoga poses and an awareness of the benefits associated with the different poses. This course is repeatable for up to 2 semester hours of credit. (0-30) *Equivalent to PHYE-133.*

PEC-110 Coaching Ethics Techniques & Theory (1 s.h.)

Guiding principles and techniques of coaching interscholastic athletics. Discussion of theory, ethics, and professional responsibilities as they relate to coaching interscholastic athletes. (20-0) *Equivalent to PHYE-150, 60-150.*

PEC-115 Athletic Development & Human Growth (1 s.h.)

A one-semester course with emphasis on human growth and development and relationship to physical activity, with special attention to children and adolescents. (15-0) *Equivalent to PHYE-153, 60-153.*

PEC-122 Introduction to Anatomy & Physiology for Coaching (1 s.h.)

An introduction to anatomy and physiology with stress on the relationship to athletic actions. This course is designed as an introductory course for prospective coaches with little or no background in anatomy and physiology. (15-0) *Equivalent to 60-152, PHYE-152.*

PEC-127 Care and Prevention of Athletic Injuries (2 s.h.)

Recommended: one semester course in anatomy and physiology. Introductory preparation in athletic training, injury, treatment techniques, taping, wrapping, etc. Preventative measures to reduce athletic injuries. Course may be used to fulfill partial requirement for Iowa Coaching Certification. (30-0) *Equivalent to PHYE-151, 60-118.*

PEC-166 Sports Officiating: Fall and Winter Sports (2 s.h.)

Guiding principles and standards: rules, mechanics, and procedures for competitive sports officiating. Students will work toward becoming a registered official in the Iowa Athletic Associations. Emphasis will be on football, volleyball, and boys' and girls' basketball officiating. Each student will gain actual officiating experience. (28-4) *Equivalent to PHYE-115, 60-115.*

PEC-168 Sports Officiating: Spring and Summer Sports (2 s.h.)

Prerequisite: PEC-166, Sports Officiating: Fall and Winter Sports. This course is a continuation of PEC-166. Attention directed toward the study of wrestling, track, baseball, and softball. (28-4) *Equivalent to PHYE-116, 60-116.*

PEH-140 First Aid (1 s.h.)

Lecture-type course designed to give the layperson adequate first aid knowledge and skills with emphasis on accident prevention and recognition and treatment of common medical emergencies. (15-0) *Equivalent to PHYE-117, 60-232.*

PEH-161 Introduction to Physical Education (2 s.h.)

Designed to provide career information concerning opportunities in physical education, coaching, and recreational activities. (30-0) *Equivalent to PHYE-101, 60-117.*

PEH-180 Rape Education & Self Defense (2 s.h.)

Rape Education and Self Defense is a course of study designed to introduce the participant to basic self-defense concepts and techniques, to heighten the participant's level of awareness and alertness in her environment, to provide participant with information about violent contexts, and to provide the participant with basic physical methods of self-defense. In general, this course cannot offer absolutes; however, the theory behind such a course rests in the concept that those armed with information and a few operational options stand a better chance of avoiding and, when avoidance fails, surviving violence. (30-0) *Equivalent to PHYE-110, 60-175.*

- PEV-115 Varsity Baseball** (1 s.h.)
Course may be repeated for a maximum of two credits. (40-160)
Equivalent to PHYE-120, 60-120.
- PEV-120 Varsity Basketball** (1 s.h.)
Course may be repeated for a maximum of two credits. (40-160)
Equivalent to PHYE-121, 60-121.
- PEV-130 Varsity Cross Country** (1 s.h.)
Course may be repeated for a maximum of two credits. (40-160)
Equivalent to PHYE-124, 60-124.
- PEV-133 Varsity Track and Field** (1 s.h.)
Course may be repeated for a maximum of two credits. (40-160)
Equivalent to PHYE-134.
- PEV-135 Varsity Football** (1 s.h.)
Course may be repeated for a maximum of two credits. (40-160)
Equivalent to PHYE-122, 60-122.
- PEV-140 Varsity Golf** (1 s.h.)
Course may be repeated for a maximum of two credits. (10-60)
Equivalent to PHYE-123, 60-123.
- PEV-150 Varsity Soccer** (1 s.h.)
Course may be repeated for a maximum of two credits. (40-100)
Equivalent to PHYE-129, 60-129.
- PEV-160 Varsity Softball** (1 s.h.)
Course may be repeated for a maximum of two credits. (40-160)
Equivalent to PHYE-127, 60-127.
- PEV-170 Varsity Volleyball** (1 s.h.)
Course may be repeated for a maximum of two credits. (40-100)
Equivalent to PHYE-128, 60-128.
- PEV-180 Varsity Wrestling** (1 s.h.)
Course may be repeated for a maximum of two credits. (40-160)
- PHI-101 Introduction to Philosophy** (3 s.h.)
Introduces the student to the study of philosophy and teaches skills of critical thinking. The course examines the meaning and value of philosophy; human nature and the self, axiology-ethics and values (In search of the Good Life); social philosophy; freedom; individualism; philosophy and art; epistemology-the nature of knowledge; truth; philosophy and religion; the meaning of suffering and death; examination of decision making and self-discovery. (45-0)
Equivalent to PHIL-101, 80-210.
- PHI-105 Introduction to Ethics** (3 s.h.)
This course is designed to develop objective thinking skills. The goal is to create a balance between moral principles when considering a variety of ethical issues. The emphasis will be on developing a moral stance that is workable in today's society. Issues include poverty, environment, animal rights, business, preferences in hiring, war, death penalty, abortion, euthanasia, parent-child relationships, sex, love, and marriage. (45-0) *Equivalent to PHIL-102, 80-212.*
- PHS-125 Physical Science** (4 s.h.)
Prerequisite: High school Algebra or equivalent. An introductory college level, one-semester course intended to meet general education and elementary education certification requirements. Uses the Powerful Ideas in Physical Science curriculum and includes the units on Light & Color, Electricity, and Heat & Conservation of Energy. (45-30) *Equivalent to 70-114, PHYS-101.*
- PHS-142 Principles of Astronomy** (3 s.h.)
An introductory level, one-semester course for the nonscience major. Topics include a brief history of astronomy, the physics behind astronomy, the solar system, stars, and galaxies. Computer-based and hands-on activities complement material in the text. (45-0) *Equivalent to 70-182, PHYS-105.*
- PHY-106 Survey of Physics** (4 s.h.)
Prerequisite: MAT-102, Intermediate Algebra, or equivalent. An introductory, one-term course covering measurement, motion, heat, waves, electricity, magnetism and atomic physics. (45-30)
Equivalent to 70-122, PHYS-110.
- PHY-162 College Physics I** (4 s.h.)
Prerequisite: MAT-134, Trigonometry and Analytic Geometry, or equivalent. For students going into professional fields other than engineering. Covers mechanics, conservation laws, simple harmonic motion, waves, and fluids. (45-30) *Equivalent to 70-280, PHYS-120.*
- PHY-172 College Physics II** (4 s.h.)
Prerequisite: PHY-162, College Physics I; or equivalent algebra-based first semester physics course as approved by the instructor. A continuation of College Physics I, covering thermodynamics, electricity and magnetism, DC and AC circuits, and optics. (45-30)
Equivalent to 70-281, PHYS-121.
- PHY-212 Classical Physics I** (5 s.h.)
Prerequisite: MAT-210, Calculus I or equivalent with a C or higher, concurrent enrollment in or completion of MAT-216, Calculus II or equivalent. Calculus-based course intended for engineers or physics majors. Covers Kinematics, dynamics, statics, conservation laws, rotational motion, simple harmonic motion, waves, and fluids. (60-30) *Equivalent to 70-282, PHYS-220.*
- PHY-222 Classical Physics II** (5 s.h.)
Prerequisite: PHY-212, Classical Physics I or equivalent; MAT-216, Calculus II or equivalent. Second of two-course sequence for engineers or physics majors. Covers thermodynamics, electricity and magnetism, electric circuits, and optics. (60-30) *Equivalent to 70-283, PHYS-221.*
- PHY-720 Career Physics** (4 s.h.)
Prerequisite/Corequisite: MAT-770, Applied Math, and MAT-771, Applied Math II. An introduction to the physics of mechanical, fluid, electrical and thermal systems with emphasis on application in the technical careers. (45-30) *Equivalent to 96-150, PHYS-701.*
- PNN-603 Practical Nursing I** (4 s.h.)
Prerequisite/Corequisite: HSC-150, Body Structure and Function, ENG-105, Composition I. Orientation to nursing and the role of the practical nurse in the health community, history of nursing, ethical

principles, legal nursing assessment, basic nursing skills, and practice of nursing skills in college laboratory. (45-30) *Equivalent to 94-101, LPNS-701.*

PNN-604 Practical Nursing II (13 s.h.)

Prerequisite: PNN-603, Practical Nursing I; HSC-150, Body Structure and Function; and ENG-105, Composition I. Prerequisite/Corequisite: PSY-111, Introduction to Psychology. A continuation of PNN-603, Practical Nursing I. Practical Nursing II utilizes the nursing process with emphasis on development of basic skills, nursing assessment, creating and maintaining the physical environment, physical and psychological supportive measures, basic scientific principles of therapeutic nursing interventions and documentation, introduction to pharmacology and the administration of medications, normal nutrition, and therapeutic diets. The student will be offered basic knowledge about the family and newborn. Includes growth and development through adolescence, as well as the effect of illness and hospitalizations on the child and family. Supervised practices in a college laboratory setting. Clinical experiences include long-term care nursing facilities, medical-surgical settings, birth center, a pediatric unit, and selected community agencies. (135-165) *Equivalent to LPNS-705.*

PNN-607 Practical Nursing III (13 s.h.)

Prerequisite: PNN-603, Practical Nursing I; PNN-604, Practical Nursing II; HSC-150, Body Structure and Function; ENG-105, Composition I, and PSY-111, Introduction to Psychology. Prerequisite/Corequisite: PSY-121, Developmental Psychology. Utilization of the nursing process to develop basic skills in providing nursing care for patients with common health problems associated with each body system. Continuation of pharmacology and nutrition, beginning management skills and responsibilities of a licensed practical nurse, trends in nursing, preparation for licensure, and employment. Supervised clinical experience in medical/surgical areas, and surgical patient follow-through, mental health, home care and nursing facilities. (105-270) *Equivalent to 94-110, LPNS-704.*

POL-111 American National Government (3 s.h.)

A survey of the American federal system of government including a description and analysis of the Constitution; the legislative, executive, and judicial branches of government; and the American political process. (45-0) *Equivalent to 80-120, POLS-101.*

POL-112 American State and Local Government (3 s.h.)

A survey of state and local governments in the United States including an analysis of federal-state relations; state constitutions; state and local legislative, executive, and judicial systems; and major issues in state and local politics. (45-0) *Equivalent to 80-121, POLS-102.*

POL-121 International Relations (3 s.h.)

An introductory course in international relations which offers an analysis of the structure and processes of world politics. Topics covered include the study of foreign policies, a survey of major problems in contemporary world affairs, and an examination of selected global issues. (45-0) *Equivalent to 80-122, POLS-110.*

PSY-111 Introduction to Psychology (3 s.h.)

An introduction to the scientific study of behavior; a brief history of psychology as a science, and topics fundamental to human

behavior including developmental issues, sensory abilities, cognitive performance, social and emotional factors in behavior, and abnormal behavior and therapies. (45-0) *Equivalent to 80-101, PSYC-101.*

PSY-121 Developmental Psychology (3 s.h.)

A study of the physical, mental, emotional, and social growth of the person from conception through later adulthood. Class lecture and discussion will reflect on such issues as attachment, play behavior, parenting styles and discipline, education, mate selection, mid-life events, and later adulthood experiences. (45-0) *Equivalent to PSYC-110, 80-230.*

PSY-223 Child and Adolescent Psychology (3 s.h.)

Prerequisite: PSY-111, Introduction to Psychology, and/or PSY-121, Developmental Psychology. Course covers information relevant to the development of humans from the prenatal stages through adolescence. Topics covered include the developing fetus, as well as physical, social, and psychological development in infancy, toddlerhood, childhood, and adolescence. (45-0) *Equivalent to 80-104, PSYC-204.*

PSY-281 Educational Psychology (3 s.h.)

Educational psychology applies the accumulated knowledge of human cognition and behavior from the field of psychology to the theory and practice of teaching. This course will be taught from a research perspective to facilitate student comprehension of teaching theories and how they can be applied in the classroom. (45-0) *Equivalent to 80-103, PSYC-205.*

PTA-100 PTA Terminology (1 s.h.)

Prerequisite: None. Includes an orientation to the vocabulary of medicine with emphasis on terminology related to physical therapy. (15-0) *Equivalent to 90-145, PTAS-703.*

PTA-101 Introduction to PTA (2 s.h.)

Prerequisite: None. This course provides an overview of the physical therapy profession and the role of the physical therapist assistant, including legal and ethical aspects of practice. Students will be introduced to the patient care process, be instructed in documentation, and given much opportunity to work on their communication skills. Includes an introduction to the Clinical Education component of the program. (30-0) *Equivalent to 90-149, PTAS-701.*

PTA-110 Fundamentals for PTA (3 s.h.)

Prerequisite: None. This course provides a foundation in physical therapy interventions by covering techniques that the PTA can utilize to monitor patients as well as basic treatment interventions such as range of motion and transfers. Purposes of all skills, proper techniques, and safety considerations will be addressed. Students will have lab time to apply, practice, and demonstrate skills they are taught. (30-30) *Equivalent to 90-144, PTAS-702.*

PTA-120 Kinesiology (3 s.h.)

Prerequisite: BIO-206, Anatomy and Physiology I (with lab). Provides a basic understanding of normal human body movement as related to skeletal, articular, neurological, and muscular systems. Levers, torques, center of gravity, base of support, and their relationship to balance, posture, and movement will be addressed. The

student will learn anatomical palpations and the basics of human gait. (30-30) *Equivalent to 70-149, BIOL-222.*

PTA-141 Developmental Processes (3 s.h.)
Prerequisite: PTA-110, Fundamentals for PTA, and PTA-300, Introduction to the Clinic. Presents normal physical, cognitive, social, and emotional developmental processes which affect an individual throughout the life span. Emphasis on integration of all aspects of human development and additional focus on application of physical processes to the field of physical therapy. (45-0) *Equivalent to 90-146, PTAS-711.*

PTA-150 Pathophysiology (3 s.h.)
Prerequisite: HSC-120, Medical Terminology I or PTA-100, PTA Terminology; BIO-206, Anatomy and Physiology I (with lab); and BIO-207, Anatomy and Physiology II (with lab). Presents clinical disorders and diseases commonly treated in physical therapy. Pathology, etiology, diagnosis, signs, symptoms, treatment, prognosis and implications for rehabilitation will be covered. (45-0) *Equivalent to 90-147, PTAS-801.*

PTA-162 PTA Assessment Procedures (3 s.h.)
Prerequisites: HSC-120, Medical Terminology I or PTA-100, PTA Terminology; PTA-110, Fundamentals for PTA; and PTA-120, Kinesiology. This course provides an in-depth look at various assessment skills performed and utilized by the PTA. Special emphasis will be on theory, application procedures, and documentation of findings when utilizing goniometry and manual muscle testing in the clinic setting. Students will have an opportunity in the lab portion to apply, practice, and demonstrate techniques they are taught. (30-30) *Equivalent to 90-150, PTAS-802.*

PTA-190 Physical Agents (4 s.h.)
Prerequisite: PTA-110, Fundamentals for PTA. Prepares the student to use modalities for patient treatment. Mechanisms of action, indications, precautions, contraindications and treatment procedures will be covered for the following: superficial heat, deep heat, electromagnetic radiation, cold, external compression, massage, biofeedback, whirlpool, wound care, traction, and electrical stimulation. Pain rating and skin assessment procedures will also be included. Students will practice applications in lab. (37.5-45) *Equivalent to 90-159, PTAS-712.*

PTA-210 Orthopedics (3 s.h.)
Prerequisite: BIO-206, Anatomy and Physiology I (with lab), and BIO-207, Anatomy and Physiology II (with lab), and PTA-120, Kinesiology. Principles of fracture and soft tissue healing are applied to musculoskeletal injuries and disorders. Injuries, disorders, and function specific to each joint are covered. Physical therapy treatment for specific joint injuries are presented. Students will practice techniques in lab. (30-30) *Equivalent to 90-213, PTAS-811.*

PTA-231 Therapeutic Exercise for PTA (3 s.h.)
Prerequisite: PTA-110, Fundamentals for PTA, and PTA-120, Kinesiology. This course studies the physiological effect of exercise on the musculoskeletal, cardiovascular, and pulmonary systems. Physical therapy treatment techniques to improve strength, flexibility, cardiovascular and pulmonary function are presented. Treatment programs for specific diagnoses such as diabetes,

pregnancy, and amputation are addressed. Students will practice techniques in lab. (30-30) *Equivalent to 90-212, PTAS-810.*

PTA-241 Neurology for PTA (4 s.h.)
Prerequisites: BIO-206, Anatomy and Physiology I (with lab); BIO-207, Anatomy and Physiology II (with lab); PTA-150, Pathophysiology; PTA-141, Developmental Processes. This course will provide information, discussion, and treatment considerations with neurologically based diagnoses. Emphasis will be on exploring clinical manifestations and treatment considerations with all the disorders with special emphasis on cardiovascular accidents. Typical treatment techniques, exercise programs, and treatment progression will be applied to lab scenarios with a variety of neurological diagnoses. Students will have an opportunity in the lab portion to apply, practice, and demonstrate techniques they are taught. (45-30) *Equivalent to 90-214, PTAS-812.*

PTA-250 PTA Career Essentials (2 s.h.)
Prerequisite: All previous PTA technical courses. Includes the basic principles of management including levels of authority and responsibility, supervisory process, performance appraisals, and policies and procedures. The process of quality assurance and chart audits are discussed. Varieties of reimbursement systems and their impact on health care delivery are discussed. Resume writing, interviewing, and employability skills will be covered. Ethical and legal issues in the practice of physical therapy will also be examined. (30-0) *Equivalent to 90-215, PTAS-813.*

PTA-280 PTA Seminar (1 s.h.)
Prerequisite: All PTA courses. This course will focus on the role of the PTA in helping patients achieve optimal mobility and become as independent as possible with functional activities. Lecture and discussions will incorporate students' experiences from PTA Clinic III and PTA Clinic IV so that each student has time to process and consider these learning experiences. All aspects of patient care will be addressed and case study presentations will be included to assist with problem-solving skills. (15-0) *Equivalent to 90-217, PTAS-823.*

PTA-300 Intro to Clinic (1 s.h.)
Prerequisite: PTA-101, Introduction to PTA; and PTA-110, Fundamentals for PTA. Forty-hour clinical occurs one week prior to start of second term. Skills, knowledge, and attitudes learned in PTA Terminology, Introduction to PTA, and Fundamentals for PTA will be applied to direct patient care in selected clinical settings. Includes application/integration of PTA course work with the goal of student providing quality care with uncomplicated patients and a high degree of supervision and guidance. This course has been designated as a pass/no pass course. (0-40) *Equivalent to 90-136, PTAS-710.*

PTA-301 PTA Clinic I (2 s.h.)
Prerequisite: PTA-101, Introduction to PTA; PTA-110, Fundamentals for PTA; PTA-120, Kinesiology; PTA-141, Developmental Processes; and PTA-190, Physical Agents. Eighty-hour clinical occurs two weeks beyond the end of the second term. Skills, knowledge, and attitudes learned in Developmental Processes, Kinesiology, and Physical Agents will be applied to direct patient care in selected clinical settings. Includes application/integration of current and previous PTA course work with the goal of student providing quality care with uncomplicated to complex patients and a degree of

supervision and guidance that will vary with the complexity of the patient or the environment. This course has been designated as a pass/no pass course. (0-80) *Equivalent to 90-137, PTAS-713.*

PTA-302 PTA Clinic II (2 s.h.)

Prerequisite: HSC-120, Medical Terminology I or PTA-100, PTA Terminology; PTA-101, Introduction to PTA; PTA-110, Fundamentals for PTA; PTA-120, Kinesiology; PTA-141, Developmental Processes; PTA-190, Physical Agents; PTA-150, Pathophysiology; and PTA-162, PTA Assessment Procedures. Eighty-hour clinical occurs in the final week of the third term and extends one week after the term ends. Skills, knowledge, and attitudes learned in Pathophysiology and PTA Assessment Procedures will be applied to direct patient care in selected clinical settings. Includes application/ integration of current and previous PTA course work, with the goal of the student providing quality care with uncomplicated to complex patients and a degree of supervision/guidance that will vary with the complexity of the patient or the environment. This course has been designated as a pass/no pass course. (0-80) *Equivalent to 90-138, PTAS-803.*

PTA-400 PTA Clinic III (7 s.h.)

Prerequisite: HSC-120, Medical Terminology I, or PTA-100, PTA Terminology; PTA-101, Introduction to PTA; PTA-110, Fundamentals for PTA; PTA-120, Kinesiology; PTA-141, Developmental Processes; PTA-190, Physical Agents; PTA-150, Pathophysiology; PTA-162, PTA Assessment Procedures; PTA-302, PTA Clinic II. Eight-week, full-time clinical experience. Skills, knowledge, and attitudes learned in Neurology, Orthopedics, Therapeutic Exercise and Career Essentials will be applied to direct patient care in selected clinical settings. Includes application and integration of all PTA course work with goal of student consistently and efficiently providing quality care with uncomplicated to complex patients and a moderate to low degree of supervision/guidance except when addressing new and highly complex situations. This course has been designated as a pass/no pass course. (0-320) *Equivalent to 90-218, PTAS-821.*

PTA-401 PTA Clinic IV (5 s.h.)

Prerequisite: HSC-120, Medical Terminology I, or PTA-100, PTA Terminology; PTA-101, Introduction to PTA; PTA-110, Fundamentals for PTA; PTA-120, Kinesiology; PTA-141, Developmental Processes; PTA-190, Physical Agents; PTA-150, Pathophysiology; PTA-162, PTA Assessment Procedures; PTA-302, PTA Clinic II; PTA-400, PTA Clinic III. Six-week, full-time clinical experience. Skills, knowledge, and attitudes learned in all PTA course work will be applied to direct patient care in selected clinical settings. Includes application and integration of all PTA course work with the goal of the student consistently and efficiently providing quality care with uncomplicated to complex patients. The student usually needs no further guidance or supervision except when addressing new and highly complex situations. This course has been designated as a pass/no pass course. (0-240) *Equivalent to 90-219, PTAS-822.*

RDG-125 College Reading Strategies (3 s.h.)

Designed to help students become more efficient and effective in reading college textbooks, required materials, leisure articles, and books. Course adapts to the style and needs of each individual to improve vocabulary, comprehension, rate, and study skills. (45-0) *Equivalent to ENGL-120, 30-120.*

RDG-161 Speed Reading (1 s.h.)

Are you struggling to keep up with a flood of e-mail, articles, reports, books, and other printed matter? Save yourself oodles of time by learning to read faster and with better comprehension from acclaimed speed reading expert, Dr. Merrill Ream. This course is a complete speed reading experience. Topics are presented in a logical progression with plenty of time to help you master the skills and techniques you'll need for lasting proficiency as a speed reader. (5-20) *Equivalent to 89-146, SDEV-251.*

SDV-065 Personal Management (3 s.h.)

Prerequisite: Consent of instructor. This Enrich course will examine concerns faced by students as members of modern society. It is designed to assist students in making sound decisions concerning physical, mental, and financial health, and to use nonworking hours in a creative way. Critical thinking skills will be emphasized as students analyze written documents, including those financial, legal, and medical. This course has been designated as a pass/no pass course. (45-0) Instructor's consent required. *Equivalent to ENRI-049, 89-030.*

SDV-066 Career Decisions (3 s.h.)

Prerequisite: Consent of instructor. This Enrich course is designed to assist the student in examining a variety of careers, looking at educational, physical, and mental requirements. Students will develop a personal profile and will match career areas to their personal interests and strengths. This course has been designated as a pass/no pass course. (45-0) Instructor's consent required. *Equivalent to ENRI-051, 89-041.*

SDV-068 Skills for Job Seekers (3 s.h.)

Prerequisite: Consent of instructor, and SDV-066, Career Decisions. This Enrich course is designed to assist the student in structuring a job search. Written materials will include applications, resumes, and cover letters. Interviewing skills will be developed. Job-keeping skills will be emphasized. This course has been designated as a pass/no pass course. (45-0) Instructor's consent required. *Equivalent to ENRI-050, 89-040.*

SDV-100 Orientation to College (0 s.h.)

Prerequisite: First-time, full-time college students [transfer students with less than 12 hours credit]. Areas included in this course are campus involvement, services available to students, alcohol awareness, career awareness, and personality types/study behaviors. (5-0) *Equivalent to 89-140, SDEV-100.*

SDV-111 Success Seminar (1 s.h.)

Prerequisite/Corequisite: For participants in the Student Support Services Project. Success Seminar (Action for College Education) is a motivational behavioral modification program. The course cultivates a positive attitude and gives students the motivation to help themselves in a college setting. The goal is to instill confidence, eagerness, and enthusiasm toward obtaining a college degree. (15-0) *Equivalent to SDEV-101, 89-153.*

SDV-113 Strategies for Academic Success (2 s.h.)

Designed primarily for freshmen. The focus is assisting in the development of effective study techniques and comprehensive skills necessary for independent learning and academic success. (30-0) *Equivalent to 89-151, SDEV-105.*

SDV-120 ICBE**(1 s.h.)**

Prerequisite: Students must have the consent of the instructor. The introductory and required beginning course for the Individualized Competency Based Education program (ICBE). It is designed to teach personal educational assessment and evaluation, goal setting, degree pact writing and individualized educational planning. (15-0) *Equivalent to 89-120, SDEV-125.*

SDV-135 Job Seeking Skills**(1 s.h.)**

Develop skills necessary to enter the job market and experience long-term career growth. Students learn basic job seeking techniques, job keeping skills, and strategies for continued growth. (15-0) *Equivalent to 89-150, SDEV-110.*

SDV-160 Career Decision Making**(2 s.h.)**

Introduction to a structured career decision-making process, including self-awareness, career and educational information, economic information, and related activities/projects. (30-0) *Equivalent to 89-152, SDEV-106.*

SDV-177 Listen to Your Heart and Success Will Follow**(1 s.h.)**

Intelligently facilitated and fast-paced, Listen to Your Heart and Success Will Follow will help you enjoy the rewards that come from doing what really makes you happy! Your instructor and a caring community of students will help you begin designing a life that really works for you. With a complete understanding of your own interests, values, needs and abilities, you'll learn how you can use work to express yourself and share your interests and talents. Your every day will be filled with joy and inspiration, and a greater depth of meaning will be added to everything you do. This course program is skillfully crafted to weave experiential learning with the conceptual presentation, giving you time to experience, understand, and implement each new strategy as it is introduced. (5-20) *Equivalent to 89-145, SDEV-250.*

SDV-195 Student Senate**(1 s.h.)**

Students will develop increased organizational and leadership skills through involvement in planning campus activities and entertainment, participating in community service projects, organizing community college advocacy efforts and helping to get students involved at North Iowa Area Community College. Additional leadership opportunities may include attending a conference, becoming a Student Senate representative on a student or college committee, or assisting with Fine Arts events. Course may be repeatable for a maximum of four credits. (0-30) *Equivalent to 80-125, POLS-125.*

SDV-210A-E Cooperative Education Internship**(1-5 s.h.)**

Practical training on the job under the cooperative supervision of the college and work supervisor. Designed primarily for the college transfer students to provide an experience that: (1) is directly related to their college program and career objectives; or (2) will help them test out career interest and/or discover new career possibilities. Credit is determined on the basis of one semester of credit for each 60 hours of approved employment to be completed in a term. Appropriateness of learning objectives is an essential factor in the approval process. 1-5 credits per semester, 12 credits maximum. (0-60 to 300) Instructor's consent required. *Equivalent to 89-100, SDEV-120A-E.*

SDV-287 PTK Leadership Development Studies**(2 s.h.)**

This course will help students develop the necessary skills to be an effective leader. Topics covered include developing a leadership philosophy, articulating a vision, decision making, time management, team building, empowering and delegating, initiating change, managing conflict, and ethics. Class time will primarily consist of discussion and small-group activities. (15-30) *Equivalent to 80-127, SDEV-111.*

SDV-901B Special Topics Enrich**(2 s.h.)**

Prerequisite: Consent of instructor/college recommendation. Fall semester: In this Enrich course, students focus on improved decision making in work and personal situations. Emphasis is placed on civic responsibility and the importance of being an informed citizen. Spring semester: This Enrich course focuses on the student in a global society. Students work to develop critical thinking skills which will assist them to look past biases and prejudices in order to become responsible citizens. The class stresses both written and verbal communication skills. (30-0) *Equivalent to 89-299, ENRI-900B.*

SOC-110 Introduction to Sociology**(3 s.h.)**

An introductory survey course, sociology is the scientific study of society. Inquires into what holds societies together, what causes societies to change, and how social forces affect our daily lives. Topics covered include: culture and society, socialization, social research, groups, organizations, institutions, deviance, gender, race, and ethnicity. An emphasis is placed on cultural diversity. (45-0) *Equivalent to SOCS-101, 80-110.*

SOC-115 Social Problems**(3 s.h.)**

Prerequisite: None, though an introductory course in Sociology is strongly recommended. An introduction to the study of contemporary social problems. The course examines how social problems are identified, explores underlying conditions and causes of social problems, and considers possible solutions and policy implications. Emphasis is on sociological and critical thinking frameworks. Topics of exploration include: mental illness, substance abuse, crime, prejudice and discrimination, prostitution, poverty, and more. (45-0) *Equivalent to 80-111, SOCS-103.*

SOC-120 Marriage and Family**(3 s.h.)**

A survey of the family as a social unit in the modern American culture. A study is made regarding the creation of the American family from various cultures as well as the problems the family is subjected to such as sex relations, social roles, communication, finance, and divorce. (45-0) *Equivalent to 80-112, SOCS-112.*

SOC-150 Introduction to Human Services**(3 s.h.)**

This course is designed to familiarize the student with the human services arena. Various employment opportunities are explored, as well as ethical, legal, political, and economic forces. (45-0) *Equivalent to 80-114, SOCS-100.*

SOC-215 Prime for Life: Substance Abuse**(1 s.h.)**

Requirements: Students must be enrolled prior to the start of the first night of class. No late enrollments. Attendance is mandatory. Each lesson builds on the other, therefore, all 6 sessions must be attended or the student cannot satisfactorily complete the course. Prime for Life risk reduction program is a research-based curriculum

that focuses on the reduction of problems associated with high risk drinking. The ultimate goal is to impact drinking choices by using a collection of strategies designed to facilitate behavior change. The program integrates knowledge from over 1,200 scientific studies from biological, psychological, and social research that supports the content of the program. Students will gain an increased knowledge regarding the subject matter, as well as gain personal knowledge about their own drinking patterns through a self reflection process. Knowledge of the subject matter and self knowledge are both critical prerequisites for those who are considering employment in the human services fields. Open to all students. Required for the Human Services certificate. (15-0)

SOC-881 Social Responsibility and Community Service (2 s.h.)

This course is grounded in an appreciation for the health of the community and the potential of the individual to positively impact the well being of the community through direct and active participation. Socially responsible individuals initiate change by transforming their social interests into personal advocacy and social participation in their respective community. This advocacy and participation is actualized through a lifelong commitment to addressing social problems through community service. (15-30)

SPC-111 Public Speaking (2 s.h.)

Public speaking as an intellectual tool for use in argumentation and persuasion in a democratic society. (Offered each term.) (30-0) *Equivalent to SPCH-101, 85-101.*

SPC-131 Group Communication (2 s.h.)

Principles and techniques of group discussion methods and procedures. (30-0) *Equivalent to SPCH-102, 85-105.*

WEL-110 Welding Blueprint Reading (2 s.h.)

Prerequisite: None. This course provides instruction in the fundamentals of reading and interpreting blueprints. A student learns to interpret and apply welding symbols along with identifying proper assembly procedures. (30-0) *Equivalent to WELD-701, 98-110.*

WEL-112 Welding Blueprint Reading/Advanced (2 s.h.)

Prerequisite: WEL-110, Welding Blueprint Reading. This course provides instruction in the reading and interpreting of blueprints. The course covers the applications of welding symbols, dimensions, and assembly procedures. (15-30) *Equivalent to WELD-702, 98-135.*

WEL-138 Oxyacetylene Welding/ Gas Tungsten Arc Welding (3 s.h.)

Fusion joining of mild steel and cutting processes. The basic principles of gas tungsten arc welding including AC and DC applications. Selection of proper torch tip sizes, filler rods, angles, and travel speeds for OAW processes. The set-up and adjustment of gas tungsten arc welding equipment, along with practical experience using both ferrous and nonferrous metals. (15-90) *Equivalent to WELD-703, 98-190.*

WEL-153 Shield Metal & Gas Metal Arc Welding (SMAW and GMAW) (3 s.h.)

Flat and horizontal shielded arc, vertical, and overhead shielded arc welding. The operation of AC and DC transformer arc welders and motor-driven DC welders. The effects of amperage, polarity,

and characteristics of various electrodes. Butt, fillet, corner, and lap welds are made in various positions. Application of techniques required for equipment repair. (15-90) *Equivalent to WELD-704, 98-191.*

WEL-332 Welding (2 s.h.)

An introductory course teaching basic skills in the areas of shielded metal arc welding, gas metal arc welding, and oxyacetylene welding, cutting and brazing. The basic fundamentals of each process are covered. Safe welding practices are taught. The course provides skill application in all positions, on mild steel with single and multi-pass welds with backing strips. (15-30) *Equivalent to 92-176, WELD-710.*

WEL-334 Trade and Industry Welding (2 s.h.)

This is a basic arc/oxy-fuel welding and cutting course. The students will perform introductory skills in SMAW, GTAW, and GMAW welding, oxy-acetylene welding, and oxy-fuel cutting. The students learn safety procedures relating to welding subjects and general shop safety. (15-30) *Equivalent to 96-169, INDU-710.*