

Discipline Prefix

Illinois Articulation Initiative (IAI)

Course Numbering System

Courses Offered at Harper College

Discipline/Prefix

Below is an alphabetized list of disciplines followed by a prefix. (Course descriptions contained on the following pages are in alphabetical order by prefix.)

Discipline	Prefix
Accounting.....	ACC
Adult Educational Development.....	AED
Anthropology.....	ANT
Architectural Studies.....	ATE
Art.....	ART
Astronomy.....	AST
Biology.....	BIO
Building Codes and Enforcement.....	BCE
Cardiac Technology.....	CTE
Career Development.....	CDV
Career Foundations.....	OCC
Certified Nursing Assistant.....	CNA
Chemistry.....	CHM
Chinese.....	CHN
Computer Applications Software.....	CAS
Computer Information Systems.....	CIS
Computer Science.....	CSC
Dental Hygiene.....	DHY
Diagnostic Medical Sonography.....	DMS
Dietetic Technician.....	DIT
Diversity.....	DIV
Early Childhood Education.....	ECE
Economics.....	ECO
Education.....	EDU
E-Learning Instructional Technology.....	EIT
Electronics Engineering Technology.....	ELT
Emergency and Disaster Management.....	EMG
Emergency Medical Services.....	EMS
Engineering.....	EGR
English.....	ENG
English as a Second Language.....	ESL
ESL: English for Special Purposes.....	ESP
Environmental Health.....	EHS
Fashion Design/Merchandising.....	FAS
Financial Services.....	BFC
Fire Science.....	FIS
First Year Experience.....	FYE
French.....	FRN
Geography.....	GEG
Geology.....	GEO
German.....	GER
Graphic Arts.....	GRA
Health Information Technology.....	HIT
Health Science Core.....	HSC

Discipline	Prefix
Heating, Ventilation and Air Conditioning (HVAC).....	RAC
History.....	HST
Hospitality Management.....	FSM
Human Services.....	HMS
Humanities.....	HUM
Independent Study.....	IDS
Interior Design.....	IND
Japanese.....	JPN
Journalism.....	MCM
Law Enforcement and Justice Administration.....	LEJ
Linguistics.....	LNG
Literature.....	LIT
Maintenance.....	MNT
Management.....	MGT
Marketing.....	MKT
Mass Communication.....	MCM
Mathematics.....	MTH
Medical Office Administration.....	MOA
Music.....	MUS
Nanoscience Technology.....	NAN
Networking.....	NET
Nursing.....	NUR
Paralegal Studies.....	PLS
Philosophy.....	PHI
Phlebotomy.....	PHB
Physical Education.....	PED
Physical Science.....	PHS
Physics.....	PHY
Political Science.....	PSC
Psychology.....	PSY
Radiologic Technology.....	RAD
Reading.....	RDG
Sign Language.....	SGN
Sign Language Interpreting.....	ITP
Sociology.....	SOC
Spanish.....	SPA
Speech and Theatre.....	SPE
Supply Chain Management.....	SCM
Web Development.....	WEB

Illinois Articulation Initiative (IAI) General Education Core Curriculum Codes

To assist students with identifying qualifying general education core courses, the following coding system will appear after the course description:

<i>Discipline</i>	<i>Prefix</i>
Communications.....	IAI C
Social and Behavioral Sciences...	IAI S
Humanities.....	IAI H
Humanities/Fine Arts	IAI HF
Fine Arts	IAI F
Mathematics	IAI M
Physical Sciences.....	IAI P
Life Sciences	IAI L

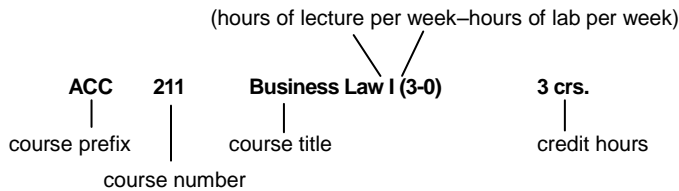
Course Numbering System

In general, courses numbered below 100 are not intended for transfer credit. These courses may be counted toward the A.A.S. degree, but not the A.A., A.S., A.E.S., A.F.A.—Art, or A.F.A.—Music degrees.

Courses numbered 100 or above may be expected to fulfill transfer requirements. In some cases the courses designed primarily for vocational programs may not be acceptable to transfer to all four-year institutions. Students should see a Student Development Faculty Counselor for clarification of the transferability of these courses.

Courses numbered 200 and above are intended for the sophomore level.

Sample Course Listing



The following outlines of courses offered at Harper College describe the content of each course at the time of publication of the Catalog. Harper College reserves the right to revise course content to reflect changing conditions, trends and information within the discipline.

Course Outlines

In accordance with Illinois law, Harper College maintains a file of course outlines for all courses listed in the Catalog. Complete information is given on course content, methodology and objectives. The outlines are available for student review in the division offices or in the Office of the Assistant Provost.

Prerequisites

Many course descriptions state that a prerequisite (for example—satisfactory completion of a specific course or instructor consent) is necessary for enrollment in such a course. Students are advised that enrolling in a course without satisfying the prerequisite may result in the student being withdrawn from such course at the request of the instructor. Refer carefully to Catalog course descriptions.

ACC Accounting

- ACC 099 Business Recordkeeping (3-0)** 3 crs.
Presents standard bookkeeping procedures for small firms, both business and professional. The material covers journalizing, posting, preparing a work sheet, financial statements, bank reconciliation, petty cash and payroll.
- ACC 101 Introduction to Financial Accounting (4-0)** 4 crs.
Presents accounting as an information system that produces summary financial statements primarily for users external to a business. Emphasizes the reporting of the effect of transactions and other economic events on the financial condition and operating results of a business. Topics include: basic accounting concepts, financial statements, accrual and cash basis, the accounting cycle, monetary assets, inventories, fixed assets, current and long-term liabilities and owner's equity. The course assumes a corporate form of organization. NOTE: High school algebra is recommended.
IAI BUS 903
- ACC 102 Introduction to Managerial Accounting (3-0)** 3 crs.
Presents accounting as a system of producing information for internal management use in a business. Emphasis is on the identification, accumulation and interpretation of information for planning, controlling and evaluating the performance of the separate components of a business. Topics include: theory and application of product costing, operational control, cost allocation, performance evaluation for manufacturing and service organizations, standard costing, job order and process costing, budgeting, JIT inventory control, decentralized operations, differential analysis, capital investment analysis and financial statement analysis.
IAI BUS 904
Prerequisite: ACC 101 with a grade of C or better.
- ACC 155 Tax and Payroll Accounting (4-0)** 4 crs.
Explains the federal tax structure and instruction in the application of tax principles to specific problems. Also, the preparation of payroll records, including tax returns for old age benefits and employment insurance.
- ACC 201 Intermediate Accounting I (3-0)** 3 crs.
Presents accounting and reporting process, accounting theory, inventories, tangibles and intangible fixed assets. This is a problem solving course that continues accounting principles begun in ACC 101 and ACC 102.
Prerequisite: ACC 102 with a grade of C or better.
- ACC 202 Intermediate Accounting II (3-0)** 3 crs.
Presents course materials in the following sequences: Accounting for corporations, including capital stock, retained earnings, bonds payable, income statement and balance sheet analysis, pensions and leases, fund flow analysis, consignments and installment sales.
Prerequisite: ACC 201 with a grade of C or better.
- ACC 203 Introductory Cost Accounting (3-0)** 3 crs.
Includes an examination of the nature of costs and the use of relevant accounting data for purposes of improved decision making. Topics covered are product costs (process, job order and standard), overhead variance, by-product costs, joint-product cost and direct and variable costing.
Prerequisite: ACC 102 with a grade of C or better.
- ACC 211 Business Law I (3-0)** 3 crs.
Presents the history of the source of law, civil and criminal wrongs, law of contracts, agency, employment, property and related topics. Problems and case materials are used. (NOTE: Transfer students should check with the school they will be transferring to regarding the transferability of this course.)

- ACC 212 Business Law II (3-0)** 3 crs.
Presents business organizational concepts, commercial transactions, basic legal concepts of commercial paper, sales, secured transactions, creditors' rights and related topics. Problems and case materials are used.
Prerequisite: ACC 211 with a grade of C or better.
(NOTE: Transfer students should check with the school they will be transferring to regarding the transferability of this course.)
- ACC 213 Legal Environment of Business (3-0)** 3 crs.
Introduces the student to the nature, function and application of law in the commercial context. Emphasizes the regulation of business by statutes, administrative regulations and court decisions.
- ACC 216 Employment Law (3-0)** 3 crs.
Examines past and present employment laws in the United States and their impact on employers and employees. Creates an understanding of the rights, duties and obligation of both employment groups under the law.
- ACC 250 Income Tax Accounting (3-0)** 3 crs.
Offers a practical study of current federal and Illinois taxes as they relate to business and individual income tax procedures. Topics studied include income inclusions and exclusions, capital gains and losses, business and personal deductions and accounting methods.
Prerequisite: ACC 102 with a grade of C or better.
- ACC 251 Advanced Tax Accounting (3-0)** 3 crs.
Presents the basic concepts of corporation income taxation, partnerships, estates and trusts. The course includes a study of the taxation on the transfer of wealth, both during lifetime and testamentary.
Prerequisite: ACC 102 with a grade of C or better.
- ACC 253 Advanced Accounting I (3-0)** 3 crs.
Studies municipal accounts, business combinations and the preparation of consolidated financial statements. Topics will include branches, consolidated statements, elimination of inter-company transactions, general funds and nonprofit service organizations.
Prerequisite: ACC 202 with a grade of C or better.
- ACC 254 Auditing (3-0)** 3 crs.
Examines the auditory theory and procedures involving the topical areas of audit reporting, auditing standards and evidence, statistical sampling and electronic data processing. The legal and ethical dimensions of auditing will also be studied with emphasis on how government affects financial reporting through court decisions, federal securities laws, the S.E.C. and the Foreign Corrupt Practice Act.
Prerequisite: ACC 202 with a grade of C or better.
- ACC 256 Enrolled Agent Exam Review (3-0)** 3 crs.
Provides an intensive review of federal taxes that will help students prepare for the rigorous Enrolled Agent Exam administered by the Internal Revenue Service. Taxation subjects to be covered include personal income taxes, partnerships, corporate, trusts, estates and others.
Prerequisite: ACC 250 and 251, or equivalent experience with consent of instructor.
- ACC 295 Topics in Accounting (1-0 to 4-0)** 1-4 crs.
Provides seminars and courses on varying topics that are current and relevant to accounting students and business professionals. This course may be taken up to four (4) times for a total of 4 credit hours. Prerequisites will vary according to the topic.

AED Adult Educational Program

AED 001 Nonnative Literacy Skills I (1-0 to 4-0) 1-4 crs.
 Introduces basic English conversation and literacy skills. Develops the listening, speaking, reading, and writing skills necessary to basic survival needs. Topics may include personal data, general information, social skills/American culture, health, housing, civics, consumer skills, employment skills, and transportation. Grammar points are integrated as appropriate. Focuses on vocabulary acquisition and beginning listening and literacy skills. This course is the first in a sequence of five courses. It is for students of English who have limited native language literacy skills. Students must take a language skills test which identifies the Nonnative Literacy student before enrolling. Carries no transfer credit.

AED 002 Nonnative Literacy Skills II (1-0 to 4-0) 1-4 crs.
 Continues to introduce basic English conversation and literacy skills. Develops the listening, speaking, reading and writing skills necessary to basic survival needs. Topics may include personal data, social skills/American culture, health, housing, civics, consumer skills, and employment skills. Grammar points are integrated as appropriate. Focuses on using basic vocabulary and literacy skills in daily routine situations. This course is the second in a sequence of five courses. It is for students of English who have limited native language literacy skills. Students must take a language skills test which identifies the Nonnative Literacy student before enrolling. Carries no transfer credit.

AED 003 Nonnative Literacy Skills III (1-0 to 4-0) 1-4 crs.
 Extends basic English conversation and literacy skills. Develops the listening, speaking, reading and writing skills necessary to basic survival needs. Topics may include general information, social skills/American culture, civics, health, housing, community skills, consumer skills, employment skills and transportation. Grammar points are integrated as appropriate. This course is the third in a sequence of five courses. It is for students of English who have limited native language literacy skills. Students must take a language skills test which identifies the Nonnative Literacy student before enrolling. Carries no transfer credit.

AED 004 Nonnative Literacy Skills IV (1-0 to 4-0) 1-4 crs.
 Reviews basic English conversation and literacy skills. Develops the listening, speaking, reading and writing skills necessary to basic survival skills and pre-academic preparation. Introduces pre-academic reading, writing and study skills in preparation for academic ESL or the workplace. Topics may include social skills/American culture, health, civics, housing, consumer skills/financial literacy, employment, transportation and education/U.S. school system. Grammar points are integrated as appropriate. Introduces study skills, test-taking and other pre-academic skills necessary for success in college. This course is the fourth in a sequence of five courses. It is for students of English who have limited native language literacy skills. Students must take a language skills test which identifies the Nonnative Literacy student before enrolling. Carries no transfer credit.

AED 005 Transition to ABE/GED/ESL (1-0 to 4-0) 1-4 crs.
 Develops the listening, speaking, reading and writing skills necessary to prepare students for GED preparation, academic ESL, the workplace and career programs. Focuses on study skills, test-taking and other pre-academic skills necessary for success in college. Topics may include life skills, employment, current events, civics, U.S. History and government, geography and literature. Grammar points are integrated as appropriate. This is the fifth in a sequence of five courses. Student must take a language skills test which identifies the Nonnative Literacy student before enrolling. Carries no transfer credit.

AED 016 Basic Vocabulary Skills (NNL) (1-0 to 4-0) 1-4 crs.
 Develops basic English vocabulary skills. Focuses on building vocabulary using the software and website links on computers. Explores a variety of life-skills and work-related topics on ESL websites. This course is the first in a sequence of three courses. It is for students of English who have limited native language literacy skills. Students must take a language skills test which identifies the Nonnative Literacy student before enrolling. Carries no transfer credit.

AED 017 Intermediate Vocabulary Skills (NNL) (1-0 to 4-0) 1-4 crs.
 Continues to develop basic English vocabulary skills. Focuses on building vocabulary using software and website links on computers. Further explores a variety of life-skills and work-related topics. This course is the second in a sequence of three courses. It is for students of English who have limited native language literacy skills. Students must take a language skills test which identifies the Nonnative Literacy student before enrolling. Carries no transfer credit.

AED 018 Advanced Vocabulary Skills (NNL) (1-0 to 4-0) 1-4 crs.
 Expands basic English vocabulary skills. Focuses on building vocabulary and grammar skills using software and website links on computers. Expands exploration of a variety of life-skills and work-related topics and focuses on applications to education, family, and community. This course is the third in a sequence of three courses. It is for students of English who have limited native language literacy skills. Students must take a language skills test which identifies the Nonnative Literacy student before enrolling. Carries no transfer credit.

AED 021 Basic Reading Skills (1-0 to 6-0) 1-6 crs.
 Introduces basic word recognition and word attack skills including pre-reading skills, sight words, phonics skills and structural analysis skills; comprehension and advanced reading skills in relation to words, sentences, selections and sequence; and specialized skills in locating and organizing information, reading maps, interpreting graphs, tables or diagrams, and developing personal reading skills. Introduces skills of application, analysis and evaluation of reading materials. Prepares the student for AED 023. Carries no transfer credit.

AED 023 Pre-GED Reading Skills (1-0 to 3-0) 1-3 crs.
 Reinforces and reviews word recognition and word attack skills of structural analysis; comprehension and advanced reading skills including deriving meaning from words, sentences, selections and identifying sequence; specialized reading skills including locating and organizing information, reading maps and interpreting graphs, tables or diagrams; and personal reading skills. Introduces skills of application, analysis and evaluation. Prepares the student for AED 025. Carries no transfer credit.

AED 025 GED Social Studies and Science (1-0 to 6-0) 1-6 crs.
 Reviews specific social studies, science and U.S./Illinois Constitution content areas and skills. Emphasis is upon review of comprehension, application, analysis and evaluation levels of cognitive skills. Prepares the student for the GED Social Studies, Science and U.S./Illinois Constitution tests. Carries no transfer credit.

AED 031 Basic English Skills (1-0 to 6-0) 1-6 crs.
 Presents basic English grammar and usage, spelling rules, vocabulary/dictionary use, capitalization and punctuation. Develops skills in producing short, clear writing examples. Prepares the student for AED 033. Carries no transfer credit.

AED 033 Pre-GED English Skills (1-0 to 3-0) 1-3 crs.
 Reinforces basic English grammar and usage, spelling rules, vocabulary/dictionary use, capitalization, punctuation and sentence/paragraph development. Introduces skills of application, analysis and evaluation. Prepares the student for AED 035. Carries no transfer credit.

AED 035 GED Writing Skills and Literature (1-0 to 3-0) 1-3 crs.
Reviews basic grammar and usage; sentence structure, style, logic and paragraph organization, punctuation, capitalization and spelling. Produces writing samples that require the writer to take a position and defend it with appropriate evidence, detail and argumentative strategies. Prepares students for the GED Writing Skills Test. Reviews literacy types, terms, techniques, interpretation and commentary to prepare the student for the GED Interpreting Literature and the Arts Test. Carries no transfer credit.

AED 041 Basic Mathematical Skills (1-0 to 6-0) 1-6 crs.
Introduces basic arithmetic skills including the fundamental operations with whole numbers, decimals, fractions and mixed numbers, verbal reasoning and measurement systems. Prepares the student for AED 043. Carries no transfer credit.

AED 043 Pre-GED Mathematical Skills (1-0 to 3-0) 1-3 crs.
Reinforces arithmetic skills including the fundamental operations with decimals, fractions, mixed numbers, verbal reasoning and measurement systems. Introduces percents, ratio and proportion and charts and graphs. Introduces comprehension, application, analysis and evaluation levels of cognitive skills. Prepares the student for AED 045. Carries no transfer credit.

AED 045 GED Mathematics (1-0 to 3-0) 1-3 crs.
Reviews arithmetic skills including decimals, fractions, numbers, verbal reasoning, measurement, percents, ratio and proportion and charts and graphs. Introduces algebra and geometry concepts, multi-step problem solving, using formulas and numeration statistics. Emphasizes review of comprehension, application, analysis and evaluation levels of cognitive skills. Prepares the student for the GED Mathematics Test. Carries no transfer credit.

AED 053 Bridge to Manufacturing/Intermediate (.5-0 to 3-0) .5-3 crs.
Integrates basic listening, speaking, reading, writing and math skills with occupational-specific knowledge in the manufacturing sector. Contextualizes skills to prepare students to transition into post-secondary and/or employment. Designed for students assessed at the ABE (pre-GED) reading level. Includes career awareness and intensive supportive services. Carries no transfer credit.

AED 055 Bridge to Manufacturing/Advanced (.5-0 to 3-0) .5-3 crs.
Expands listening, speaking, reading, writing and math skills with occupational-specific knowledge in the manufacturing sector. Contextualizes skills to prepare students to transition into post-secondary and/or employment. Designed for students assessed at the ASE (GED) reading level. Includes career awareness and intensive supportive services. Carries no transfer credit.

AED 057 Bridge to Healthcare/Intermediate (4-0) 4 crs.
Integrates basic listening, speaking, reading, writing and math skills with occupational-specific knowledge in the healthcare sector. Contextualizes skills to prepare students to transition into postsecondary education and/or employment. Designed for students assessed at the ABE (pre-GED) reading level. Includes career awareness and transition supportive services. Carries no transfer credit.

AED 059 Bridge to Healthcare/Advanced (4-0) 4 crs.
Expands listening, speaking, reading, writing and math skills with occupational-specific knowledge in the healthcare sector. Contextualizes skills to prepare students to transition into postsecondary education and/or employment. Designed for students assessed at the ASE (GED) reading level. Includes career awareness and transition supportive services. Carries no transfer credit.

AED 061 Adult Employment Skills/Beginning (1-0 to 4-0) 1-4 crs.
Introduces basic employment skills, including on-the-job communication and job search strategies. Introduces vocabulary, listening, speaking, and literacy skills necessary for entry-level jobs in restaurant, hotel, factory/warehouse, office, and other settings. Introduces job search skills such as understanding applications, want ads, components of a resume, and basic job interviews. Promotes awareness of workers' rights, responsibilities, and health and safety issues in the workplace. This course is for English Language Learners (ELLs) with limited formal schooling in their native countries. This is the first in a sequence of three courses. Carries no transfer credit.

AED 062 Adult Employment Skills/Intermediate (1-0 to 4-0) 1-4 crs.
Develops basic employment skills, including on-the-job communication and job search strategies. Reviews vocabulary, listening, speaking, and literacy skills necessary for entry-level jobs in restaurant, hotel, factory/warehouse, office, and other settings. Develops job search skills such as describing qualifications, and preparing for basic job interviews. Promotes awareness of workers' rights, responsibilities, and health and safety issues in the workplace. This course is for English Language Learners (ELLs) with limited formal schooling in their native countries. This is the second in a sequence of three courses. Carries no transfer credit.

AED 063 Adult Employment Skills/Advanced (1-0 to 4-0) 1-4 crs.
Expands basic employment skills including on-the-job communication and job search strategies. Develops advanced vocabulary, listening, speaking, and literacy skills necessary for entry-level jobs in restaurant, hotel, factory/warehouse, office and other settings. Develops advanced job search skills including interest inventories, goal-setting, and more in-depth job interviews. Promotes awareness of workers' rights, responsibilities, and health and safety issues in the workplace. This course is for English Language Learners (ELLs) with limited formal schooling in their native countries. This is the third in a sequence of three courses. Carries no transfer credit.

AED 065 Adult Employment Skills (.5-0 to 3-0) .5-3 crs.
Examines the world of work and current issues and trends that affect employability. Explores topics such as job/career assessment, individual education/employment plans, employment/life skills, job search skills, employment documents, interviewing skills, employment practices and personnel programs, job retention skills, and job departure. Carries no transfer credit.

AED 067 Bridge to College and Career Success (2-0) 2 crs.
Provides students with an overview of the skills needed to be successful in college career program classes. Emphasizes introductory college success skills such as time management, goal-setting, note-taking and reading strategies while exploring career options. Introduces student services offered at Harper College. Students wanting to enroll in this class must be in the Harper College's AED department GED classes, have a readiness to take the GED exam, and have the recommendation of the program staff. Carries no transfer credit.

AED 071 Citizenship Preparation/Beginning (1-0 to 4-0) 1-4 crs.
Introduces the very basic structure, functions and purposes of U.S. federal government and aspects of American history and geography pertinent to the naturalization test. Explains the procedures and application for applying for U.S. naturalization. Introduces basic rights and responsibilities of U.S. citizenship. Develops the very basic listening, speaking, and literacy skills necessary for passing the test and interview for U.S. naturalization. Includes a brief introduction of state government. This course is for English Language Learners (ELLs) with limited formal schooling in their native countries. This is the first in a sequence of three courses. Carries no transfer credit.

AED 072 Citizenship Preparation/ Intermediate (1-0 to 4-0) 1-4 crs.
 Introduces the basic structure, functions and purposes of U.S. federal government and aspects of American history and geography pertinent to the naturalization test. Explains the procedures and application for applying for U.S. naturalization. Reviews rights and responsibilities of U.S. citizenship. Develops listening, speaking, and literacy skills necessary for passing the test and interview for U.S. naturalization. Includes a brief introduction of state government, civic duties and community participation. This course is for English Language Learners (ELLs) with limited formal schooling in their native countries. This is the second in a sequence of three courses. Carries no transfer credit.

AED 073 Citizenship Preparation/ Advanced (1-0 to 4-0) 1-4 crs.
 Introduces and expands upon the basic structure, functions and purposes of U.S. federal government and major aspects of American history and geography. Expands upon the procedures and application for applying for U.S. naturalization. Expands on the rights and responsibilities of U.S. citizenship and promotes awareness of civil rights and the contributions of diverse and multicultural groups in the U.S. Develops advanced vocabulary and reviews listening, speaking and literacy skills necessary for passing the test and interview for U.S. naturalization. Includes a brief introduction of state government, civic duties and community participation. This course is for English Language Learners (ELLs) with limited formal schooling in their native countries. This is the third in a sequence of three courses. Carries no transfer credit.

ANT Anthropology

ANT 101 Introduction to Anthropology (3-0) 3 crs.
 Addresses such central questions as "What does it mean to be human?" and "How did we get to be the way we are?" Among the topics to be examined will be human, physical and cultural evolution, the origin of culture, language, religion, kinship, economics and the impact of contemporary life on the world's populations.
 IAI S1 900N

ANT 202 Cultural Anthropology (3-0) 3 crs.
 Describes and analyzes how people throughout the world define and resolve the problems of life that are found everywhere. Some of the specific topics studied will be religion, social structure, law, "the unknown," economics and the formation of behavior within particular groups.
 IAI S1 901N

ANT 203 Native Americans (3-0) 3 crs.
 Acquaints the student with our American heritage. There are detailed studies of various Native American groups, both before and after the arrival of the Europeans. The religion, social organization, art work, archaeology and their relationship to the natural and cultural environment of the Native American is viewed with an appreciation and understanding of non-European cultures. Discussion of possible solutions for some of the problems that confront Native Americans in Western society today is included.

ANT 205 Physical Anthropology (2-2) 3 crs.
 Studies the origins and evolution of humans as physical and cultural beings. Includes origin, history and behavior of primates, fossil records and the principles of population genetics and their application to study of human variation.
 IAI S1 902

ANT 206 Archeology (3-0) 3 crs.
 Surveys archeological concepts, research and methods for the study of prehistoric cultures. Includes rise and development of modern civilization, land and land use, agriculture, current archeological investigations, interpretations of finds and introduction to field work techniques.
 IAI S1 903

ANT 207 Ancient Civilization of Mexico and Central America (3-0) 3 crs.
 Studies the origin and development of ancient civilizations of Mexico and Central America using historical and archeological evidence. This course will explore the world of the Aztec, Maya, Toltec and others as seen through architecture, art, food production, politics and religion.

ANT 208 Archeology of the Near East (3-0) 3 crs.
 Studies origins and development of civilization of ancient Near East. Includes archeology and cultural history of such countries as Egypt, Mesopotamia and Palestine.

ANT 209 Anthropological Theory (3-0) 3 crs.
 Surveys the theoretical origin and development of modern anthropology. Includes examination of works by Benedict, Boas, Dukheim, Khaldun, Malinowski, Mead, Morgan, Tylor, Weber and others.

Prerequisite: ANT 101 or SOC 101 with a grade of C or better.

ANT 210 Cultural Ecology (3-0) 3 crs.
 Examines the technologies and behaviors that people have applied to the natural environment to sustain themselves and their societies. Also, the resultant environmental changes will be investigated with emphasis on food production, industrialization and population increase and their historic and prehistoric impact on our world.

ANT 215 Introduction to Forensic Anthropology (2-2) 3 crs.
 Studies the field dealing with human skeletal remains resulting from unexplained deaths. Both osteology (bones) and odontology (teeth) will be investigated. Students will learn the techniques involved including: basic human skeletal analysis, preliminary examination methods, burial aspects, distinguishing human from animal remains, identifying the sex of an individual, estimating the age of death, calculating stature, trauma analysis of different types (e.g., blunt, sharp, projectile), as well as various related topics.
 (NOTE: Although skeletal lab materials will be provided, no soft tissue will be examined.)

ANT 220 Topics in Anthropology (1-0 to 6-0) 1-6 crs.
 Studies selected problems or topics in social science. The exact content and instructional methodology will vary from semester to semester depending on the material to be studied. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. This course may be repeated two times to a maximum of six credit hours.

ANT 250 Field Methods in Archeology I (1-4) 3 crs.
 Provides intensive introduction to the methods and techniques of archeological survey and excavation through practical fieldwork, accompanied by lecture and discussion. The student will participate in laboratory analysis of materials excavated within the Midwest. (NOTE: This course is taught only at an archeological site during the summer.)
Prerequisite: ANT 101 with a grade of C or better and/or consent of instructor.

ANT 255 Field Methods in Archeology II (1-4) 3 crs.
 Designed for students who have had previous field school experience at the introductory level. This is an intensive course in advanced field methods in archeology. In addition to the continued pursuit of excavation procedures and techniques, the student will be concerned with some of the theoretical and interpretative aspects of archeological analysis. (NOTE: This course is taught only at an archeological site during the summer.)
Prerequisite: ANT 101 and ANT 250 with grades of C or better and/or consent of instructor.

ART Art

ART 100 Art Seminar (1-0) 1 cr.
 Introduces art majors to the opportunities, concerns and the problems that relate to the artist. This course may be repeated up to two hours of credit.

ART 105 Introduction to Arts (3-0) 3 crs.
 Introduces the visual arts with an emphasis on building the student's awareness of aesthetic concepts, theory and criticism. Also, developing sensitivity to works of art and acquainting the student with vocabulary applicable to describe visual situations.
 IAI F2 900

ART 110 Drawing I (0-6) 3 crs.
 Emphasizes the design elements and principles as applied to visual imagery.

ART 111 Drawing II (0-6) 3 crs.
 Emphasizes the interaction between design abilities, image and content.
Prerequisite: ART 110 with a grade of C or better, or consent of instructor.

ART 114 Introduction to Film (2-2) 3 crs.
 Examines the different ways of looking at film to improve understanding and appreciation of the medium as an art form. Includes critical analysis of different directors, film genres, historical trends and lecture about technique and process filmmaking. Between 10 and 15 films will be examined.
 IAI F2 908

ART 121 Design I (0-6) 3 crs.
 Emphasizes the use of design elements and principles as applied to concepts of second dimension.

ART 122 Design II (0-6) 3 crs.
 Emphasizes the use of design elements and principles as applied to concepts of third dimension.
Prerequisite: ART 121 with a grade of C or better, or consent of instructor.

ART 130 History of Art I (3-0) 3 crs.
 Follows the historical development of the visual arts produced by Western civilizations, focusing on major artistic styles, works of art and monuments. Works are examined as expressions of the ideas, beliefs and practices of artists, cultures and societies. Covers the history of art from pre-history to the medieval age.
 IAI F2 901

ART 131 History of Art II (3-0) 3 crs.
 Follows the historical development of the visual arts produced by Western civilizations, focusing on major artistic styles, works of art and monuments. Works are examined as expressions of the ideas, beliefs and practices of artists, cultures and societies. Covers the history of art from the medieval age to the end of the eighteenth century.
 IAI F2 902

ART 132 History of Art III (3-0) 3 crs.
 Follows the historical development of the visual arts produced by Western civilizations, focusing on major artistic styles, works of art and monuments. Works are examined as expressions of the ideas, beliefs and practices of artists, cultures and societies. Covers the history of art from the nineteenth century to the present time.
 IAI F2 902

ART 133 Non-Western Art (3-0) 3 crs.
 Follows the historical development of the visual arts produced by non-western civilizations, focusing on major artistic styles, works of art and monuments. Works are examined as expressions of the ideas, beliefs and practices of artists, cultures and societies. Covers the history of art of the Africa, China, India, Japan, Middle East, Oceania, and art of the Americas.
 IAI F2 903N

ART 201 Drawing Studio (0-6) 3 crs.
 Emphasizes drawing as visual idea. May be repeated up to six hours credit.

Prerequisite: ART 111 with a grade of C or better, or consent of instructor.

ART 206 Printmaking Studio (0-6) 3 crs.
 Emphasizes traditional and contemporary methods of graphic reproduction of visual ideas pertaining to the fine arts. May be repeated up to six hours credit.

Prerequisite: ART 111 and ART 121 with grades of C or better, or consent of instructor.

ART 225 Figure Drawing Studio (0-6) 3 crs.
 Emphasizes drawing the human figure in action and from still poses. Rapid sketching, long poses, memory work, studio and lecture. May be repeated up to six hours credit.

Prerequisite: ART 111 with a grade of C or better, or consent of instructor.

ART 236 Composition (0-6) 3 crs.
 Emphasizes pictorial composition in line, value, pattern and color. May be repeated up to six hours credit.

Prerequisite: ART 111 and ART 121 with grades of C or better.

ART 240 Computer Graphics Studio (0-6) 3 crs.
 Presents a computer software-based approach to visual image manipulation and generation. Includes the integration of computer hardware, software and peripheral devices as tools to manufacture, capture and combine traditional and contemporary visual ideas as applied to art and design.

Prerequisite: ART 111 and ART 121 with grades of C or better, or consent of instructor

ART 261 Painting Studio (0-6) 3 crs.
 Emphasizes the relationship between painting and visual ideas. May be repeated up to six hours credit.

Prerequisite: ART 111 and ART 121 with a grade of C or better, or consent of instructor.

ART 280 Topics in Art History (1-0 to 6-0) 1-6 crs.
 Studies selected topics or debates in art history. The exact content and instructional methodology will vary semester to semester depending on the material studied. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. This course may be repeated two times to a maximum of six credit hours.

ART 291 Ceramics Studio (0-6) 3 crs.
 Emphasizes the exploration of ceramic media as related to the expression of visual ideas. May be repeated up to six hours credit.

Prerequisite: ART 122 with a grade of C or better, or consent of instructor.

COURSE DESCRIPTIONS

ART 296 Sculpture Studio (0-6) 3 crs.
Emphasizes the exploration of sculptural media as related to visual ideas. May be repeated up to six hours credit.
Prerequisite: ART 122 with a grade of C or better, or consent of instructor.

AST Astronomy

AST 100 Astronomy Survey (3-0) 3 crs.
Introduces the main concepts of contemporary astronomy using a scientific approach. Topics include the scientific method, the celestial sphere, celestial motions, gravity, light, telescopes, the solar system, stars, the interstellar medium, galaxies and cosmology. Current research in the different areas will be discussed. Knowledge of high school algebra is assumed. For science and non-science majors.
IAI P1 906

AST 101 Introductory Astronomy (3-2) 4 crs.
Introduces the various topics of astronomy using a scientific approach. Covers the origin of the universe, structure and composition of galaxies, properties and life cycle of stars, the solar system, historical astronomy, constellations, meteors, and comets. Knowledge of high school algebra is assumed.
IAI P1 906L

AST 112 The Solar System (3-2) 4 crs.
Introduces the main concepts of solar system astronomy. Topics include the fundamentals of astronomy, planetary motion, the Earth, the Moon, terrestrial planets, Jovian planets, small bodies in the solar system, the Sun, the formation of the solar system, other planetary systems, and the possibility of extraterrestrial life. Current research in the different areas will be discussed. Knowledge of high school algebra is assumed. For science and non-science majors.
IAI P1 906L

AST 115 Stars and Galaxies (3-2) 4 crs.
Introduces the main concepts of stellar, galactic, and extra-galactic astronomy. Topics include life cycles of stars, supernovae, black holes, interstellar medium, structure of the Milky Way galaxy, galaxy classification, galaxy interactions, dark matter, dark energy and the Big Bang model. Current research in the different areas will be discussed. Knowledge of high school algebra is assumed. For science and non-science majors.
IAI P1 906L

AST 150 Observational Techniques (1-2) 2 crs.
Introduces students to telescopes and astronomical imaging devices. Includes properties and usage of telescopes, types of imaging devices such as cameras and CCDs, methods of astronomical observations, and astrophotography. This class is only offered at night. For science and non-science majors.
Prerequisite: AST 100, AST 112 or AST 115 with a grade of C or better, or consent of instructor.

AST 201 Advanced Astronomy (3-2) 4 crs.
Extends topics in stellar and galactic astronomy using a mathematical approach. Covers stellar magnitudes, Hertzsprung-Russell Diagram, stellar formation, the interstellar medium, Mass-Luminosity Relationship, element synthesis, active galaxies and quasars. Laboratory experiences will quantitatively address these topics.
Prerequisite: AST 101 and MTH 080 or higher (or proper math placement exam score) with grades of C or better.

ATE Architectural Studies

ATE 101 Introduction to Architecture and Drawing Fundamentals (3-4) 4 crs.
Introduces the profession of architecture as well as the technical procedures for creating typical drawing types. Covers the role of the architect and other professionals within the AEC industry as well as architectural education. Manual drafting techniques are used to create standard drawings including plans, sections, elevations and perspectives. Design development-level drawings are based on framed residential and light commercial building types.

ATE 103 Building Materials I (3-3) 4 crs.
Introduces masonry, wood and non-fireproofed steel construction for one- and two-story buildings. Concrete foundation and footing details, wall and building sections are covered as well as construction details.

ATE 105 Architectural CAD I (2-2) 3 crs.
Introduces computer hardware and state-of-the-art software as applied to applications in architecture, interior design and other parameters for design and drafting technologies; entity creating and editing, printing and plotting, and file/data management. Projects are correlated primarily to architectural design issues.

ATE 106 Architectural CAD II (2-2) 3 crs.
Covers advanced CAD techniques and procedures developed in two-dimensional architectural drafting and detailing. Develops a working knowledge and understanding of command structures, detailed data management and manipulation techniques, and software customization procedures. Projects are correlated primarily to detailing issues.
Prerequisite: ATE 105 with a grade of C or better, or consent of instructor.

ATE 109 Chicago's Great Architectural Tradition (3-0) 3 crs.
Introduces an historical survey of culture and technology impact on Chicago's architecture. Emphasizes ideas and trends in modern building originating with the balloon frame and continuing through to the skyscraper.

ATE 110 Presentation and Communication Tools (2-2) 3 crs.
Introduces various communication and presentation tools commonly used throughout the field of architecture. Covers the fundamentals of hand drafting and lettering as well as industry-wide drafting standards; computer presentation techniques using various software titles after a CAD drawing has been prepared; three-dimensional building models, materials and techniques; and media, methods and techniques for various types of architectural rendering.

ATE 130 History of Architecture (3-0) 3 crs.
Surveys architecture from prehistorical times through the Renaissance, including Western and non-Western cultures. Stylistic and technological developments of architecture are studied in relationship to the cultural diversity of social, political, and religious contexts and historical periods.

ATE 200 Architectural Internship (1-15) 2 crs.
Credits those students meeting the rigorous requirements of working in an approved architecture or construction-related position. Periodic meetings with the faculty advisor will discuss such items as workplace etiquette, appropriate workplace attire, etc. Students must make an oral presentation at the completion of the internship to receive credit. (Offered summer semester only.)
Prerequisite: Successful completion of all first-year courses as indicated in the current college catalog for the architecture program, 3.0 cumulative GPA or better for all Harper classes, 3.75 cumulative GPA for all ATE classes, and consent of program coordinator.

ATE 201 Architectural Design Principles (2-6) 4 crs.
Develops methods and strategies to apply design principles to fundamental architectural problems. Employment of 2- and 3-dimensional exercises to explore concepts of mass, space and structure as well as principles such as proportion, rhythm, scale, symmetry and procession. Exercises will be designed to promote an understanding of the process of concept formation and application.

Prerequisite: ART 110 and ART 121 with grades of C or better, or consent of instructor.

ATE 202 Architectural Design Studio (2-6) 4 crs.
Applies and advances design principles and processes gained in ATE 201. Studio projects representing practical architectural problems are assigned. These incorporate multiple issues and principles as well as site, user and context parameters. Project solutions will be documented with accurate drawings and possibly models.

Prerequisite: ATE 201 with a grade of C or better, or consent of instructor.

ATE 203 Building Materials II (2-4) 4 crs.
Develops construction strategies of multi-storied steel and concrete commercial and residential buildings. Covers stairs, elevators, and toilet room layouts. Reviews fire-resistive construction technologies, window walls, ceiling grids, lighting, partition details, mechanical and electrical requirements.

Prerequisite: ATE 103 with a grade of C or better, or consent of instructor.

ATE 205 Advanced Architectural CAD I (2-2) 3 crs.
Introduces three-dimensional architectural computer graphic techniques and applications. Covers the transition from two-dimensional to three-dimensional drawings, creation and manipulation of wire frame and solid modeling techniques.

Prerequisite: ATE 106 with a grade of C or better, or consent of instructor.

ATE 206 Advanced Architectural CAD II (2-2) 3 crs.
Provides in-depth exposure to advanced three-dimensional representations of architectural forms. A variety of post-processing programs introduces advanced three-dimensional representations to include modeling, shades and shadows, texture applications, walk-throughs, and photorealistic rendering. Special problems are investigated.

Prerequisite: ATE 205 with a grade of C or better, or consent of instructor.

ATE 208 Structural Fundamentals (4-0) 4 crs.
Introduces architectural statics and covers concepts of force systems in equilibrium: parallel forces, perpendicular forces, analysis of concentrated and distributed loads in live and dead-load applications resulting in tension and compression members, and members subjected to combined forces. The class will introduce strength of materials. It will apply principles of design analysis to steel, concrete and wood construction materials in slab, beam, column, and foundation configurations.

Prerequisite: MTH 140 with a grade of C or better, or equivalent.

ATE 209 Construction Studio (2-5) 4 crs.
Develops and applies the content from the ATE 103 and ATE 203 sequence in a hands-on studio course. Students will gain fundamental skills in various trades such as rough framing, finish carpentry, and masonry to build architectural assemblies. Drawings will be created as a preliminary step. The intent is to gain an understanding of actual materials and assemblies and how that should influence the design and construction detailing process.

Prerequisite: ATE 105 and ATE 203 with grades of C or better, or consent of instructor.

ATE 210 Cost Estimating (3-0) 3 crs.
Introduces development of preliminary estimates. Covers building plan take-offs and unit costs applied to residential and small scale construction projects.

ATE 211 Principles of Sustainability (3-0) 3 crs.
Covers aspects of building construction relating to sustainable or "green" design which can include material selection, detailing, energy and water conservation, lifecycle, environmental impact of choices of building materials, or location. This class will also explore the LEED rating system.

ATE 213 Construction Management Process (3-0) 3 crs.
Presents an overview of standard practices as they relate to the building construction industry. Includes the study of overall project sequence and participants, management tools, scheduling, project controls, and dispute avoidance and resolution. The focus is primarily on commercial projects.

ATE 214 Architectural Models (1-4) 3 crs.
Introduces variety of materials, methods and techniques for various types of architectural presentation models: site contour models, building enclosure models and interior space models. Covers scale, selection of landscape materials, colors and details.

ATE 215 Building Systems (2-2) 3 crs.
Introduces the internal systems of a building and how they function. Focuses on mechanical, electrical, plumbing and fire protection systems. Covers drawing types and conventions as well as the importance of inter-system coordination.

Prerequisite: ATE 101 with a grade of C or better.

ATE 216 Introduction to Revit Software and Object CAD (2-2) 3 crs.
Introduces architectural document preparation techniques via advanced computer software systems. Covers the transition from graphical representations found in standard CAD packages to the mass-model concept found in an object-based CAD package and ultimately to an integrated Building Information Modeling approach.

Prerequisite: ATE 106 with a grade of C or better, or consent of instructor.

BCE Building Codes and Enforcement

BCE 101 Basic Construction for Building Codes (3-0) 3 crs.
Introduces materials used in building construction, their growth or manufacture, preparation and application. Emphasizes frame and masonry construction types, working drawings and structural details for code compliance.

BCE 102 Basic Code Enforcement Techniques (3-0) 3 crs.
Introduces building inspection principles. Includes application of building codes to structures in the inspection process. Covers application of zoning restrictions and regulations, code interpretation using reference documents, components of field inspection and report requirements. Emphasizes plan and specification review, permit processes and issuance, legal ramifications in inspection law.

BCE 104 Basic Mechanical and Energy Conservation Codes (3-0) 3 crs.
Introduces the theory and code requirements for mechanical and energy conservation systems. Covers procedures, layouts and safety principles for heating, cooling and ventilation systems; application of HVAC code requirements for residential units (up to six dwelling units) and light commercial buildings. Includes application of energy conservation code requirements to principles of building inspection and identification of components in heating, ventilating and air conditioning systems to discern code violations.

BCE 105 Basic Plumbing Codes (3-0) 3 crs.
Introduces basic theory and code requirements for plumbing systems and their installation. Concentrates on procedures, practices and layouts, and codes inspection problems for residential, commercial and industrial installations.

COURSE DESCRIPTIONS

BCE 106 Basic Electrical Codes (3-0) 3 crs.

Introduces basic theory and code requirements for electrical systems and their installation. Concentrates on procedures, practices and layouts, and code inspection problems for residential, commercial and industrial installations.

BCE 201 Basic Building Codes (3-0) 3 crs.

Covers the latest edition of the International Building Code. Explains its use, intent, rationale and interpretation. Includes enforcement and administration, liability, plan review and permit process definitions, use groups, types of construction, general building limits, special uses, means of egress, materials and tests, fire resistive construction, mechanical equipment and systems, fire protection systems, electric wiring and equipment, elevators, plumbing systems and use of reference standards.

BCE 202 International Fire Codes (3-0) 3 crs.

Introduces up-to-date international fire codes, addressing conditions hazardous to life and property from fire, explosion, handling of hazardous materials and the use and occupancy of building and premises. Emphasizes model code regulations that safeguard the public health and safety in all communities both large and small.

BCE 203 National Green Building Code Standards (3-0) 3 crs.

Introduces current practices for the design and construction of green buildings that will create a positive impact on the environment, establishing specific conformance criteria, innovative approaches, and techniques intended to enhance sustainability in safety, health and the environment. Emphasizes understanding and applying green building code practices and standards as established by the International Code Council and the United States Environmental Protection Agency.

BFC Financial Services

BFC 101 Principles of Financial Institution Operations (3-0) 3 crs.

Surveys the internal operations of a bank and of a savings and loan association. Emphasizes the general principles of operations applicable to institutions of all sizes. Provides a sound foundation for newcomers to the industry regardless of age or prior academic experience.

BFC 115 Advanced Principles of Financial Institution Operations (3-0) 3 crs.

Continues the study of financial institution operations by analyzing banking products and services. Topics include checking accounts, N.O.W. accounts, time deposits, money market accounts and the contractual nature of these accounts. Also includes ownership methods, insurance coverage and an introduction to consumer lending. Recommended preparation: BFC 101.

BFC 200 Investment Management (3-0) 3 crs.

Introduces the student to the fundamentals of equity and fixed income investing. The course will also explore other investment management subjects such as mutual funds, international investing and retirement planning as well as tax-advantaged investments. Basic derivatives such as futures and options will also be discussed. (Credit will be given for either BFC 200 or MGT 170, but not both.)

BFC 201 Commercial Credit and Collection Principles (3-0) 3 crs.

Provides the principles of commercial credit management. Emphasizes analysis and control of funds advanced to customers through sales (accounts receivable management). Topics include credit associations, asset management, credit policies, basic principles of credit analysis and collection principles. Completion of ACC 101 or interview with coordinator prior to enrollment helpful.

BFC 202 Advanced Commercial Credit and Collection (3-0) 3 crs.

Continues study of commercial credit management. Emphasis is placed on Accounts Receivable Management. Topics include financial statement analysis, budgeting, bad debts and receivables cash flow and a detailed study of bankruptcy proceedings and international credit transactions.

Prerequisite: BFC 201 with a grade of C or better.

BFC 211 Accounting for Financial Institutions (3-0) 3 crs.

Studies basic accounting procedures, techniques and systems used in banks, savings and loans and other financial institutions. Emphasis on the components of the Statement of Condition and Income Statement.

Prerequisite: ACC 101 and BFC 101 with grades of C or better.

BFC 212 Home Mortgage Lending (3-0) 3 crs.

Emphasizes the role of the mortgage loan officer seeking to develop a sound mortgage portfolio. The mortgage market is described, followed by the acquisition of a mortgage portfolio, mortgage plans and procedures, mortgage loan processing and servicing and finally the obligations of the mortgage loan officer in overall portfolio management.

BFC 215 Financial Statements Interpretation and Analysis (3-0) 3 crs.

Explores the characteristics of financial statements and financial statements analysis. Emphasis is on the income statement, balance sheet and sources and uses of funds statement. Effects of reserves, inventory valuations, depreciation, depletion, amortization, subsidiaries and affiliates are studied. Also addressed are cash flow, reported earnings, taxable earnings and interpretation of the financial data by means of ratio analysis.

Prerequisite: ACC 101 with a grade of C or better.

BFC 225 International Finance (3-0) 3 crs.

Emphasizes international trade financing. Presents mechanics of importing and exporting, credit and political considerations. Focuses on credit considerations, market product profiles, letters of credit, collection, credit information outside the United States and entry into these markets.

BFC 235 Banking Internship (1-15) 3 crs.

Provides cooperative work experience as a banking trainee. Credit for this course will be given for participation in supervised cooperative work experience. The experience must be provided through an organized training plan in a college-approved training station. One lecture hour per week will be devoted to job analysis and banking issues.

Prerequisite: Consent of program coordinator.

BFC 240 Topics in Finance (.5-0 to 3-0) .5 - 3 crs.

Studies selected problems or topics in finance. The exact content and instructional methodology will vary semester to semester depending on the material to be studied. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. This course may be repeated up to a maximum of three credit hours.

BIO Biology

BIO 101 Biology Survey (3-0) 3 crs.

Surveys the science of biology, emphasizing the human organism. Includes chemical and physical properties, physiological systems of control, growth, differentiation, reproduction, genetics, ecology, evolution and ethical considerations. Also includes a broader overview of the plant and animal kingdoms and humans' place in, and interaction with, those kingdoms. (NOTE: Not Lab science credit.)
IAI L1 900

BIO 103 Man and Environment (3-0) 3 crs.
 Surveys and analyzes man's role as an environmental modifier. Ecological, social cultural, economic and political influences on environment are considered. The historical and current pollution problems and other environmental disruptions are analyzed and evaluated. Possible remedial courses of action are discussed and evaluated. (NOTE: Not Lab science credit.)
 IAI L1 905

BIO 104 Environmental Laboratory Biology (2-4) 4 crs.
 Examines and analyzes the parameters of the biosphere as a biological support system and the implications of natural and human caused changes in that support system. An examination of biosphere (natural world) and industriosphere (technological world) interactions is included. (NOTE: Lab science credit.)
 IAI L1 905L

BIO 105 Heredity, Evolution and Culture (3-0) 3 crs.
 Examines life and the evolutionary record with emphasis on humans and the gene pool. Factors such as social and environmental entities and the problems of the 20th century are considered. (NOTE: Not Lab science credit.)
 IAI L1 906

BIO 110 Principles of Biology (3-3) 4 crs.
 Studies and emphasizes cell structure and function by exploring the various patterns that have evolved within cells for carrying out important life functions. This includes cell ultrastructure, cell surface-volume relationships, cellular metabolism and energetics, mitosis and meiosis, genetics, DNA, RNA and protein synthesis, gene action, population genetics, development and environment. Knowledge of high school biology is assumed. (NOTE: Lab science credit.)
 IAI L1 900L, IAI BIO 910

BIO 120 General Botany (3-3) 4 crs.
 Emphasizes scientific inquiry through selected concepts in biology, such as organization, function, heredity, diversity, evolution and ecology, using plants as the type of organism. Topics include plant structure, diversity, growth, genetics, evolution, physiology and reproduction. Economic, cultural, environmental and medical relationships between plants and humans are emphasized. Knowledge of high school biology assumed. (NOTE: Lab science credit.)
 IAI L1 901L, IAI BIO 910

BIO 130 Microbiology (2-4) 4 crs.
 Examines characteristics and importance of microorganisms; emphasis on identification, anatomy and physiology, control, relationship to health and disease and economic importance. College chemistry or equivalent is desirable. **Strongly recommended preparation:** One year of high school biology with a grade of C or better taken within the last five years, or BIO 110. (NOTE: Lab science credit.)
Prerequisite: Required reading placement test scores: Compass Reading 77 or ACT Reading 20.
 IAI L1 903L

BIO 135 Introduction to Human Anatomy and Physiology (4-0) 4 crs.
 Surveys the human body, with emphasis on basic physical and chemical concepts, anatomy, physiology and embryology. Designed to meet the needs of students in certain allied health career programs. Knowledge of high school biology is assumed. (NOTE: Not Lab science credit.)
 IAI L1 904

BIO 136 Introduction to Human Disease (3-0) 3 crs.
 Surveys the nature of human disease, with emphasis on the functional disturbances within the body systems. Designed to meet the needs of students in certain allied health career programs. Knowledge of high school biology is assumed. (NOTE: Not Lab science credit.)
 IAI L1 904

BIO 140 General Zoology (3-3) 4 crs.
 Emphasizes scientific inquiry through selected concepts in animal biology. Surveys the animal kingdom based on theory of organic evolution including morphology, histology, physiology, taxonomy, parasitology, embryology and ecology. Economic, environmental and medical relationships between animals and humans are emphasized. Knowledge of high school biology is assumed. (NOTE: Lab science credit.)
 IAI L1 902L, IAI BIO 910

BIO 150 Field Biology (2-4) 4 crs.
 Emphasizes field and laboratory work with soils, flora, fauna, their identification, ecological relationships and human impact upon ecosystems. Assists students in acquiring basic working knowledge in biological field work. Students should expect field work or a field trip every class day, weather permitting. Field trips may be to local, regional or international locations which may vary from year to year. (See specific section for field trip focus.) Classes are held on campus prior to the off-campus learning experience as scheduled. Travel expenses are paid for by the student. This course may be repeated up to a maximum of 8 credit hours if field trip focus is different. Knowledge of high school biology is assumed; permission to register required. (NOTE: Lab science credit.)
 IAI L1 905L

BIO 160 Human Anatomy (3-2) 4 crs.
 Introduces the anatomy of the human body; the following systems studied either regionally or systemically: integumentary, skeletal, articular, muscular, circulatory, lymphatic, nervous, respiratory, digestive, excretory, endocrine and reproductive. Includes some introductory histology. Specially designed for students in health careers, biology and physical education. Strongly recommended preparation: One year of high school biology with a grade of C or better taken within the last five years, or BIO 110. (NOTE: Lab science credit.)
Prerequisite: Required reading placement test scores: Compass Reading 77 or ACT Reading 20.
 IAI L1 904L

BIO 161 Human Physiology (3-2) 4 crs.
 Emphasizes physiological principles at the molecular, cellular, tissue, organ and system level, as they pertain to the human organism. The following systems are studied in detail: skeletal, muscular, circulatory, nervous, digestive, respiratory, urinary, reproductive and endocrine. In this course, special applications will be made to meet the needs of students in health careers, biology and physical education. (NOTE: Lab science credit.)
Prerequisite: BIO 160 with a grade of C or better, or consent of instructor.

CAS Computer Applications Software

CAS 105 Word Processing Software (.5-1) 1 cr.
 Provides an opportunity to become proficient in the use of a currently popular word processing package. Includes editing, formatting, creating tables and outlines and merging data.

CAS 110 Microsoft Word Certification (.5-1) 1 cr.
 Continues development of Word skills and focuses on the review of these skills in preparation for a current Microsoft Office Word certification exam. Recommended preparation: CAS 105 or equivalent experience.

CAS 115 Spreadsheet Software (.5-1) 1 cr.
 Provides an opportunity to become proficient in the use of a currently popular spreadsheet package. Includes creating, editing and formatting worksheets; working with formulas, functions and charts.

CAS 120 Microsoft Excel Certification (.5-1) 1 cr.
 Continues development of Excel skills and focuses on the review of these skills in preparation for a current Microsoft Office Excel certification exam. Recommended preparation: CAS 115 or equivalent experience.

COURSE DESCRIPTIONS

- CAS 125 Database Software (.5-1)** 1 cr.
Provides an opportunity to become proficient in the use of a currently popular database package. Includes creating databases, tables and table relationships, maintaining and querying databases, and creating forms and reports.
- CAS 130 Microsoft Access Certification (.5-1)** 1 cr.
Continues development of Access skills and focuses on the review of these skills in preparation for a current Microsoft Office Access certification exam. Recommended preparation: CAS 125 or equivalent experience.
- CAS 135 Presentation Software (.5-1)** 1 cr.
Provides an opportunity to become proficient in the use of a currently popular business presentation package. Includes editing, formatting, themes, slide masters and presentation effects.
- CAS 140 Microsoft PowerPoint Certification (.5-1)** 1 cr.
Continues development of PowerPoint skills and focuses on the review of these skills in preparation for a current Microsoft Office PowerPoint certification exam. Recommended preparation: CAS 135 or equivalent experience.
- CAS 150 Microsoft Outlook Certification (.5-1)** 1 cr.
Continues development of Outlook skills and focuses on the review of these skills in preparation for a current Microsoft Office Outlook certification exam. Recommended preparation: WEB 101 or equivalent experience.
- CAS 160 Introduction to Business Software Packages (2-2)** 3 crs.
Provides an opportunity to become proficient in the use of currently popular software packages or suites. Includes word processing, spreadsheets, databases, presentation software and the integration of these applications.
- CAS 175 Desktop Publishing Software (.5-1)** 1 cr.
Provides an opportunity to become proficient in the use of a currently popular desktop publishing package. Includes editing, formatting, page layout creating newsletters and brochures.
- CAS 215 Advanced Spreadsheet Software (.5-1)** 1 cr.
Provides an opportunity to become proficient in the use of a currently popular advanced spreadsheet package. Includes conditional formatting, data importing, filtering, charting, pivot tables and macros.
Prerequisite: CAS 115 or CAS 160 with a grade of C or better.
- CAS 216 Spreadsheet Macros and Other Advanced Topics (.5-1)** 1 cr.
Provides an opportunity to become proficient in the use of spreadsheet macros and other advanced topics used with a currently popular spreadsheet package. Includes variables and arrays, conditional logic, looping, functions and procedures.
Prerequisite: CAS 215 with a grade of C or better.
- CAS 225 Advanced Database Software (.5-1)** 1 cr.
Provides the student with knowledge and practice of utilizing the advanced capabilities of a currently popular database application. Includes advanced queries, forms and reports. Designed for the non-programmer to make better use of the software package to solve common information requirements.
Prerequisite: CAS 125 or CAS 160 with a grade of C or better.
- CAS 226 Database Programming (2-2)** 3 crs.
Uses the command language from a currently popular data base package for computers. A set of business-oriented programs will be developed making extensive use of the command language. Recommended preparation: CAS 125 or CAS 160 or equivalent experience.
- CAS 260 Office Application Development (2-2)** 3 crs.
Provides students with an opportunity to build productivity applications using a currently popular applications suite and macro language. Advanced word processing, spreadsheet, and database features are included, with a focus on integrating applications and automating everyday tasks. Recommended preparation: CAS 160 and CIS 101 or equivalent experience.

CDV Career Development

- CDV 110 Career Development (2-0)** 2 crs.
Provides the opportunity to explore career interests, experiences, skills, abilities and work related values. Examines information about the world of work including the nature of various careers, labor market trends, job search strategies, education and training requirements and diversity in the workplace. Information will be integrated so students will be able to develop educational and career goals.

CHM Chemistry

- CHM 100 Chemistry for the Health Sciences (3-3)** 4 crs.
Introduces basic concepts of inorganic and organic chemistry and biochemistry. Emphasizes chemical principles applied to biological systems. Laboratory exercises apply theory to biological and consumer products. Especially designed for students in allied health sciences. Meets the prerequisite of the Nursing program.
IAI P1 902L
- CHM 103 The Chemistry Connection (3-3)** 4 crs.
Introduces chemical principles to illustrate the significance of chemistry in the world today. Practical applications and current issues related to general chemistry, organic chemistry, and biochemical topics will be integrated with chemical concepts. Recommended for non-science majors.
IAI P1 903L
- CHM 105 Chemical World (3-3)** 4 crs.
Relates biological and physical systems to chemistry. Focuses on four major themes: the sociology of science, chemical composition and change, the chemistry of life, chemistry and society. Corresponding laboratory is inquiry based. Designed to provide a higher level of scientific literacy to non-science majors and to provide elementary education majors, in particular, with the content knowledge and disposition about science that is necessary in order to be able to teach science in engaging and meaningful ways to their students. Aligned with State of Illinois teacher preparation standards.
IAI P1 902L
Prerequisite: MTH 080 or higher (or required math placement exam score) with a grade of C or better, or concurrent enrollment.
- CHM 110 Fundamentals of Chemistry (3-3)** 4 crs.
Introduces concepts of chemistry. Emphasizes the composition of matter, the periodic table, the chemistry of solutions and chemical calculations. The laboratory experiments utilize many common household materials to demonstrate applications of chemical concepts. For students whose preparation does not permit enrollment in CHM 121.
IAI P1 902L
Prerequisite: MTH 080 or higher (or required math placement exam score) with a grade of C or better, or concurrent enrollment.
- CHM 121 General Chemistry I (4-3)** 5 crs.
Studies principles of atomic and molecular structure, bonding, stoichiometry, states of matter, kinetic molecular theory, and solutions. Corresponding laboratory experiments include volumetric and gravimetric analyses, a qualitative study of reactions, visible spectrophotometry, and problem-based analyses. Intended for all students whose majors require general chemistry, including science majors and pre-professionals. The course also satisfies a general education laboratory science requirement for students with previous chemistry experience.
IAI P1 902L, IAI CHM 911
Prerequisite: (Two semesters of high school chemistry or CHM 110 with a grade of C or better) AND (MTH 080 or higher with a grade of C or better, or required MTH 103 placement test score.)

CHM 122 General Chemistry II (4-3) 5 crs.
Continues CHM 121 as the second semester of a general chemistry sequence intended for all students whose major requires a full year of general chemistry, including science majors and pre-professionals. Includes the principles of chemical kinetics, equilibrium, acid-base reactions, electrochemistry, and thermodynamics. Also introduces topics in organic, nuclear, transition metal, and descriptive chemistry. Laboratory includes experiments related to lecture material.
IAI CHM 912
Prerequisite: CHM 121 with a grade of C or better, or consent of instructor.

CHM 125 Organic and Biochemistry for the Health Sciences (3-3) 4 crs.
Introduces principles and health applications of organic chemistry and biochemistry. Studies the structure, nomenclature and reactions of organic compounds. Also studies carbohydrates, lipids, proteins, enzymes, nucleic acids, metabolic pathways and bioenergetics. Includes related laboratory exercises. Intended for students in the allied health sciences but open to all non-physical science majors.
Prerequisite: CHM 110 or CHM 121 with a grade of C or better.

CHM 201 Basic Organic Chemistry (3-3) 4 crs.
Surveys topics of organic chemistry covering nomenclature, structure, reactions and synthesis of the major classes of organic compounds, including hydrocarbons, alcohols, aldehydes, ketones, carboxylic acids and amines. The laboratory includes experiments in distillation, crystallization, chromatography, extraction, synthesis and analysis.
Prerequisite: CHM 100, CHM 110, or CHM 121 with a grade of C or better, or consent of instructor.

CHM 204 Organic Chemistry I (3-6) 5 crs.
Applies modern theories of electronic structures to the study of chemical and physical properties of alkanes, alkenes, alkynes, and alkyl halides. Students also study reaction mechanisms and stereochemistry as they apply to the above classes of organic compounds. Laboratory includes syntheses, qualitative organic analyses, IR and visible spectrophotometry, gas chromatography, thin layer chromatography, HPLC, polarimetry, and refractometry. Intended primarily for science majors and pre-professionals.
IAI CHM 913
Prerequisite: CHM 122 with a grade of C or better, or consent of instructor.

CHM 205 Organic Chemistry II (3-6) 5 crs.
Continues CHM 204 with further study of nomenclature, stereochemistry, reactions, and mechanisms of the following functional groups: conjugated dienes, aromatics, alcohols, ethers, aldehydes, ketones, carboxylic acids and their derivatives, and nitrogen containing compounds. Laboratory includes syntheses, qualitative organic analyses, NMR, IR and UV-Vis spectrophotometry, gas chromatography, thin layer chromatography, HPLC, polarimetry, and refractometry. Intended primarily for science majors and pre-professionals.
IAI CHM 914
Prerequisite: CHM 204 with a grade of C or better.

CHM 210 Quantitative Analysis (3-6) 5 crs.
Introduces theory and applications of sampling and quantitative chemical analysis with a focus on acid-base equilibria, complexation, extraction and chromatography, solubility, precipitation, redox reactions, and activity. Considerable emphasis is placed on extended equilibrium concepts and the fundamentals of spectroscopy. Laboratory experiments are related to lecture topics; they emphasize experimental precision and accuracy and include spreadsheet-based computer calculations.
Prerequisite: CHM 122 or equivalent with a grade of C or better.

CHM 295 Independent Research In Chemistry I (0-3 to 0-9) 1-3 crs.
Provides experimental exploration of an authentic scientific research topic under the supervision of a faculty member. This laboratory course is designed to teach the principles and practice of modern experimental chemistry. Before registering, students must submit to the Chemistry Department a contract with the instructor for accomplishing a defined research task. Credit is contingent on the submission of a final report.
Prerequisite: CHM 121 with a grade C or better, prior consultation with instructor, completed contract, and consent of department chair.

CHM 296 Independent Research In Chemistry II (0-3 to 0-9) 1-3 crs.
Provides additional opportunity for students to do experimental exploration of an authentic scientific research topic under the supervision of a faculty member. The laboratory course is designed to give students more time to work on a research project. Before registering, students must submit to the Chemistry Department a contract with the instructor for accomplishing a defined research task. Credit is contingent on the submission of a final report.
Prerequisite: CHM 295 with a grade B or better, prior consultation with instructor, completed contract and consent of the department chair.

CHM 297 Independent Research In Chemistry III (0-3 to 0-9) 1-3 crs.
Provides additional opportunity for students to do experimental exploration of an authentic scientific research topic under the supervision of a faculty member. This laboratory course is designed to give students more time to work on a research project. Before registering, students must submit to the Chemistry Department a contract with the instructor for accomplishing a defined research task. Credit is contingent on the submission of a final report.
Prerequisite: CHM 296 with a grade B or better, prior consultation with instructor, completed contract, and consent of department chair.

CHN Chinese

CHN 101* Elementary Chinese I (4-0) 4 crs.
Develops the basic knowledge of Mandarin Chinese and the Chinese culture. A communicative approach is used to engage students in the activities to practice listening, speaking, reading and writing skills. This course is the first of a two-course sequence designed for students with no prior knowledge of spoken or written Chinese.
**NOTE: This course is pending ICCB approval.*

CHN 102* Elementary Chinese II (4-0) 4 crs.
Continues to develop the basic knowledge of Mandarin Chinese and the Chinese culture. Uses a communicative approach to engage students in activities to practice listening, speaking, reading and writing skills. This course is the second of a two-course sequence designed for students with no prior knowledge of spoken or written Chinese.
Prerequisite: CHN 101 with a grade of C or better, or consent of instructor.
**NOTE: This course is pending ICCB approval.*

CIS Computer Information Systems

CIS 100 Computer Fundamentals (2-2) 3 crs.
Provides the student with an understanding of computers and software as they are used in the business environment. Laboratory time will be used to understand basic computer fundamentals. An overview of application software packages (word processing, spreadsheets, database and presentation programs) is included. This course is not intended for computer information majors and does not include programming.
IAI BUS 902

CIS 101 Introduction to Computer Information Systems (2-2) 3 crs.
 Introduces a student to the computer through lecture and laboratory assignments. No prior knowledge of computers is necessary. The student will learn the fundamentals of computers and how computers are used in a business environment, including learning how to use a word processor, data base manager, spreadsheet, and other packages. The student will also learn to write simple programs using the BASIC language. IAI BUS 902
 (NOTE: Transfer students should check with the school they will be transferring to regarding the transferability of this course.)

CIS 106 Computer Logic and Programming Technology (2-2) 3 crs.
 Familiarizes the student with the necessary tools to design efficiently the steps in a business computer program. Introduces object-oriented programming with an appropriate programming language. Requires the students to code and debug their own sample cases. Also teaches documentation, problem analysis, structured programming logic, decision tables and table utilization.
Prerequisite: CIS 101 or concurrent enrollment and MTH 080 or higher (or required math placement exam score) with a grade of C or better.

CIS 137 Computer Internship I (1-15) 3 crs.
 Provides students with coordinated job experience in an information technology professional position such as computer networking or Web design. This course is repeatable up to a maximum of six credit hours. The one lecture hour per week will involve a seminar regarding technology issues.
Prerequisite: Minimum of six credit hours of CIS courses with a GPA of 2.5 or better. Consent of program coordinator and internship instructor.

CIS 143 Introduction to Database Systems (2-2) 3 crs.
 Provides students with a comprehensive introduction to database concepts. Primary focus is on the relational model of database management and querying databases using Structured Query Language (SQL). Existing relational databases are examined and manipulated, and new relational databases are created. Recommended preparation: CAS 125, CAS 160 or CIS 101 or equivalent experience.

CIS 168 Java Software Development I (3-2) 4 crs.
 Introduces students to the Java programming language and its object-oriented (OO) approach for developing platform independent applications. Students will learn how to develop basic Java applications, including object-oriented programming, event handling, and Graphical User Interface (GUI) using the Java Swing library.
Prerequisite: CIS 106 with a grade of C or better, or consent of instructor.

CIS 181 Visual Basic Software Development (3-2) 4 crs.
 Introduces students to Visual Basic software development using the Microsoft .NET Framework. Includes the Visual Studio development environment, variables and constants, decision and repetition structures, debugging and error handling, procedures, arrays, file processing, classes, the .NET Framework and ADO.NET.
Prerequisite: CIS 106 with a grade of C or better.

CIS 182 Visual C# Software Development (3-2) 4 crs.
 Introduces students to Visual C# software development using the Microsoft .NET Framework. Includes the Visual Studio development environment, variables and constants, decision and repetition structures, methods, exception handling, classes, arrays, file processing, the .NET Framework and ADO.NET.
Prerequisite: CIS 106 with a grade of C or better.

CIS 203 Systems Analysis and Design (2-2) 3 crs.
 Introduces students to the role of the systems analyst and the functions and techniques of business systems' analysis and design. Includes business systems analysis, requirements modeling, data and process modeling, object modeling, development strategies, user interface design, and systems implementation. Practical analysis and design skills are achieved through hands-on projects and interactive case studies.
Prerequisite: CIS 143 and prior or concurrent enrollment in CIS 168, CIS 181 or CIS 182 with grades of C or better.

CIS 211 IT Project Management Design (2-2) 3 crs.
 Provides students with a comprehensive introduction to Information Technology project management. Includes project selection, initiation, planning, execution, monitoring and closure. Hands-on activities are performed using a currently popular project management software package. Recommended preparation: CAS 160, CIS 100 or CIS 101.

CIS 220 Topics in Computer Information Systems (1-0 to 6-0) 1-6 crs.
 Studies selected problems, computer software or computer languages. The exact content and instructional methodology will vary semester to semester depending on the material to be studied. A syllabus or course outline containing additional information with pre-registration materials will be available each time the course is offered. This course may be repeated up to a maximum of six credit hours.
Prerequisite: Consent of instructor.

CIS 230 Computer Programmer Internship (1-15) 3 crs.
 Applies computer skills in practical situations and also involves a field project in local computer installation. Open only to computer degree candidates. Fourth semester standing with an overall GPA of 3.0 and a 3.5 GPA in computer courses.
Prerequisite: Consent of program coordinator.

CIS 243 Database Administration (2-2) 3 crs.
 Provides students with hands-on experience installing, configuring, maintaining and supporting a currently popular relational database management system (DBMS). Includes installation, configuration, backup and restore, security, performance monitoring and replication. Recommended preparation: CIS 143 or equivalent experience.

CIS 244 Database Design and Implementation (2-2) 3 crs.
 Provides students with hands-on experience designing and implementing databases using a currently popular relational database management system (DBMS). Includes logical design, physical design, database creation, data import/export, views, stored procedures, triggers, transactions, performance and security. Recommended preparation: CIS 143 or equivalent experience.

CIS 268 Java Software Development II (3-2) 4 crs.
 Expands upon CIS 168 by introducing students to Java input/output, threads, collections, networking, advanced Swing, Remote Method Invocation, Java Database Connectivity, and JAR files. Students will develop advanced Java applications that interact with files, the TCP/IP network, remote objects, SQL database, and GUI users.
Prerequisite: CIS 168 with a grade of C or better, or consent of instructor.

CIS 278 Java Software Development III (3-2) 4 crs.
 Expands upon CIS 178 by introducing students to printing, the JTable class, applets, servlets, XML, JavaBeans, and use of an Integrated Development Environment (IDE). Students will develop advanced client/server and three-tier applications in Java.
Prerequisite: CIS 268 with a grade of C or better.

CIS 281 Microsoft .NET Web Development (3-2) 4 crs.
 Provides experience creating, configuring and deploying web applications using Visual Basic or Visual C# and the Microsoft .NET Framework. Includes web application development, data integration, custom controls, authentication, authorization and personalization.

Prerequisite: WEB 150 and either CIS 181 or CIS 182 with grades of C or better.

CIS 286 Microsoft .NET Framework (3-2) 4 crs.
 Provides in-depth coverage of the Microsoft .NET Framework using Visual Basic or Visual C#. Topics include system types and collections, services, threading, application configuration, input/output, security, interoperability, globalization, drawing and text manipulation.

Prerequisite: CIS 281 with a grade of C or better.

CIS 299 Software Development Capstone (1-4) 3 crs.
 Provides hands-on experience analyzing, designing, developing and implementing a software project. Includes quality assurance, project management basics and documentation. May use case studies to demonstrate concepts. Students will carry a project through all phases of analysis, design and development.

Prerequisite: CIS 203 and prior or concurrent enrollment in either CIS 268 or CIS 281 with grades of C or better.

CNA Certified Nursing Assistant

CNA 101 Nursing Assistant Training (4-5) 6 crs.

Provides theory and training in the basic skills essential to the practice of health care workers who will assist the nurse in the care of patients in a variety of health care settings. Includes simulated practice and opportunity for clinical application. This course is approved by the Illinois Department of Public Health, Office of Health Regulations. Successful completion is required for application for the Nurse Aide Competency Exam. NOTE: Students are required to have a valid Social Security number, pass a criminal background check, and meet health requirements. Special fees apply.

Prerequisite: ENG 100 or ENG 101 with a grade of C or better; or ESL 073 with a grade of B or better; or RDG 090 or RDG 099 with a grade of C or better; or an ACT Reading score of 20 or higher, or required placement test scores.

CSC Computer Science

CSC 121 Computer Science I (3-2) 4 crs.

Introduces a disciplined approach to problem solving and algorithm development. Introduces procedural approach; data abstraction; selection, repetition and sequence control structures; arrays, records and files; and an introduction to recursion. Emphasizes program design, testing and documentation using good programming style in a block-structured, high-level programming language. Designed as the first of a sequence of courses (CSC 121, CSC 122, CSC 216 and CSC 217) for students majoring in Computer Science. IAI CS 911

Prerequisite: MTH 103 and MTH 104 or MTH 140 with grades of C or better; or required math placement test score; or consent of instructor.

CSC 122 Computer Science II (3-2) 4 crs.

Introduces the design and implementation of large scale problems. Introduces data structures: files, sets, pointers, lists, stacks, queues, trees and graphs. Introduces program verification and complexity. Builds previous knowledge of recursion, text processing, and searching and sorting algorithms. Designed as the second of a sequence of courses (CSC 121, CSC 122, CSC 216, CSC 217) for students majoring in Computer Science. IAI CS 912

Prerequisite: CSC 121 and MTH 200 with grades of C or better, or consent of instructor.

CSC 208 Problem Solving for Science and Engineering Using FORTRAN (3-2) 4 crs.

Emphasizes problems analysis and problem solving. Includes problem formulation, data storage and retrieval techniques, algorithm analysis and development, flow chart or pseudocode construction. Introduces the student to numerical methods and simulations. Develops working knowledge of current version of FORTRAN. Designed to use the computer in the study of problems in engineering, mathematics and/or physical sciences. Intended for the mathematics, science, computer science or engineering student.

Prerequisite: MTH 200 or higher with a grade of C or better, or consent of instructor.

CSC 211 Introduction to C Programming and UNIX (3-2) 4 crs.

Develops working knowledge in the use of the computer in the C programming language. Includes problem formulation, data storage and retrieval, algorithms, flowcharts or pseudocode, numerical analysis and structural programming, lexical analysis and string manipulation. Introduces student to a UNIX-like operating system environment. Intended for the computer science or engineering student.

Prerequisite: CSC 121 or CSC 208 with a grade of C or better, or consent of instructor.

CSC 214 Introduction to Java Programming (3-2) 4 crs.

Introduces the Java language in a UNIX environment. Includes algorithms, problem formulation, structured programming, variables, data types, input/output repetition, selection, arrays, functions, classes/objects, and recursion. Applications emphasize math, science, engineering, and computer science. This course will build on topics covered in CSC 121 (only in a new language).

Prerequisite: CSC 121 with a grade of C or better, or consent of instructor.

CSC 216 Data Structures and Algorithm Analysis (3-2) 4 crs.

Provides exposure to techniques for storing and manipulating data. Includes discussion of insertion, deletion, and retrieval algorithms for stacks, queues, deques, linked lists, trees, etc. Emphasizes algorithm analysis as it builds on topics from previous course (CSC 122). Emphasizes mathematics, engineering, science, and computer science applications. Designed as the third of a sequence of courses (CSC 121, CSC 122, CSC 216 and CSC 217) for students majoring in Computer Science.

Prerequisite: CSC 122 with a grade of C or better, or consent of instructor.

CSC 217 Assembler Programming and Machine Organization (3-2) 4 crs.

Emphasizes machine-level programming, instruction sets, data representation, subroutines, I/O hardware and software, linking and loading related to higher level languages. Designed as the fourth in a sequence of courses (CSC 121, CSC 122, CSC 216 and CSC 217) for students majoring in Computer Science.

Prerequisite: CSC 216 with a grade of C or better, or consent of instructor.

CTE Cardiac Technology

CTE 101 Electrocardiography (4-0) 4 crs.

Provides instruction and practice in the performance and comprehensive interpretation of rhythm and 12 lead ECGs. NOTE: Students must be admitted into the Cardiac Technology or Diagnostic Medical Sonography programs to register for this course.

COURSE DESCRIPTIONS

CTE 102 ECG Surveillance and Stress Testing (1-2) 2 crs.
Provides instruction in the performance of ECG surveillance type testing such as telemetry monitoring, holter monitoring, and maximal stress testing. Discusses other types of ECG monitoring as well as guidelines specific to the performance of each type of testing. Gives students considerable practice in the laboratory performing each type of testing using sophisticated ECG surveillance equipment, blood pressure monitoring equipment, and exercise ergometers.

Prerequisite: CTE 101 with a grade of C or better.

CTE 104 Cardiovascular Principles (3-0) 3 crs.
Provides students preparing for cardiac diagnostic work with an overview of important cardiovascular principles. Reviews cardiac anatomy, physiology, and pharmacology. Discusses cardiac embryology, cardiac hemodynamic principles, and cardiovascular and cerebrovascular disease. Also provides an overview of clinical cardiology. NOTE: Students must be admitted into the CTE or DMS programs to register for this course.

CTE 105 Cardiac Pathophysiology (3-0) 3 crs.
Provides an in-depth study of cardiac pathophysiology. All types of cardiac disease are covered. Disease states, etiologies, signs, symptoms, diagnostic findings, associated findings, and treatment options are discussed.

Prerequisite: CTE 101 and CTE 104 with grades of C or better.

CTE 106 Ultrasound Physics and Instrumentation (4-0) 4 crs.
Instructs students in the ultrasound imaging programs in the principles of ultrasound physics and instrumentation. Covers the elementary principles of sound and sound propagation, transducers and instrumentation, principles of pulse echo imaging, hemodynamics, Doppler and color flow imaging, artifacts, quality assurance, bioeffects and safety. Discusses research design, professional organizations and continuing medical education. NOTE: Students must be admitted into the CTE or DMS programs to register for this course.

CTE 107 Diagnostics I (4-0) 4 crs.
Introduces standard two dimensional, M-mode and color flow imaging, and continuous wave and pulsed wave Doppler didactics. Tomographic anatomy, flow patterns, measurements, and norms are covered. The course teaches the student to systematically interpret, recognize, and quantify basic valvular and wall motion abnormalities through lecture and patient case study review.

Prerequisite: BIO 161, CTE 106, HSC 104, HSC 105, HSC 107 and HSC 213 with grades of C or better.

Corequisite: CTE 101, CTE 104 and CTE 109.

CTE 108 Diagnostics II (4-0) 4 crs.
Instructs the student, through lecture and patient case study review, on how to recognize and interrogate not only valvular and wall motion abnormalities but a comprehensive list of those pathologies diagnosed via echo. Advanced imaging topics are also introduced and include: interventional echo, stress and pharmacologic echo, harmonics and contrast echo, transesophageal echo, intravascular echo, and three dimensional echo.

Prerequisite: CTE 101, CTE 104, CTE 107 and CTE 109 with grades of C or better.

Corequisite: CTE 110 and CTE 120.

CTE 109 Laboratory Techniques I (1.5-3) 3 crs.
Instructs the student, through an extensive instructional laboratory experience, on how to perform a basic echocardiogram including two dimensional, M-mode, and color flow imaging on an adult subject using current ultrasound equipment. Pulsed wave and continuous wave Doppler are briefly introduced. The students are also taught the professional skills deemed necessary to work in a clinical ultrasound environment.

Corequisite: CTE 107.

CTE 110 Laboratory Techniques II (1.5-3) 3 crs.
Develops, through an extensive instructional laboratory experience, the student's ability to perform a complete echocardiogram including two dimensional, M-mode, and color flow imaging, and pulsed wave and continuous wave Doppler on adult subjects using current ultrasound equipment. The student is taught Doppler measurements and imaging protocols suitable for the interrogation of cardiac pathologies diagnosed by echo. Advanced modalities are introduced such as stress, contrast, three dimensional imaging, and digital echo. The student continues to groom professional skills deemed necessary to work in a clinical ultrasound environment.

Corequisite: CTE 108 and CTE 120.

CTE 112 Laboratory Techniques III (0-2) 1 cr.
Provides the student with an opportunity to practice and expand upon clinical skills taught in previous laboratory classes. This course is not required for graduation or certificate completion. Pass/fail grade.

Prerequisite: CTE 102 with grade of C or better.

CTE 120 Introduction to the Cardiac Technology Internship (1-2.5) 1.5 crs.
Prepares students for the cardiac technology internship by detailing the role of the cardiac sonographer in the hospital setting. Special hospital procedures and considerations will be presented. Essential non-imaging clinical skills will be reviewed and practiced. An overview of clinical sites will be presented. Preclinical requirements will be completed. The student will participate in a 40 hour hospital observational experience.

Corequisite: CTE 108 and CTE 110.

CTE 130 Cardiac Technology Internship (0-20) 4 crs.
Provides students with practical experience in performing cardiac diagnostic procedures (mainly adult echocardiograms) in a hospital or other clinical diagnostic setting.

Prerequisite: CTE 108, CTE 110 and CTE 120 with grades of C or better.

DHY Dental Hygiene

DHY 100 Pre-Clinic (3-6) 5 crs.
Introduces the student to clinical dental hygiene with emphasis on the role of the dental hygienist in the control and prevention of dental disease. NOTE: Students must be admitted into the Dental Hygiene program to register for this course.

DHY 101 Clinical Dental Hygiene I (2-9) 5 crs.
Applies theoretical concepts in a clinical setting and introduces periodontology. Refines clinical skills and emphasizes the preventive aspects of dentistry. The student performs traditional dental hygiene clinical functions.

Prerequisite: DHY 100, DHY 159, and DHY 161 with grades of C or better.

DHY 111 Dental Radiology (2-3) 3 crs.
Provides theory in radiation physics, safety and the biological effects of ionizing radiation. Intraoral exposure techniques, darkroom procedures and film interpretation are emphasized in the laboratory. Practical experience provided on mannequins and selected patients.

Prerequisite: DHY 100, DHY 159, and DHY 161 with grades of C or better.

DHY 119 Oral Health Management of Special Needs Populations (2-0) 2 crs.
Introduces characteristics and oral health management needs of geriatrics, special populations and the medically compromised with diabetes and cardiovascular disease. Physical, psycho/social and oral characteristics associated with special needs populations are discussed. Modifications of comprehensive dental hygiene care will be emphasized. The caregiver team concept will be incorporated.

Prerequisite: DHY 101, DHY 111, and DHY 190 with grades of C or better.

DHY 151 Clinical Dental Hygiene II (0-6) 2 crs.
Provides clinical practice in oral prophylaxis on adult patients including preventive techniques, exposing radiographs and patient management.
Prerequisite: DHY 101, DHY 111 and DHY 190 with grades of C or better.

DHY 159 Head and Neck Anatomy (3-0) 3 crs.
Introduces anatomy of the head and neck regions with special emphasis on the human dentition. Skeletal, muscular, glandular, circulatory, nervous and epithelial structures are considered in detail. Also includes introductory material on human histology and orofacial embryology. NOTE: Students must be admitted into the Dental Hygiene program to register for this course.

DHY 161 Dental Anatomy (1-2) 2 crs.
Introduces the student to terms and anatomic structures of the oral cavity including a detailed study of crown and root morphology of both primary and permanent dentitions. NOTE: Students must be admitted into the Dental Hygiene program to register for this course.

DHY 190 General and Oral Pathology (2-0) 2 crs.
Studies fundamentals of microscopic and gross pathology and general pathological processes. Specifically emphasizes diseases of dental and periodontal tissues and of the supporting oral structures. Correlates clinical manifestations of disease with dental hygiene practice.
Prerequisite: DHY 100, DHY 159, and DHY 161 with grades of C or better.

DHY 200 Periodontology (1-2) 2 crs.
Reviews etiological and histological components of periodontal disease emphasizing current theoretical concepts in treatment and management of periodontally involved patients. Provides laboratory experience to refine non-surgical techniques.
Prerequisite: DHY 119, DHY 151, DHY 269 and DHY 270 with grades of C or better.

DHY 201 Ethics, Jurisprudence and Practice Management (2-0) 2 crs.
Studies the development of dental office and clinic practice management procedures and professional interrelationships. Considers the role of the dental hygienist in the various dental specialties and various employment modalities.
Prerequisite: DHY 200, DHY 202, DHY 220, DHY 230, DHY 240 and DHY 250 with grades of C or better.

DHY 202 Radiology I (0-2) 1 cr.
Continues practice in the techniques of exposing, processing, mounting and evaluating dental radiographs.
Prerequisite: DHY 119, DHY 151, DHY 269 and DHY 270 with grades of C or better.

DHY 203 Radiology II (0-2) 1 cr.
Continues DHY 202.
Prerequisite: DHY 200, DHY 202, DHY 220, DHY 230, DHY 240 and DHY 250 with grades of C or better.

DHY 220 Community Dental Health I (1-2) 2 crs.
Introduces the principles of dental public health and its application to dental hygiene including epidemiology, disease prevention, assessment methods, program planning and resource identification. Reviews and interprets dental scientific literature and introduces the utilization of research tools and statistical analysis.
Prerequisite: DHY 119, DHY 151, DHY 269 and DHY 270 with grades of C or better.

DHY 221 Community Dental Health II (1-2) 2 crs.
Emphasizes the direct application of preventive dentistry services in the community and the design of treatment plans to meet identified community needs. Community fluoridation, school-based services, tobacco cessation, and consumer education and health promotion will be included. Students will be required to participate in group activities to share service learning experiences.
Prerequisite: DHY 200, DHY 202, DHY 220, DHY 230, DHY 240 and DHY 250 with grades of C or better.

DHY 230 Pain Management (1-2) 2 crs.
Provides students with the basic and current concepts of local anesthetics and pain control and to provide for the safe and effective administration of local anesthetics. Includes the rationale for pain control, psychological considerations, armamentarium, anatomy, neurophysiology and pharmacology of anesthetic agents. Provides laboratory instruction and clinical practice in topical and local anesthetic techniques. Introduces the use and administration of nitrous oxide analgesia.
Prerequisite: DHY 119, DHY151, DHY 269 and DHY 270 with grades of C or better.

DHY 240 Dental Pharmacology (2-0) 2 crs.
Examines the principles of drug actions and characteristics of major drug groups. Emphasis is placed on drugs used in dentistry and the management of dental patients who receive drug treatment for medical problems.
Prerequisite: DHY 119, DHY 151, DHY 269 and DHY 270 with grades of C or better.

DHY 250 Clinical Dental Hygiene III (1-12) 5 crs.
Continues clinical practice of dental hygiene with emphasis on the comprehensive treatment of periodontally involved patients.
Prerequisite: DHY 119, DHY 151, DHY 269 and DHY 270 with grades of C or better.

DHY 251 Clinical Dental Hygiene IV (1-12) 5 crs.
Continues DHY 250.
Prerequisite: DHY 200, DHY 202, DHY 220, DHY 230, DHY 240 and DHY 250 with grades of C or better.

DHY 269 Science of Dental Materials (1-0) 1 cr.
Studies the characteristics, properties, composition and function of materials used in dentistry. Includes familiarization with techniques and procedures used in the dental profession.
Prerequisite: DHY 101, DHY 111 and DHY 190 with grades of C or better.

DHY 270 Dental Materials Laboratory Techniques (0-2) 1 cr.
Introduces the student to the use and manipulation of materials used in dentistry, with an emphasis on the clinical application of materials that relate directly to the functions of the dental hygienist.
Prerequisite: DHY 101, DHY 111 and DHY 190 with grades of C or better.

DIT Dietetic Technician

DIT 101 Fundamentals of Nutrition (3-0) 3 crs.
Introduces the science of nutrition and its relationship to health and disease. Nutrients found in foods, their digestion, absorption and metabolization in the body; cultural, socioeconomic, and psychological influences on food selection; and application of these concepts to promote good nutritional health and prevent disease will be covered.
IAI L1 904

DIT 102 Medical Nutrition Therapy (3-0) 3 crs.
Studies the nutritional care of clients with chronic and acute disease conditions.
Prerequisite: DIT 101 with a grade of C or better.

COURSE DESCRIPTIONS

- DIT 110 Principles of Food Preparation (2-2) 3 crs.**
Introduces the scientific principles of food preparation. Emphasis is placed on food selection and basic food preparation practices. Laboratory experience includes application of these principles, sensory evaluation and recipe modification.
- DIT 150 Dietetic Clinical Laboratory I (1-12) 5 crs.**
Offers student assigned clinical laboratory experience in approved health care and community agencies. Emphasis will be placed on development of skills required of the dietary manager.
Prerequisite: DIT 220 and HSC 105 with grades of C or better and prior or concurrent enrollment in DIT 102 with a grade of C or better.
- DIT 200 Dietetic Clinical Laboratory II (1-12) 5 crs.**
Offers student assigned clinical laboratory experience in approved health care and community agencies. Emphasis will be placed on the nutrition care planning process.
Prerequisite: BIO 135, BIO 136, DIT 150 and HSC 112 with grades of C or better.
- DIT 201 Community Nutrition (3-0) 3 crs.**
Studies federal, state and local programs which assist the community in meeting the nutrition needs of its population. Introduces the principles of population assessment, program planning, implementation and evaluation. Emphasis will be placed on developing appropriate nutrition education strategies, techniques and materials for culturally and economically diverse populations.
Prerequisite: DIT 101 with a grade of C or better.
- DIT 202 Nutrition Care Seminar (2-0) 2 crs.**
Reviews planning, implementing and evaluating nutrition care given to individuals and groups of people having specific disease conditions, both acute and chronic.
Prerequisite: BIO 135, BIO 136, and DIT 102 with grades of C or better.
- DIT 203 Profession of Dietetics (1-0) 1 cr.**
Covers issues related to the dietetics profession including standards of practice, ethics, credentialing and development of a professional portfolio. Preparation for the workplace is also discussed.
Prerequisite: DIT 202 with a grade of C or better and prior or concurrent enrollment in DIT 150 with a grade of C or better.
- DIT 205 World Cultures and Food (2-2) 3 crs.**
Examines the uniqueness of food patterns from around the world as shaped by geographic, historical, socioeconomic and religious factors. Explores how food can be a bridge to understanding multiculturalism through the preparation of traditional recipes in the laboratory setting.
- DIT 220 Food Systems Administration (3-0) 3 crs.**
Introduces the principles of administering food systems, with emphasis on menu planning, procurement of quantity foods, quantity foods equipment, staffing and financial controls. Includes an introduction to computer use within food systems.
Prerequisite: Prior or concurrent enrollment in FSM 114 with a grade of C or better.
- DIT 250 Dietetic Clinical Laboratory III (1-6) 3 crs.**
Offers student assigned clinical laboratory experience in approved health care and community agencies. Opportunity to reach entry-level competence under supervision of a registered dietitian will be provided.
Prerequisite: DIT 200 with a grade of C or better.

DIV Diversity

- DIV 101 Exploring Diversity in the U.S. (3-0) 3 crs.**
Focuses on culture and other diversity issues and topics utilizing an interactive personal development format. Students will discuss dimensions of their own culture and cultures of others within the United States. They will have the opportunity to examine discrimination and prejudice between groups and analyze the impact of these power differences on peoples' lives. The experiential nature of this course will give students the opportunity to develop skills necessary to interact effectively in a diverse society.

DMS Diagnostic Medical Sonography

- DMS 202 Introduction to Ultrasound (1.5-1) 2 crs.**
Provides the student with an introduction to diagnostic medical sonography. Students will cover topics to include origin of ultrasound, roles of student sonographers, and medico-legal aspects of sonography. Introduces use and care of equipment, as well as common procedures and protocols performed in the ultrasound department. Allows the student to get comfortable by handling the ultrasound transducers prior to entering into their clinical rotations. Patient-Sonographer interactions related to medical techniques and patient care will be covered. Patient and sonographer related safety issues will be discussed. An overview of critical thinking skills and communication will also be covered. NOTE: Students must be admitted into the Cardiac Technology or Diagnostic Medical Sonography programs to register for this course.
- DMS 204 Essentials of Abdominal and Small Parts Sonography I (4-0) 4 crs.**
Investigates abdominal anatomy in the transverse, longitudinal, and coronal planes. Covers the normal and pathological sonographic appearances of abdominal structures related to sonography. Also includes normal variants, congenital anomalies, in depth coverage of specific organ physiology, related laboratory tests and scanning protocols.
Prerequisite: CTE 106, DMS 222 and DMS 223 with grades of C or better.
Corequisite: DMS 205 and DMS 206.
- DMS 205 Essentials of Obstetrical and Gynecological Ultrasound I (3-0) 3 crs.**
Investigates female pelvis anatomy in the transverse, longitudinal, and coronal planes. Covers the normal and pathological sonographic appearances of the female pelvis. Includes normal variants, congenital anomalies, review of physiology, related laboratory tests and scanning protocols. Discusses clinical applications and sonographic protocol and procedures. Introduces embryogenesis, the reproductive cycle and ectopic pregnancy.
Corequisite: DMS 204 and DMS 206.
- DMS 206 Ultrasound Practicum I (0-4) 2 crs.**
Introduces, through supervised lab instruction and patient film critique, the processes that go into obtaining and interpreting sonographic images. Focuses on sonographic terminology, image quality factors, scanning protocols and techniques, and the normal/ pathological sonographic appearances of abdominal, and gynecology structures. Discusses abnormal sonographic images and correlation of clinical data to develop diagnostic criteria.
Corequisite: DMS 204 and DMS 205.

DMS 207 Sonography Clinical Education I (1-25) 6 crs.
Provides the student a hospital-based clinical experience under the supervision of faculty, sonography staff and a clinical instructor. Emphasis is placed on how to take complete patient histories. Sonography of the abdomen and female pelvis are the major areas of focus. Provides the student with exposure to a wide variety of general and vascular studies which will be covered in later coursework.

Prerequisite: DMS 204, DMS 205 and DMS 206 with grades of C or better.

Corequisite: DMS 208, DMS 209 and DMS 210.

DMS 208 Essentials of Abdominal and Small Parts Sonography II (4-0) 4 crs.

Covers the normal and pathological sonographic appearances of additional abdominal structures including urinary bladder, spleen, adrenals, lymphatics and appendix. Includes review of the normal pediatric abdomen and associated pathology. Emphasizes small parts scanning and includes the thyroid, parathyroid, breast, prostate, scrotum and superficial structures. Covers invasive procedures and introduces neonatal sonography. Includes normal variants, congenital anomalies, review of physiology, related laboratory tests and scanning procedures.

Corequisite: DMS 207, DMS 209 and DMS 210.

DMS 209 Ultrasound Practicum II (0-4) 2 crs.

Continues to develop, through supervised lab instruction and patient film critique, the student's ability to obtain and interpret sonographic images. Focuses on sonographic terminology, image quality factors, scanning protocols and techniques, and normal/pathological sonographic appearances of abdominal/small parts, obstetrics and specialty procedures. Discusses abnormal sonographic images and correlation of clinical data to develop diagnostic criteria. Integrates clinical history and sonographic images in the interpretation of imaging and Doppler data.

Corequisite: DMS 207, DMS 208 and DMS 210.

DMS 210 Essentials of Obstetrical and Gynecological Ultrasound II (3-0) 3 crs.

Emphasizes imaging of the first, second, and third trimester of pregnancy. Includes the normal structural survey, fetal measurements, complications of pregnancy, and fetal anomalies. Introduces fertility studies including invasive procedures and biophysical profiles.

Corequisite: DMS 207, DMS 208 and DMS 209.

DMS 211 Sonography Clinical Education II (1-20) 5 crs.

Continues the student's hospital-based clinical experience under the supervision of faculty, sonography staff and a clinical instructor. Emphasizes first, second and third trimester obstetrical exams. Continues to provide practice in the clinical application of abdominal and small parts sonography. Covers effective communication, operation of equipment, patient care and technical skills development. Introduces the student to venous duplex sonography.

Prerequisite: DMS 207, DMS 208, DMS 209 and DMS 210 with grades of C or better.

DMS 222 Essentials of Vascular Sonography (3-0) 3 crs.

Instructs the student in essential aspects of vascular sonography including carotid, peripheral arterial and peripheral venous exams. Covers associated anatomy, hemodynamics, and common pathologies diagnosed by vascular sonography. Evaluates abnormalities of the carotid, peripheral arterial and venous circulations through lecture and case study review.

NOTE: Students must be admitted into the Cardiac Technology or Diagnostic Medical Sonography programs to register for this course.

DMS 223 Art of Vascular Sonography (1-3) 2 crs.

Instructs the student, through a supervised laboratory experience, on how to perform common vascular sonographic examinations using B mode, color flow, and Doppler modalities on current ultrasound equipment. Covers carotid, peripheral arterial, peripheral venous sonographic examinations. Presents non-imaging physiological arterial examination techniques.

NOTE: Students must be admitted into the Cardiac Technology or Diagnostic Medical Sonography programs to register for this course.

ECE Early Childhood Education

ECE 101 Introduction to Early Childhood Education (3-0) 3 crs.

Provides an overview of early childhood care and education, including the basic values, structure, organization and programming. Examination of the student's personal qualities in relationship to expectations of the field. Directed observation in a variety of programs and settings. Fifteen (15) hours of observation required.

(NOTE: The program's health requirements must be completed prior to observation.)

ECE 102 Child Development (3-0) 3 crs.

Provides a study of human development from conception through adolescence. Includes research methods and developmental theories. Address all major areas of development (physical, social, emotional and cognitive) and the interaction among these areas. Examines theories of Piaget, Erikson, Vygotsky, Skinner, Gardner and others. Explores child development in the context of gender, family, culture, and society. Emphasis is on the implication of early childhood professional practice.

ECE 111 Infant/Toddler Programs (3-0) 3 crs.

Examines the theories and research (including early intervention) related to infants and toddlers with a focus on methods of care given in home-based and school-based infant programs. Observation of infants/toddlers and related programs.

ECE 112 Play and Assessment of the Young Child (3-0) 3 crs.

Develops observational skills to assess and record a child's level of development during play. Identification of types, goals and appropriate materials for play, strategies for communicating and working with parents and team members.

Prerequisite: Prior or concurrent enrollment in ECE 102 with a grade of C or better.

ECE 115 Principles of Early Childhood Curriculum (3-0) 3 crs.

Provides an overview of principles involved in planning, implementing and evaluating developmentally appropriate curriculum. Includes lesson plans, emerging curriculum, scheduling, room arrangement, materials and equipment; individual, small and large group activities; short and long term goals; and teacher's roles and responsibilities in curriculum development.

Prerequisite: Prior or concurrent enrollment in ECE 102 with a grade of C or better.

ECE 120 Introduction to Special Education for Paraprofessionals (3-0) 3 crs.

Examines characteristics of children with special needs and the methods used in special education. The role of the special education teacher's aide will be studied with a focus on implementing educational plans, family issues, legal rights and responsibilities.

ECE 121 Behavioral Management in Special Education Setting (3-0) 3 crs.

Studies the role of behavioral management within the special education population and provides understanding of rationale, terminology and methods used when working with special needs children and their families.

ECE 140 Family Child Care Management (1-0) 1 cr.
Provides guidelines and responsibilities in providing home day care for infants and young children.

ECE 143 Safety for the Young Child (1-0) 1 cr.
Focuses on safety for the young child in group settings.

ECE 144 Nutrition for the Young Child (1-0) 1 cr.
Focuses on nutrition for the young child in group settings.

ECE 146 Programming for School Age Care (1-0) 1 cr.
Relates theory and practice of school age programming. Emphasizes daily program planning, implication and assessment.

ECE 149 Topics in Early Childhood Education (1-0 to 3-0) 1-3 crs.
Studies selected problems or topics in early childhood. The exact content and instructional methodology will vary semester to semester depending on the material to be studied. This course may be repeated up to a maximum of three credit hours.

ECE 151 Communicating with Parents and Children (1-0) 1 cr.
Establishes parent relationships through effective listening, speaking, writing. Develops communication skills in relation to children and co-workers.

ECE 152 Principles of Child Growth and Development, Birth-5 (1-0) 1 cr.
Discusses principles of child growth and development from birth through age five. Emphasis on developmental milestones and cultural influences.

ECE 153 Guiding Children and Managing the Classroom (1-0) 1 cr.
Provides methods of guiding children's behavior, encouraging pro-social behavior and dealing with common problems. Emphasis on principles and skills in classroom management.

ECE 154 Activities and Resources for Young Children I (1-0) 1 cr.
Aids in planning the learning environment, which includes the schedule, themes and activities incorporating art, motor, music and movement, health and safety, and nutrition.

ECE 155 Activities and Resources for Young Children II (1-0) 1 cr.
Aids in planning the learning environment to incorporate appropriate themes and activities in math, science, social studies, language, literature, dramatic play and group time.

ECE 156 Effective Teaching (1-0) 1 cr.
Provides methods for maintaining and increasing effective teaching behaviors. Also includes relations with parents and co-workers, teacher behaviors, burnout and professional growth.

ECE 209 Language Development and Activities for the Young Child (3-0) 3 crs.
Provides an in-depth knowledge and understanding of language development, the stages involved, the role that adults play and the relationship of language to other aspects of development. Introduces the student to a wide variety of language activities appropriate for young children and develops skills in preparing, presenting and evaluating language activities.

ECE 210 Creative Activities for Young Children (2-2) 3 crs.
Examines the theoretical framework for art, creativity, music and movement. Acquaints the student with a variety of creative art materials and methods appropriate for use in programs for young children. Includes firsthand experience with materials and planning an arts program. Stresses the relationship of creative experiences within the curriculum and the role of creative experiences within the early childhood program.

ECE 221 Math and Science for the Young Child (3-0) 3 crs.
Introduces the theory and practice related to math and science for young children. Emphasis will be placed on the development and evaluation of developmentally appropriate activities and instructional materials.

ECE 226 Observation and Guidance of the Young Child (3-0) 3 crs.
Studies of guidance practices which support the development of the young child. Emphasizes theories and practices that support the caregiver's analysis of child behavior as well as the development of guidance skills. Students will develop and understand the relationship between careful observation, communication and effective interaction with children. Four (4) hours of observation are required.
Prerequisite: Prior or concurrent enrollment in ECE 102 with a grade of C or better.

ECE 230 Movement and Rhythms for the Young Child (3-0) 3 crs.
Presents research, theory and practical application as it relates to teaching music and movement; illustrates appropriate methods, materials and equipment for use in classroom programming.

ECE 235 Principles of School Age Care (3-0) 3 crs.
Relates theory and practice of school age programming. Emphasizes program planning, implementation and assessment, use of materials, principles of growth and development, role of teacher and techniques of classroom management. Students will observe and participate in school age child care.

ECE 250 Health, Nutrition and Safety (3-0) 3 crs.
Focuses on personal health of the individual, including nutrition and health and safety issues, with emphasis on meeting health needs for children in group settings. A healthy lifestyle, preventive health and community health are examined. One (1) hour of observation is required.

ECE 252 Child-Family- Community (3-0) 3 crs.
Concentrates on teacher's role in working with children within the context of family and community. Stresses effective communication, diversity, professionalism and social policy. Includes an in-depth study of community resources. Two (2) hours of observation are required.

ECE 253 Administration of Early Childhood Programs (3-0) 3 crs.
Provides guidelines for the establishment and operation of a child development center. Emphasizes the director's role in programming, school policies, budgeting, record keeping, licensing, municipal codes, insurance, staff development, evaluation procedures, parent communication and community resources.
Prerequisite: Completion of 15 credit hours including ECE 102 and ECE 115 with grades of C or better, or consent of program coordinator.

ECE 254 Interpersonal Relationships in Early Childhood Education (1-0) 1 cr.
Explores personal experiences within the work environment, impact of sex-roles, organizational policies and professional standards. Emphasizes team building and the development of effective interpersonal communication skills.

ECE 291 Early Childhood Practicum I (1-10) 3 crs.
Emphasizes the practical application of principles and theories in early childhood education within a supervised setting, while working with young children. The student will be supervised by a qualified professional for 160 documented hours at an approved site.
(NOTE: The program's health requirements and CPR Basic Rescuer certification must be completed prior to placement in practicum.)
Prerequisite: ECE 101, ECE 102, ECE 115, ECE 209, ECE 226 and ENG 101 with grades of C or better, or consent of instructor.

ECE 292 Early Childhood Practicum II (1-10) 3 crs.
 Emphasizes the practical application of early childhood education principles and theories in a supervisory capacity, while working with young children aged 0-3 years. The student will be supervised by a qualified professional for 160 documented hours at an approved site.
 (NOTE: The program's health requirements and CPR Basic Rescuer certification must be completed prior to placement in practicum.)
Prerequisite: ECE 111 and ECE 291 with grades of C or better, and consent of instructor.

ECE 293 Early Childhood Director Practicum (1-10) 3 crs.
 Emphasizes the practical application of early childhood education principles and theories in a supervisory capacity, while working with a director, staff, parents, and young children. The student will be supervised by a qualified director for 300 documented hours as mandated by the State of Illinois Director Credentials.
Prerequisite: Consent of program coordinator.

ECO Economics

ECO 115 Consumer Economics (3-0) 3 crs.
 Introduces the concepts of personal financial planning within the current economic environment. Emphasizes topics such as basic macroeconomic theory, obtaining credit, purchasing insurance, investment alternatives, basic real estate finance and tax planning.

ECO 200 Introduction to Economics (3-0) 3 crs.
 Covers descriptive rather than a quantitative approach to the study of economics. Major topics cover economic history, the elements of macroeconomics, microeconomics and a comparative look at other economic systems. Specifically designed for students in career-vocational curricula.
 IAI S3 900

ECO 210 Money and Banking (3-0) 3 crs.
 Stresses the practical aspects of money and banking, and emphasizes the basic monetary theory needed by the banking student to apply his knowledge to his particular job. Historical treatment has been kept to a minimum. Emphasis is placed on such problems as economic stabilization, types of spending, the role of gold, limitations of central bank control, governmental fiscal policy, balance of payments and foreign exchange, showing their repercussions on the banking industry in affecting yield curves and the structuring of portfolios.
Prerequisite: ECO 200 or ECO 212 with a grade of C or better.

ECO 211 Microeconomics (3-0) 3 crs.
 Covers economic problems faced by the individual and the firm. Examination of market structures, price and output determination. The microeconomic approach.
 IAI S3 902

ECO 212 Macroeconomics (3-0) 3 crs.
 Covers economic problems faced by our society. Examination of resource allocation, national income and economic development, from a macroeconomic approach.
 IAI S3 901

EDU Education

EDU 201 Introduction to Education (3-0) 3 crs.
 Provides an introduction to teaching as a profession in the American education system. Offers a variety of perspectives on education including historical, philosophical, social, legal, and ethical issues in a diverse society. Includes organizational structure and school governance. There is a mandatory 15 hour clinical component in this course; therefore, the student must pass a criminal background check for successful completion of this course.

EDU 202 Pre-Student Teaching Clinical Experience (0-2) 1 cr.
 Provides an in-depth study of classroom practices in the subject and age category that each student is training to teach. Students will complete the clinical component of this course by observing classrooms in their area of interest and will attend a seminar once weekly to discuss their experience; therefore, the student must pass a criminal background check for successful completion of this course.

EDU 211 Educational Psychology (3-0) 3 crs.
 Examines psychological principles underlying educational practice. Theories concerning cognitive and psychological development, human learning, and motivation are studied with emphasis on application for instruction, including assessment. Emphasis will also be placed on learner-centered instruction and diversity. There is a clinical component in this course; therefore, the student must pass a criminal background check for successful completion of this course.
Prerequisite: PSY 101 or consent of instructor.

EDU 219 Students with Disabilities in School (3-0) 3 crs.
 Presents the historical, philosophical and legal foundations of special education, as well as an overview of the characteristics of individuals with disabilities, the programs that serve them under the Individuals with Disabilities Education Act, and the diversity of the populations of individuals with disabilities. There is a mandatory thirty (30) hour clinical component in this course; therefore, the student must pass a criminal background check for successful completion of this course. *Formerly ECE 219.*
Prerequisite: ECE 102 with a grade of C or better, or consent of instructor.

EDU 220 Diversity in Schools and Society (3-0) 3 crs.
 Provides an introduction to diversity issues in schools and society today. Examines how schooling is shaped by the social contexts in which it occurs, particularly in multicultural and global contexts. Includes examination of both social and global perspectives.

EDU 230 Introduction to Language Arts in Elementary/Middle School Teaching (3-0) 3 crs.
 Examines the foundations of effective practices in supporting student progress toward both fluent and strategic reading and writing. Provides an introduction to the theory and practices of language arts education for students who are interested in becoming teachers. Focuses on construction of meaning from print, the relationship between reading and writing, and the principles of classroom assessment. Provides an introduction to the Illinois Learning Standards for English Language Arts.

EDU 250 Introduction to Technology in Education (2-2) 3 crs.
 Introduces educators to the knowledge and skills required to demonstrate their proficiency in the current technology standards. The course focuses on both knowledge and performance, and includes hands-on technology activities.
Prerequisite: Keyboarding, basic skill word processing, spreadsheet, and database programs, or consent of instructor.

EDU 290 Topics in Education (.5-0 to 3-0) .5-3 crs.
 Studies selected problems or topics in education. The exact content and instructional method will vary from semester to semester. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. This course may be repeated to a maximum of three credit hours.

EGR Engineering

EGR 100 Introduction to Engineering (1-1) 1 cr.
 Introduces engineering techniques, methods and history. Explores career options and requirements for various engineering fields. Covers interrelationships within and between engineering, technology and science to allow differentiation between various career choices.

EGR 120 Engineering Graphics I (CAD) (2-5) 4 crs.
 Introduces engineering graphics and design. Includes drafting, dimensioning, tolerancing, fasteners and descriptive geometry. Engineering graphics topics include multi-view orthographic representations, principal auxiliary views, section view and production drawings. Laboratory work is supported by three-dimensional CAD utilizing solid modeling techniques.
 IAI EGR 941
Prerequisite: MTH 070 (or equivalent) with a grade of C or better or Geometry placement test, or consent of instructor.

EGR 121 Engineering Graphics II (CAD) (1-5) 3 crs.
 Covers the analysis of common geometric entities emphasizing planes, surfaces and geometric features contained in typical engineered products. Includes intersections and developments, surface modeling, solid modeling including both features and assemblies, and three-dimensional annotation techniques. Laboratory is supported by commercial CAD software utilizing solid modeling and surfacing techniques.
Prerequisite: EGR 120 with a grade of C or better, or consent of instructor.

EGR 210 Analytical Mechanics (Statics) (3-0) 3 crs.
 Emphasis analysis of force systems using vectors. Topics include particle statics, general principles and force vectors, rigid body equilibrium, moments of inertia, distributed forces and centroids, analysis of structures, virtual work and friction.
 IAI EGR 942
Prerequisite: MTH 200 with a grade of C or better, or consent of instructor.

EGR 211 Analytical Mechanics (Dynamics) (3-0) 3 crs.
 Emphasis dynamic analysis of rigid bodies. Topics include particle kinematics (rectilinear and curvilinear), Newton's laws, energy, work and momentum methods, planar dynamics and rigid bodies, rigid body kinematics, impulse and momentum, and vibrations.
 IAI EGR 943
Prerequisite: EGR 210 and PHY 201 with grades of C or better.

EGR 212 Mechanics of Solids (3-0) 3 crs.
 Covers elastic and inelastic relationships involving deformable bodies. Topics include concepts of stress and strain, material properties (elastic and plastic), torsion, shear stresses and deformations, thermal stresses, thin-walled pressure vessels, pure bending, stresses and strains, transverse loading of beams, shear stress and combined loading, transformation of stress and strain (Mohr's Circle), design of beams and shafts for strength, shear and moments diagrams, deflection of beams, energy methods, and columns.
 IAI EGR 945
Prerequisite: EGR 210 with a grade of C or better.

EGR 240 Thermodynamics (3-0) 3 crs.
 Introduces classical thermodynamics. Topics include basic concepts and definitions, the zeroth law of thermodynamics, the first and second laws of thermodynamics, ideal and real gas behaviors, control-volume energy analysis, entropy, non-reactive ideal gas mixtures and psychrometrics and cycles.
Prerequisite: MTH 202 and PHY 202 with grades of C or better.

EGR 260 Introduction to Circuit Analysis (4-0) 4 crs.
 Introduces analysis electric circuits, electrical components, and networks. Topics include concepts of electricity and magnetism, circuit variables (units, voltage, inductance, power and energy), circuit elements (R, L, C and operational amplifiers), simple resistive circuits, circuit analysis (node-voltage, mesh-current, equivalent and superposition), transient analysis, and sinusoidal steady state (analysis and power).
 IAI EGR 931L
Prerequisite: MTH 202 and PHY 202 with a grade of C or better.

EGR 262 Electrical Circuits Laboratory (1-2) 2 crs.
 Introduces standard electrical instruments and measurement techniques. Includes practical applications to topics of EGR 260. Covers circuit response, elementary filter response and resonance measurements. Includes basic measurements of transistors and operational amplifiers.
 IAI EGR 931L
Prerequisite: EGR 260 with a grade of C or better or concurrent enrollment.

EGR 270 Introduction to Digital Systems (3-2) 4 crs.
 Introduces computer engineering. Topics include representation of information, binary systems, Boolean algebra, switching circuits, combinational switching circuits, and sequential switching circuits, macro-circuits, and wired and stored program processor concepts.
 IAI EGR 932L
Prerequisite: PHY 202 with a grade of C or better.

EHS Environmental Health

EHS 110 Environmental Health Practice (3-0) 3 crs.
 Provides the student with an overview of the variety and extent of environmental issues affecting human health. Students will be introduced to ecosystem interactions, biological and chemical toxins in the general environment and relevant environmental regulations. Critical thinking and risk assessment strategies will be emphasized. A review of career opportunities is also included.

EHS 115 Health Data and Injury Trend Analysis (3-2) 4 crs.
 Studies the application and techniques of statistical analysis in analyzing injury and illness trends in a discreet population group. This includes injury and incident trends in industrial employee populations as well as illness trends in geographically or environmentally bound populations.
Prerequisite: MTH 080 or higher (or proper math placement exam score) with a grade of C or better.

EHS 120 Environmental Sampling and Monitoring (2-4) 4 crs.
 Provides students with the skill set needed to perform environmental sampling and monitoring using various instrumentation, methods and protocols. The focus of the course is to develop applied sampling skills and familiarity with sampling equipment and methods to accurately perform field sampling of environmental conditions.
Prerequisite: EHS 110 and MTH 080 or higher with grades of C or better.

EHS 130 Investigation and Risk Assessment (2-2) 3 crs.
 Prepares students to complete an investigation following an accident/incident in the workplace. Students will learn the basics of the investigation and the tools that are used to assess the situation.

EHS 150 Occupational Health Practice (4-0) 4 crs.
 Provides students with an overview of government agencies, departments, and legislation regulating employee exposure to conditions involving the risk of illness or injury. Covers the legal obligations of employers and the major non-governmental sources for standards and best practices.
Prerequisite: MTH 080 or higher with a grade of C or better, or required placement test score into MTH 101 (taken in the Assessment and Testing Center).

EHS 200 Environmental Toxicology (3-2) 4 crs.
 Provides students with an overview of various environmental and industrial toxicants and their effects on the body. Introduces the history of toxicity and basic tenets of the science such as routes of exposure, dose-response curves, tolerance as well as general effects and lethal doses.
Prerequisite: BIO 130 and BIO 135 with grades of C or better.

EHS 210 Waste Management (3-0) 3 crs.
 Provides students with a review of waste generation sources, the means to evaluate discharge quantities, financial loss associated, specific environmental hazards, and a review of government bodies regulating waste discharge and production. Specific reporting requirements for certain waste types and the major laws associated with various types of waste are covered as well as hazardous waste storage and transport.
Prerequisite: BIO 130 and CHM 122 with grades of C or better.

EHS 215 Air and Water Quality (2-2) 3 crs.
 Provides an overview of current regulations of air and water quality for both public and private sources. This includes a review of methodologies and techniques for ensuring and determining air/water quality for the purpose of protecting the environment and the public.
Prerequisite: EHS 110 with a grade of C or better.

EHS 250 Industrial Hygiene Sampling and Procedures (2-4) 4 crs.
 Provides a basic overview of industrial hygiene and its application in the workplace. Students will learn the basics to recognize and evaluate occupational hazards. They will also learn the tools to control for those hazards.
Prerequisite: EHS 150 with a grade of C or better.

EHS 280 Construction Safety (3-0) 3 crs.
 Prepares the student for the recordkeeping, inspections, and planning needed in the construction industry. Employee safety training as well as hazard recognition will also be covered.
Prerequisite: EHS 150 with a grade of C or better.

EIT E-Learning Instructional Technology

EIT 200 E-Learning Tools and Technology (2-2) 3 crs.
 Provides the student with a foundation in the tools and technologies used to develop and support e-learning in business and education environments. Recommended preparation: CIS 100, CIS 101 or equivalent experience.

EIT 220 E-Learning Instructional Systems Design (2-2) 3 crs.
 Provides the student with a foundation in instructional design principles utilized to create e-learning content for adult learners. Recommended preparation: EIT 200 or equivalent experience.

EIT 250 E-Learning Web Development (2-2) 3 crs.
 Provides experience building demonstration and simulation instructional modules for the Web. Emphasizes design, presentation and interactivity to create engaging e-learning experiences for adult learners.
Prerequisite: WEB 150 with a grade of C or better.

EIT 280 E-Learning Development and Management (2-2) 3 crs.
 Applies and integrates instructional design skills from previous e-learning courses. E-learning and instructional technology management issues and instructional system development lifecycle methodologies are discussed and practiced.
Prerequisite: EIT 220 and WEB 150 with grades of C or better.

ELT Electronics Engineering Technology

ELT 101 DC Network Analysis (3-3) 4 crs.
 Studies direct current (DC) resistive networks. Definitions, symbols and notations for electrical quantities are taught. Circuit properties and their applications to significant circuit configurations are examined. High school algebra is recommended.

ELT 102 AC Network Analysis (3-3) 4 crs.
 Examines steady state alternating current (AC), resistor-capacitor (RC) and resistor-inductor (RL) circuits. Also examines RC and RL single time constant circuits. Single phase and polyphase AC networks are also studied.
Prerequisite: ELT 101 and MTH 103 with grades of C or better, or consent of instructor.

ELT 103 RF Network Analysis (3-3) 4 crs.
 Examines basic radio frequency (RF) networks, series and parallel resonance, filters, selectivity and bandwidth, and impedance matching.
Prerequisite: ELT 102 with a grade of C or better, or consent of instructor.

ELT 110 Introductory Electronics (3-3) 4 crs.
 Introduces fundamentals of electricity and magnetism. Covers basic electrical laws and principles. Presents electrical quantities, units, symbols and notation. Examines foundational electronic materials and components. Presents elementary DC (direct current) and AC (alternating current) network analysis, key semiconductor devices, and simple analog and digital circuits. Also covers electrical safety considerations, laboratory instrumentation and test and measurement techniques.

ELT 111 Semiconductor Devices and Circuits (1-2) 2 crs.
 Examines basic semiconductor component families and characteristics. Fundamentals of proper circuit operation and typical applications are further examined.
Prerequisite: ELT 110 with a grade of C or better, or consent of instructor.

ELT 120 Introductory Industrial Electronics Maintenance (1-2) 2 crs.
 Introduces students to the fundamentals of industrial electronics maintenance. Provides an overview of the various technologies encountered in the field as they relate to industrial electronic control of buildings and facilities. This includes basic electrical and electromechanical components and machinery, motors and controls, electrical and electronic interfaces, and electronic controllers. Also covers fluid power and piping systems. Emphasis is placed on safety, installation and preventative maintenance. Use of tools, test instrumentation and the importance of record keeping will be discussed.

ELT 125 Fiber Optics (1-2) 2 crs.
 Investigates optics for the purpose of working with communications, control and measurement systems. Principles of physical and geometric optics are presented.

ELT 135 Optics and Sensors (1-2) 2 crs.
 Investigates sensor operation and application for a variety of functions: tactile, photo, fiber-optic, magnetic, thermal, sonic, pressure and vision systems.

ELT 140 Programmable Logic Controllers (1-2) 2 crs.
 Examines the procedures and mechanisms by which programmable logic controller functions are used. Programming in ladder logic and controller code focuses on the direct application of a variety of input and output devices. Hardware, programming, peripherals and accessories are emphasized.

ELT 142 Electrical Wiring (1-2) 2 crs.
 Introduces students to wiring topics as they relate to the residential electrical service. A safety review followed by terminology, principles, and test and measurement equipment use associated with residential alternating current (AC) power are examined. Emphasis is placed on the practical application, operation, installation and maintenance of low voltage control systems and single-phase AC power equipment and systems. Select portions of the National Electric Code are studied.

ELT 143 Advanced Electrical Wiring (1-2) 2 crs.

Introduces students to advanced wiring topics as they relate to the commercial electrical service. A safety review followed by terminology, principles, and test and measurement equipment use associated with commercial alternating current (AC) power are examined. Emphasis is placed on the practical application, operation, installation and maintenance of low voltage control systems and three-phase AC power equipment and systems. Select portions of the National Electric Code are studied.

ELT 144 AC and DC Motors (1-2) 2 crs.

Introduces students to fractional horsepower motors for residential and commercial applications. A safety review followed by terminology, principles, and test measurement equipment use associated with motors and motor controls are examined. Emphasis is placed on the practical application, operation, installation and maintenance of direct current (DC) motors and controls, and single three-phase alternating current (AC) motors and controls.

ELT 145 Variable Frequency Drives (1-2) 2 crs.

Introduces students to variable frequency drives (VFD's) as they pertain to residential and commercial motor control applications. A safety review followed by terminology, principles, test and measurement equipment use associated with VFD's and typical applications are examined. Emphasis is placed on the practical application, operation, installation and maintenance of VFD's.

ELT 146 Industrial Motor Controls (1-2) 2 crs.

Introduces students to industrial motor controls. Reviews solid state (or semiconductor) types and operation. Examines industrial solid state devices, motor starters, and pilot devices, control circuitry for direct current (DC) and alternating current (AC) motors, motor drives, and solid state motor controllers. A safety review followed by terminology, principles, and rest instrumentation use associated with these topics is also discussed. Emphasis is placed on practical application, operation, installation and maintenance.

Prerequisite: ELT 110 with a grade of C or better, or consent of instructor.

ELT 147 Radio Frequency ID Systems (1-2) 2 crs.

Introduces students to Radio Frequency Identification (RFID) systems. Topics include an overview of RFID systems and hardware, system lifecycles, frequency ranges, antennas, tags, interrogators, regulations and standards, and typical applications. Terminology, principles, and text and measurement equipment use associated with RFID systems are examined. Emphasis is placed on practical application, operation, installation and maintenance.

ELT 150 Solar Power Generation Systems (1-2) 2 crs.

Introduces students to solar power generation systems as they pertain to industrial, commercial and residential applications. Includes an overview of solar-to-electrical energy conversion, solar panels and collectors, energy storage, power supply and inverter operation, energy management and control, electrical interface regulations and standards and typical applications. Examines terminology, principles, and test and measurement equipment use associated with solar power. Emphasizes practical application, operation, installation and maintenance.

ELT 151 Wind Power Generation Systems (1-2) 2 crs.

Introduces students to wind power generation systems as they pertain to industrial, commercial and residential applications. Includes an overview of wind-to-electrical energy conversion, turbines and gear boxes, energy storage, power supply and inverter operation, energy management and control, electrical interface regulations and standards and typical applications. Examines terminology, principles, and test and measurement equipment use associated with wind power. Emphasizes practical application, operation, installation and maintenance.

ELT 161 Industrial Control Applications (2-4) 4 crs.

Emphasizes an application with a project focus as the goal. This course is self-paced. The student is responsible for planning, organizing and assembling a project that integrates many of the following: computer, pneumatics, hydraulics, programmable logic controllers (PLCs), sensors, motion, and data acquisition.

ELT 203 Digital Electronics (3-3) 4 crs.

Examines the building blocks of digital circuits. These elements are then blended into topics and applications. Topics include Boolean algebra, Karnaugh mapping, counters and microprocessors.

Prerequisite: ELT 110 with a grade of C or better.

ELT 204 Analog Electronics (3-3) 4 crs.

Examines electronic circuits using diodes, transistors and operational amplifiers. Applies linear equivalent circuits as an analysis tool. Studies amplifiers, feedback principles and operational amplifier configurations as practical applications of the linear analysis techniques.

Prerequisite: ELT 111 with a grade of C or better, or consent of instructor.

ELT 207 Communications Systems (3-3) 4 crs.

Introduces students to communications systems. The historical, technical and commercialization aspects of key technologies and inventions from the onset of early communications equipment to contemporary telecommunications systems are discussed. Covers systems, equipment, and radiating systems and radiation. Topical areas in these segments include wireline and wireless systems, modulation and demodulation, receivers, transmitters and transceivers, transmission lines, antennas, matching networks and wave propagation. Emphasizes system applications operation and analysis.

Prerequisite: ELT 110 with a grade of C or better, or consent of instructor.

ELT 208 Advanced Communications Systems (3-3) 4 crs.

Focuses on the equipment aspects of wireless communication systems. Covers receiving and transmitting equipment, and radiating systems. Topical areas in these segments include super heterodyne receivers, transmitters and transceivers, analog vs. digital platforms, and software defined radios. Radiating systems involving transmission lines, antennas, matching networks and tower structures are also covered. Emphasizes equipment applications, operation and analysis.

Prerequisite: ELT 207 with a grade of C or better, or consent of instructor.

ELT 215 Industrial Control Systems (3-3) 4 crs.

Introduces students to industrial control systems. Covers fluid power fundamentals, and pneumatic and hydraulic circuit theory. Examines the integration of optics, sensors, and various electronic control systems including programmable logic controller (PLC) and personal computer (PC) controllers. Infrared (IR) emitters and detectors, and laser systems are also examined. Introduces the application and control of automated robotic systems. The course culminates with a capstone team project involving the development, design, construction, presentation and ultimate demonstration of a fully operational automated industrial control system.

Prerequisite: ELT 110 or RAC 105 with a grade of C or better, or consent of instructor.

ELT 218 Microprocessors and Microcomputers (3-3) 4 crs.

Examines basic microprocessor and microcomputer applications, operation and analysis.

Prerequisite: ELT 203 with a grade of C or better, or consent of instructor.

ELT 281 Topics in Electronics Engineering Technology (1-0 to 4-0) 1-4 crs.
 Examines selected problems or topics in electronics engineering technology. The specific course content and instructional methodology will vary from semester to semester depending on the material presented. A syllabus containing specific topics will be available with pre-registration materials each time the course is offered. This course may be repeated to a maximum of four credit hours.
Prerequisite: Consent of instructor.

EMG Emergency and Disaster Management

EMG 101 Introduction to Emergency Management (3-0)3 crs.
 Provides a foundation overview of emergency management. Students will examine the need for emergency management, processes and elements involved in disaster mitigation, preparedness, response and recovery.

EMG 103 Leadership, Influence, Decision Making and Problem Solving (3-0) 3 crs.
 Presents differences in personal values and interpersonal influence styles, and to apply situational leadership behaviors in emergency management. The course content reinforces existing management skills required for building an emergency management system.
Prerequisite: Prior or concurrent enrollment in EMG 101 with a grade of C or better.

EMG 107 Incident Management Systems (3-0) 3 crs.
 Introduces students to the Emergency Management System and elements involved which include incident command, unified command, and incident action planning. Emergency management systems which will be examined will include the Incident Command System (ICS) and the National Incident Management System (NIMS). Managing post-incident critiques and evaluations also will be explored.

EMG 131 Public Safety Dispatcher I (3-0) 3 crs.
 Introduces students to the field of emergency services dispatching and provides an overview of its components and responsibilities. As such, it will provide the foundation for statewide competency as a public safety telecommunicator as outlined by the Illinois Law Enforcement Training and Standards Board (ILETSB) in its Public Safety Telecommunicator Training and Standards document, *Basic Level Training Curriculum* (September 1996).

EMG 150 Public Information, Education and Community Relations (3-0) 3 crs.
 Provides students with the necessary skills and knowledge in public information, education, community relations, communications and involved elements including writing, public speaking, and understanding the media. The course content will also introduce concepts of volunteer program utilization and maintenance.

EMG 151 Emergency Management Policy and Planning (3-0) 3 crs.
 Provides students with the skills to develop plans and policy as an Emergency Management Specialist. Examines the concepts of writing an emergency operations plan and the elements necessary for inclusion in the plan (all-risk hazard planning).
Prerequisite: EMG 103 with a grade of C or better.

EMG 153 Hazard Analysis and Mitigation (3-0) 3 crs.
 Introduces students to various means of hazard analysis used to prioritize response activities, allocate resources, and specifically request other resources to save and sustain lives. Students will examine the need for mitigation programs and discuss the appropriate methods to implement various mitigation programs.
Prerequisite: EMG 101 with a grade of C or better.

EMG 155 Social Dimensions of Disaster (3-0) 3 crs.
 Introduces students to the various aspects of sociology and recovery from disasters. Topics will include aspects of a disaster such as behavioral and organizational responses to disasters as well as the impact of the media. Students will study the concept of building a disaster-resistant community. This course will also cover topics related to terrorism such as a terrorist sociological analysis, the dimension of terrorism.
Prerequisite: EMG 101 with a grade of C or better.

EMG 205 Crisis Exercise Design and Evaluation (3-0) 3 crs.
 Introduces students to different aspects of crisis exercise design and evaluation. Students will identify specific needs to adhere to federal or state directives pertaining to required exercises, to utilize proper training strategies and to identify performance gaps. The course will include exercise design and group dynamics, conducting an exercise, analyzing the results, conducting a critique and implementation of corrective actions and recommendations.

Prerequisite: EMG 151 and EMG 153 with grades of C or better.

EMG 231 Public Safety Dispatcher II (3-0) 3 crs.
 Builds upon the foundation laid through EMG 131 and provides student with specific knowledge required to professionally handle emergency as well as non-emergency calls for service in the public safety environment. At the conclusion of this course, students will possess a basic understanding of the role, responsibility and equipment utilized by telecommunicators to accomplish their mission.
Prerequisite: EMG 131 with a grade of C or better.

EMG 251 Select Problems in Emergency Management (3-0) 3 crs.
 Exposes students to various aspects of select problems in emergency management including environmental, funding and political issues. Students will learn about local governments and jurisdictions, the political process, support agencies, crisis management for business and industry and contingency planning. This course will also address long-term incidents and professional development.
Prerequisite: EMG 101 with a grade of C or better.

EMG 253 Ideologies of Terrorism (3-0) 3 crs.
 Examines the various analytical approaches to the study of terrorism. Students will be exposed to the ideologies and composition of known terrorist groups, review terrorist tactics and examine police and governmental responses to reduce or eliminate the incidence of terrorism.

EMG 299 Emergency Management Systems Practicum (0-5) 1 cr.
 Provides practical emergency management experience in a supervised professional setting focused on the integration of theory and practice. Actual experience in various phases of emergency management will be provided through mutually agreed upon cooperative projects with government and industry.
Prerequisite: Prior or concurrent enrollment in EMG 205, EMG 251 and EMG 253 with grades of C or better.

EMS Emergency Medical Services

EMS 110 Emergency Medical Technician Training (4-6)7 crs.
 Provides entry-level emergency medical care knowledge and skills associated with the delivery of Basic Life Support (BLS) as defined by the State of Illinois EMS Act and the EMS Rules. Meets all requirements of the Federal Department of Transportation EMT-B training curriculum and has been approved by the Illinois Department of Public Health (IDPH) Division of EMS and Highway Safety.
Prerequisite: Admission into either the Emergency Medical Services degree program or the EMT Basic certificate program.

EMS 210 Paramedic I—Preparatory (5-2) 6 crs.
 Provides classroom training to enable students to become state-certified paramedics. Examines the role and responsibility of the paramedic in the health care delivery system, review of medical terminology, and medical, legal, ethical and regulatory issues. Includes an overview of the human body systems, in-depth study of the respiratory system, principles of physiology, pathophysiology and pharmacology. Concludes with techniques for performing comprehensive physical examinations. (NOTE: Student must submit documentation of: (1) valid Illinois driver's license, (2) EMT Basic certification, including Cardiopulmonary Resuscitation (CPR), (3) EMT-B/I work experience of six months, (4) field experience agreement.)

Prerequisite: EMS 110 with a grade of C or better and admission into the Emergency Medical Services degree program or the Paramedic certificate program.

EMS 211 Paramedic II—Medical Emergencies I (5-2) 6 crs.
 Provides an in-depth study of the pulmonary and cardiac anatomy and physiology with an emphasis on the structure, function and electrical conduction system of the heart, pathophysiology, and emergency management of acute cardiac syndromes. Mastery of 3-lead electrocardiography (ECG) interpretation and drugs and interventions used during emergency cardiac care including transcutaneous pacing, cardioversion, and defibrillation. An introduction of 12-lead ECG monitoring and interpretation is presented.

Prerequisite: EMS 210 with a grade of C or better.

EMS 212 Paramedic II—Medical Emergencies II (5-8) 6 crs.
 Presents acute and chronic disorders of the endocrine, gastrointestinal, genitourinary, neurological, and hematopoietic systems and their emergency management. Covers the anatomy and physiology of the female reproductive system, gynecological emergencies, sexual assaults, and emergency childbirth, complications of pregnancy and delivery, and care/resuscitation of the neonates. Includes pediatric medical and traumatic emergencies with emphasis on the variations in pediatric presentations of the same disorders studied in adults. Also included are toxicology and substance abuse, environmental emergencies, and infectious and communicable diseases.

Prerequisite: EMS 211 with a grade of C or better.

EMS 213 Paramedic III—Trauma Emergencies and Special Clients (2-11) 3 crs.

Introduces students to the forces that produce injury on each body system and to related assessment of Basic Life Support (BLS) techniques. Establishes the identification and management techniques of various medical emergencies including pediatric and neonatal transport, special patient populations, extrication-rescue techniques, and transport techniques used in various settings including Advanced Life Support (ALS) response to home care patients. Introduces students to behavioral and psychiatric emergencies. Demonstrates concepts related to medical incident command and disaster management for mass casualty incidents and crime scene responses.

Prerequisite: EMS 212 with a grade of C or better.

EMS 214 Paramedic—Hospital Internship (0-13) 2 crs.

Provides a minimum of 232 hospital clinical rotation hours with a variety of experiences and situations that challenge and encourage the student to achieve a safe, entry-level mastery of EMS skills in a controlled environment and under the direct supervision of a hospital assigned preceptor. Rotations include the following areas: emergency room, critical care units, labor and delivery rooms, operating rooms, pediatric units, psychiatric units/mental health unit, IV therapy, and respiratory therapy.

Prerequisite: EMS 210 with a grade of C or better.

EMS 215 Paramedic—Field Internship (0-20) 3 crs.

Integrates the contextual, integrative and adaptive theoretical concepts and practical skills using critical judgment skills acquired during the didactic and hospital clinical rotation. The 384 hours of actual ambulance service is under the direct supervision of a certified paramedic, and is divided into two phases of ascending mastery and accountability with each phase having a minimum number of patient care contacts and competencies. (NOTE: This course has an additional fee of \$1500 to cover the cost of supervision.)

Prerequisite: EMS 214 with a grade of P.

EMS 216 Paramedic Seminar (3-0) 3 crs.

Explores current issues in emergency medical technology and the emergency medical system. Weekly seminars allow the provisional paramedic to integrate and apply all didactic concepts to actual studies; to exchange experiences with other provisional paramedics; and to gain insight into the actual responsibilities of working on a paramedic ambulance. Prepares students to challenge the final written and practical examinations as well as the State of Illinois Licensure examination for paramedics.

Prerequisite: EMS 214 with a grade of P.

ENG English

ENG 080 Writing Skills I—Deaf/Hard-of-Hearing (4-0) 4 crs.

Introduces grammar consistent with deaf and hard-of-hearing students' distinct learning needs. Verb tense agreement, article and proposition usage, grammar in context and other problems common to deaf/hard-of-hearing students will be emphasized. Strategies to self-correct and fully develop sentence and paragraph structure will be central to this course. Practical applications of writing skills will be stressed through the use of vocational related materials. Carries no transfer credit.

ENG 085 Writing Skills II—Deaf/Hard-of-Hearing (4-0) 4 crs.

Continues the development of writing skills from ENG 080. Writing strategies and paragraph development will be emphasized. Grammar topics introduced in ENG 080 will be reviewed and more complex grammar introduced. American Sign Language (ASL) will be used in the classroom to improve the students' contextual and linguistic understanding. Practical applications of writing skills will be stressed. Carries no transfer credit.

Prerequisite: ENG 080 with a grade of C or better.

ENG 098 Composition (3-0) 3 crs.

Provides instruction in developing basic writing skills essential for effective written discourse by giving students the conceptual tools necessary for developing a basic framework for writing. Prepares students for entry into ENG 100. Carries no transfer credit.

Prerequisite: English placement exam.

Recommended Corequisite: RDG 090.

ENG 100 Composition (3-0) 3 crs.

Develops skills in reading comprehension and in writing standard effective English through the study of language, grammar, sentence structure, and the paragraph and essay form. Activities include the analytical reading of paragraphs and short essays, the writing of paragraphs and essays, and practice with usage, diction, semantics, basic mechanics and sentencing. This course does not meet the General Education requirements for the A.A. and A.S. degree.

Prerequisite: Satisfactory score in English placement test or grade of C or better in ENG 098.

ENG 101 Composition (3-0) 3 crs.
Emphasizes the writing of expository prose. Introduction to the critical reading of nonfiction prose.
IAI C1 900
Prerequisite: ENG 100 and RDG 099 with grades of C or better, an ACT English score of 19 or more and an ACT reading score of 20 or more, or required scores on the writing and reading placement tests. ESL students need one of the following options: ESL 073 and ESL 074 with grades of B or better; ESL 073 with required writing placement test score; or ESL 074 with required reading placement test score.

ENG 102 Composition (3-0) 3 crs.
Continues ENG 101. Reading literature and writing of various types of prose. Introduces methods used in writing investigative papers.
IAI C1 901R
Prerequisite: ENG 101 with a grade of C or better, or consent of instructor or department chair.

ENG 103 Technical and Report Writing (3-0) 3 crs.
Introduces the various types of writing and communication used in business and technology. Includes instructions, procedures, abstracts, proposals, visuals and reports.
Prerequisite: ENG 101 with a grade of C or better, or consent of instructor or department chair.

ENG 130 Business Writing (3-0) 3 crs.
Teaches formal and psychological aspects of business correspondence. Introduction to various kinds of business letters, memoranda and reports. Improvement of grammar, spelling and word usage.
Prerequisite: Satisfactory score on English placement test or ENG 100 with a grade of C or better.

ENG 200 Professional Writing: Grammar and Style (3-0) 3 crs.
Investigates the elements of English grammar, usage, and style important for effective academic and public writing, such as letters, essays, reports, and proposals.
Prerequisite: ENG 101 with a grade of C or better, or consent of instructor or department chair.

ENG 201 Advanced Composition (3-0) 3 crs.
Teaches additional skills in critical reading and thinking, the forms of public expository and argumentative writing and the elements of an effective public writing style.
Prerequisite: ENG 102 with a grade of C or better, or consent of instructor.

ENG 220 Creative Writing (3-0) 3 crs.
Provides guided practice in various types of creative writing. Emphasizes skills common to creative expression, including description, plotting, narration, dialogue and verse.
Prerequisite: ENG 102 with a grade of C or better, or consent of instructor.

ENG 221 Writing Fiction (3-0) 3 crs.
Explores the art and craft of fiction-writing in depth. Students will examine the writing process in terms of story form, structure, pacing, writing vividly, using varied sentence patterns, building characterization, creating appropriate settings in time and place, using various points of view, developing themes, exploiting style and various poetic devices in prose, and practicing the crucial step of revision. Students will participate in peer workshops.

ENG 222 Writing Poetry (3-0) 3 crs.
Provides language-interested students with practice in writing fixed-form poetry (English and Italian sonnets, villanelles, and more) and free-form poetry. Includes a detailed introduction to the rhythms of poetry in English, including stress patterns (iambic, trochee, anapest, etc.) and patterns of line length (trimeter, tetrameter, pentameter, etc.). Asks students to read diverse models of quality poetry in its various forms. Encourages each student through drafting and revision to develop a uniquely personal writing voice and style and to learn to express him/herself and evaluate the world at large—whether in tightly structured stanzas or in free-verse narratives—in genuinely imaginative ways.

ENG 230 Topics in English (1-0 to 3-0) 1-3 crs.
Examines selected eras or topics in the various fields of English and/or composition studies. The exact content and instructional methodology will vary from semester to semester depending on the material to be studied. A topic-specific syllabus containing additional information will be available in the Liberal Arts Division Office with other pre-registration materials each time the course is offered. This course may be repeated to a maximum of 12 credit hours.

ESL English as a Second Language

ESL 005 Topics in English as a Second Language/Low Intermediate (.5-0 to 4-0) 5-4 crs.
Focuses on academically oriented topics in English as a Second Language (ESL) at the low intermediate level. The exact content and instructional methodology will vary semester to semester depending on the material to be studied. A syllabus or course outline containing additional information will be available with registration materials each time that the course is offered. This course may be repeated up to a maximum of four credit hours. Carries no transfer credit.
Prerequisite: ESL 020 or ESL 026 with a grade of C or better, OR required placement test scores.

ESL 006 ESL: Guided Language Laboratory Instruction (0-2) 1 cr.
Develops English skills for beginning to advanced students of English as a Second Language. Following consultation with the instructor, students work independently in the language laboratory on the skills of their choice and at the recommended level of proficiency. The instructor provides further support via in-person meetings, telephone or e-mail. Carries no transfer credit.
Prerequisite: Required placement test scores, no permission needed.

ESL 007 Topics in English as a Second Language/High Intermediate (.5-0 to 4-0) 5-4 crs.
Focuses on academically oriented topics in English as a Second Language (ESL) at the high intermediate level. The exact content and instructional methodology will vary semester to semester depending on the material to be studied. A syllabus or course outline containing additional information will be available with registration materials each time that the course is offered. This course may be repeated up to a maximum of four credit hours. Carries no transfer credit.
Prerequisite: ESL 053 and ESL 063 with grades of C or better, OR required placement test scores.

ESL 008 Grammar Review for Levels I and II (2-0) 2 crs.
Focuses on verb tenses, nouns, and determiners for low intermediate students of English as a Second Language. Reviews the form and function of the grammatical patterns. Includes practice in recognizing and accurately producing the patterns, with focus on listening and speaking. Carries no transfer credit.
Prerequisite: ESL 020, ESL 024 or ESL 026 with a grade of C or better, OR required placement test scores.

ESL 009 Grammar Review for Levels III and IV (2-0) 2 crs.
 Focuses on verb tenses and modals and related structures for intermediate students of English as a Second Language. Reviews the form and function of the grammatical patterns. Includes practice in recognizing and accurately producing the patterns in spoken and written form. Carries no transfer credit.
Prerequisite: ESL 040 with a grade of C or better and required ESL Writing test score, **OR** ESL 046 with a grade of C or better and required ESL Writing test score, **OR** ESL 044 and ESL 056 with a grade of C or better, **OR** required placement test scores.

ESL 010 ESL: Core Language Skills I (1-0 to 6-0) 1-6 crs.
 Focuses on grammatical structures and patterns of English for high beginning English as a Second Language students. Emphasizes communicative activities. Includes listening, speaking, reading and writing skills. Carries no transfer credit.
Prerequisite: Required placement test scores.

ESL 015 ESL: Listening and Speaking I (1-0) 1 cr.
 Focuses on listening and speaking skills for high beginning English as a Second Language students who read and write proficiently in their native languages. Includes pronunciation skills. Carries no transfer credit.
Prerequisite: Required placement test scores.

ESL 018 ESL: Conversation I (2-0) 2 crs.
 Focuses on the development of conversation skills for high-beginning English as a Second Language students who read and write proficiently in their native languages. Concentrates on areas necessary for successful communication in a variety of American settings. Carries no transfer credit.
Prerequisite: Required placement test scores.

ESL 020 ESL: Core Language Skills II (1-0 to 6-0) 1-6 crs.
 Continues grammatical structures and patterns of English for high beginning English as a Second Language students. Emphasizes communicative activities. Includes listening, speaking, reading and writing skills. Carries no transfer credit.
Prerequisite: ESL 010 or ESL 026 with a grade of C or better, **OR** required placement test scores.

ESL 024 ESL: Reading and Writing I (4-0) 4 crs.
 Develops reading and writing skills for high beginning English as a Second Language students who read and write proficiently in their native languages. Includes sentence patterns and paragraph structure. Introduces multi-paragraph compositions. Carries no transfer credit.
Prerequisite: ESL 010 with a grade of C or better, **OR** required placement test scores.

ESL 025 ESL: Listening and Speaking II (1-0) 1 cr.
 Continues listening and speaking skills for high beginning English as a Second Language students who read and write proficiently in their native languages. Includes pronunciation skills. Carries no transfer credit.
Prerequisite: ESL 015 with a grade of C or better, **OR** required placement test scores.

ESL 026 ESL: Grammar I (4-0) 4 crs.
 Focuses on grammatical structures and patterns of English for high beginning English as a Second Language students who read and write proficiently in their native languages. Emphasizes listening comprehension and speaking ability. Carries no transfer credit.
Prerequisite: ESL 010 with a grade of C or better, **OR** required placement test scores.

ESL 028 ESL: Conversation II (2-0) 2 crs.
 Continues the development of conversation skills for high-beginning English as a Second Language students who read and write proficiently in their native languages. Concentrates on areas necessary for successful communication in a variety of American settings. Carries no transfer credit.
Prerequisite: ESL 010 or ESL 018 with a grade of C or better, **OR** required placement test scores.

ESL 030 ESL: Core Language Skills III (1-0 to 6-0) 1-6 crs.
 Focuses on increasingly complex grammatical structures and patterns of English for intermediate English as a Second Language students. Emphasizes communicative activities. Includes listening, speaking, reading and writing skills. Carries no transfer credit.
Prerequisite: ESL 020 with a grade of C or better, **OR** ESL 026 with a grade of C or better and required ESL Writing test score, **OR** required placement test scores.

ESL 034 ESL: Reading II (4-0) 4 crs.
 Develops reading skills for low-intermediate English as a Second Language students. Focuses on the reading of narratives. Carries no transfer credit.
Prerequisite: ESL 024 or ESL 030 with a grade of C or better, **OR** required placement test scores.

ESL 035 ESL: Listening and Speaking III (1-0) 1 cr.
 Develops listening and speaking skills for low-intermediate English as a Second Language students. Includes pronunciation skills. Carries no transfer credit.
Prerequisite: ESL 020 or ESL 025 with a grade of C or better, **OR** required placement test scores.

ESL 038 ESL: Conversation III (2-0) 2 crs.
 Focuses on the development of conversation skills for low-intermediate English as a Second Language students who read and write proficiently in their native languages. Concentrates on areas necessary for successful communication in a variety of American settings. Carries no transfer credit.
Prerequisite: ESL 020 or ESL 028 with a grade of C or better, **OR** required placement test scores.

ESL 039 ESL: Conversation IV (2-0) 2 crs.
 Continues the development of conversation skills for low-intermediate English as a Second Language students who read and write proficiently in their native languages. Concentrates on areas necessary for successful communication in a variety of American settings. Carries no transfer credit.
Prerequisite: ESL 030 or ESL 038 with a grade of C or better, **OR** required placement test scores.

ESL 040 ESL: Core Language Skills IV (1-0 to 6-0) 1-6 crs.
 Continues increasingly complex grammatical structures and patterns of English for intermediate English as a Second Language students. Emphasizes communicative activities. Includes listening, speaking, reading and writing skills. Carries no transfer credit.
Prerequisite: ESL 026 and ESL 034, **OR** ESL 030 or ESL 044 with grades of C or better, **OR** required placement test scores.

ESL 043 ESL: Writing II (4-0) 4 crs.
 Focuses on the writing of paragraphs. Designed for low intermediate English as a Second Language students. Continues study of sentence patterns and introduces editing skills. Carries no transfer credit.
Prerequisite: ESL 024, ESL 030 or ESL 046 with a grade of C or better, **OR** required placement test scores.

ESL 044 ESL: Writing II – Intensive Program (2-0) 2 crs.
 Focuses on the writing of paragraphs. Designed for low intermediate English as a Second Language students. Introduces sentence patterns and editing skills. Carries no transfer credit.
Prerequisite: ESL 024, ESL 030 or ESL 046 with a grade of C or better, **OR** required placement test scores.

ESL 045 ESL: Listening and Speaking IV (1-0) 1 cr.
 Continues the development of listening and speaking skills for low-intermediate English as a Second Language students. Includes pronunciation skills. Carries no transfer credit.
Prerequisite: ESL 025, ESL 030 or ESL 035 with a grade of C or better, **OR** required placement test scores.

ESL 046 ESL: Grammar II (4-0) 4 crs.
Focuses on grammatical structures and patterns of English for low-intermediate English as a Second Language students. Includes practice of patterns introduced previously. Emphasizes the recognition and production of grammatical structures and how these structures affect meaning in both spoken and written English. Carries no transfer credit.

Prerequisite: ESL 026 or ESL 030 with a grade of C or better, **OR** required placement test scores.

ESL 048 ESL: American Culture I (2-0) 2 crs.
Explores contemporary American culture for intermediate English as a Second Language students. Focuses on areas necessary for successful communication in American society including nonverbal communication, classroom practices and work values. Emphasizes and enhances listening comprehension and speaking skills. Carries no transfer credit.

Prerequisite: ESL 030 or ESL 044, **OR** ESL 026 and ESL 034 with grades of C or better, **OR** required placement test scores.

ESL 050 ESL: Core Languages Skills V (1-0 to 6-0) 1-6 crs.
Focuses on complex grammatical structures and patterns of English for high intermediate English as a Second Language students. Emphasizes communicative activities. Includes listening, speaking, reading and writing skills. Carries no transfer credit.

Prerequisite: ESL 040 or ESL 046 with a grade of C or better, **OR** required placement test scores.

ESL 053 ESL: Reading III (4-0) 4 crs.
Develops reading techniques for intermediate English as a Second Language students. Focuses on the reading of a variety of materials. Promotes independent reading in English. Carries no transfer credit.

Prerequisite: ESL 034 with a grade of C or better and required ESL Writing test score, **OR** ESL 044 with a grade of C or better and required ESL Reading Compass score, **OR** ESL 034 and ESL 044 with a grade of C or better, **OR** ESL 050 with a grade of C or better, **OR** required placement test scores.

ESL 055 ESL: Listening and Speaking V (1-0) 1 cr.
Develops listening and speaking skills for intermediate English as a Second Language students. Includes pronunciation skills. Carries no transfer credit.

Prerequisite: ESL 040 or ESL 045 with a grade of C or better, **OR** required placement test scores.

ESL 056 ESL: Grammar III (4-0) 4 crs.
Focuses on the study of grammatical structures and patterns of English for intermediate English as a Second Language students. Includes practice of patterns introduced previously. Emphasizes the recognition and production of grammatical structures and how these affect meaning in both spoken and written English. Carries no transfer credit.

Prerequisite: ESL 046 or ESL 050 with a grade of C or better, **OR** required placement test scores.

ESL 057 ESL: Reading IV (4-0) 4 crs.
Develops reading techniques for high intermediate English as a Second Language students. Focuses on the reading of a variety of materials in their original form. Promotes independent reading in English. Carries no transfer credit.

Prerequisite: ESL 044 with a grade of C or better and required ESL Reading Compass score, **OR** ESL 053 with a grade of C or better and required ESL Writing test score, **OR** ESL 044 and ESL 053 with a grade of C or better, **OR** ESL 053 and ESL 063 with a grade of C or better, **OR** ESL 063 with a grade of C or better and required standard Reading Compass score, **OR** required placement test scores.

ESL 058 ESL: Spelling Strategies (2-0) 2 crs.
Focuses on the spelling system of American English for intermediate students of English as a Second Language who are having difficulty with American English spelling. Includes memory techniques, dictionary use, study of word parts and spelling aids in work processing word processing programs. Carries no transfer credit.

Prerequisite: ESL 030 with a grade of C or better and required ESL Writing test score, **OR** ESL 034, ESL 040, ESL 044 or ESL 046 with a grade of C or better, **OR** required placement test scores.

ESL 059 ESL: Conversation V (2-0) 2 crs.
Focuses on development of conversation skills for intermediate English as a Second Language students. Concentrates on areas necessary for successful communication in a variety of American settings. Carries no transfer credit.

Prerequisite: ESL 039 or ESL 040 with a grade of C or better, **OR** required placement test scores.

ESL 060 ESL: Core Language Skills VI (1-0 to 6-0) 1-6 crs.
Continues complex grammatical structures and patterns of English for high intermediate English as a Second Language students. Emphasizes communicative activities. Includes listening, speaking, reading and writing skills. Carries no transfer credit.

Prerequisite: ESL 050 or ESL 056 with a grade of C or better, **OR** required placement test scores.

ESL 063 ESL: Writing III (4-0) 4 crs.
Develops academic writing for intermediate English as a Second Language students. Emphasizes expository paragraphs and introduces essays. Carries no transfer credit.

Prerequisite: ESL 044 with a grade of C or better and required ESL Reading Compass score, **OR** ESL 044 with a grade of C or better and required standard Reading Compass score, **OR** ESL 060 with a grade of C or better, **OR** ESL 034 and ESL 044 with grades of C or better, **OR** ESL 034 with a grade of C or better and required ESL Writing test score, **OR** required placement test scores.

ESL 065 ESL: Listening and Speaking VI (1-0) 1 cr.
Develops listening and speaking skills for high-intermediate English as a Second Language students. Includes pronunciation skills. Carries no transfer credit.

Prerequisite: ESL 050 or ESL 055 with a grade of C or better, **OR** required placement test scores.

ESL 067 ESL: Writing IV (4-0) 4 crs.
Develops academic writing for high-intermediate English as a Second Language students. Emphasizes expository essays. Carries no transfer credit.

Prerequisite: ESL 034 with a grade of C or better and required ESL Writing test score, **OR** ESL 063 with a grade of C or better and required ESL Reading Compass score, **OR** ESL 063 with a grade of C or better and required standard Reading Compass score, **OR** ESL 034 and ESL 063 with grades of C or better, **OR** ESL 053 and ESL 063 with grades of C or better, **OR** required placement test scores.

ESL 073 ESL: Reading V (4-0) 4 crs.
Develops reading techniques for advanced English as a Second Language students. Focuses on the reading of college textbooks and academic discussions of literature. Carries no transfer credit.
Prerequisite: ESL 057 with a grade of C or better and required ESL Writing test score, **OR** ESL 063 with a grade of C or better and required ESL Reading Compass score, **OR** ESL 057 and ESL 063 with grades of C or better, **OR** ESL 057 and ESL 067 with grades of C or better, **OR** ESL 067 with a grade of C or better and required standard Reading Compass score, **OR** required placement test scores.

ESL 074 ESL: Writing V (4-0) 4 crs.
Focuses on academic writing for advanced English as a Second Language students. Emphasizes expository essays. Carries no transfer credit.

Prerequisite: ESL 053 with a grade of C or better and required ESL Writing test score, **OR** ESL 067 with a grade of C or better and required ESL Reading Compass score, **OR** ESL 067 with a grade of C or better and required standard Reading Compass score, **OR** ESL 053 and ESL 067 with grades of C or better, **OR** ESL 057 and ESL 067 with grades of C or better, **OR** required placement test scores.

ESL 075 ESL: Conversation VI (2-0) 2 crs.
Focuses on the development of conversation skills for high intermediate English as a Second Language students. Concentrates on areas necessary for successful communication in a variety of American settings. Carries no transfer credit.

Prerequisite: ESL 050 or ESL 059 with a grade of C or better. **OR** required placement test scores.

ESL 076 ESL: Grammar IV (4-0) 4 crs.
Focuses on grammatical structures and patterns of English for high-intermediate English as a Second Language students. Includes practice of patterns introduced previously. Emphasizes the recognition and production of grammatical structures and how they affect meaning in both spoken and written English. Carries no transfer credit.

Prerequisite: ESL 056 with a grade of C or better, **OR** required placement test scores.

ESL 077 ESL: Advanced Vocabulary I (2-0) 2 crs.
Focuses on the vocabulary of formal American English speech and writing for advanced English as a Second Language students. Emphasizes words and expressions associated with academic style and register. Carries no transfer credit.

Prerequisite: ESL 053, ESL 056, ESL 060 or ESL 063 with a grade of C or better, **OR** required placement test scores.

ESL 078 ESL: American Culture II (2-0) 2 crs.
Explores contemporary American culture for advanced English as a Second Language students. Focuses on areas necessary for successful communication in American society including basic American values and the roles of government and the family. Emphasizes and enhances listening comprehension and speaking skills. Carries no transfer credit.

Prerequisite: ESL 053, ESL 056, ESL 060 or ESL 063 with a grade of C or better, **OR** required placement test scores.

ESL 079 Self-Study for the TOEFL (0-2) 1 cr.
Focuses on developing skills in vocabulary recognition, listening, speaking, reading and writing in English for non-native speakers who plan to study in colleges and universities where English is the language of instruction. Familiarizes students with the test-taking skills necessary to be successful on the IBT TOEFL (Internet-based Test of English as a Foreign Language). Carries no transfer credit.

Prerequisite: ESL 053, ESL 056 or ESL 063 with a grade of C or better, **OR** required placement test scores.

ESL 085 ESL: Pronunciation Skills (2-0) 2 crs.
Focuses on improvement of pronunciation skills. Designed for advanced English as a Second Language students. Emphasizes connected speech, including such features as sounds, stress, intonation, and timing. Carries no transfer credit.

Prerequisite: ESL 053, ESL 056, ESL 060 or ESL 063 with a grade of C or better, **OR** required placement test scores.

ESL 086 ESL: Editing Skills (2-0) 2 crs.
Provides intensive writing practice with a focus on editing skills for advanced English as a Second Language students. Reviews essay development, mechanics and the features of American English grammatical structure that are most difficult for ESL students. Carries no transfer credit.

Prerequisite: ESL 074 with a grade of C or better.

ESL 087 ESL: Advanced Vocabulary II (2-0) 2 crs.
Focuses on the vocabulary of informal American English speech and writing for advanced English as a Second Language students. Emphasizes the high-frequency idiomatic expressions that are most troublesome for advanced ESL students. Carries no transfer credit.

Prerequisite: ESL 053, ESL 056, ESL 060 or ESL 063 with a grade of C or better, **OR** required placement test scores.

ESL 089 Preparation for the TOEFL (2-0) 2 crs.
Develops advanced skills in vocabulary recognition, listening, speaking, reading and writing in English for non-native speakers who plan to study in colleges and universities where English is the language of instruction. Familiarizes students with the test-taking skills necessary to be successful on the IBT TOEFL (Internet-based Test of English as a Foreign Language). Carries no transfer credit.

Prerequisite: ESL 056 and either ESL 057 or ESL 067 with grades of C or better, **OR** required placement test scores.

ESL 096 ESL: Grammar V (4-0) 4 crs.
Focuses on grammatical structures and patterns of English for advanced English as a Second Language students. Includes practice of patterns introduced previously. Emphasizes sentence patterns of formal written English. Carries no transfer credit.

Prerequisite: ESL 076 with a grade of C or better, **OR** required placement test scores.

ESL 098 ESL: Listening and Speaking VIII (2-0) 2 crs.
Focuses on listening and speaking skills specific to the American college classroom for advanced English as a Second Language students. Includes note taking skills, class discussion practice and formal speaking. Carries no transfer credit.

Prerequisite: ESL 060, ESL 076 or ESL 085 with a grade of C or better, **OR** required placement test scores.

ESL 099 ESL: Writing—Research Paper (2-0) 2 crs.
Focuses on research skills and preparation of the American research paper for advanced English as a Second Language students. Reviews essay development. Carries no transfer credit.

Prerequisite: ESL 067 with a grade of C or better and required ESL Reading Compass score, **OR** ESL 053 and ESL 067 with grades of C or better, **OR** required placement test scores.

ESL: English for Special Purposes

ESP 061 ESL: Skills for the Health Care Field (4-0) 4 crs.
Focuses on the exploration of various health care fields, English language skills, and aspects of American culture specific to the field for English as a Second Language (ESL) students at the high intermediate level. Includes reading skills, idiomatic expressions, and vocabulary related to health care careers in both written and verbal English. Carries no transfer credit.

Prerequisite: ESL 053 and ESL 063 with grades of C or better, **OR** required placement test scores.

ESP 071 ESL: Business Communication Skills (4-0) 4 crs.
Focuses on business English skills for English as a Second Language (ESL) students at the high intermediate level. Includes phone skills, writing email and business letters, and using business phrases, idioms, and vocabulary in both written and spoken English. Carries no transfer credit.

Prerequisite: ESL 053 and ESL 063 with grades of C or better, **OR** required placement test scores.

FAS Fashion Design

FAS 100 Industrial Sewing Methods (1-4) 3 crs.
Introduces students to the use and care of industrial sewing equipment, notions and supplies. Presents instruction in basic sewing techniques and their application to garment construction. (NOTE: This course is intended for students with little or no sewing experience.)

- FAS 101 Flat Pattern Design and Draping I (1-4)** 3 crs.
Introduces basic industrial techniques of pattern making and draping. Variety of slopers (bodies, skirts, sleeves, etc.) developed. Accuracy and professional standards stressed. Patterns tested in muslin for fit.
Prerequisite: FAS 113 with a grade of C or mastery of basic sewing as demonstrated through Fashion Department testing. Contact program coordinator for additional information.
- FAS 102 Flat Pattern Design and Draping II (2-4)** 4 crs.
Continues development of basic sloper set. Manipulates basic sloper set to create original design. Patterns tested in muslin for fit. Garment is construction from corrected patterns.
Prerequisite: FAS 101 and FAS 103 with a grade of C or better.
- FAS 103 Apparel Design and Construction I (1-4)** 3 crs.
Introduces principles of using the basic sloper set to develop patterns for original designs. Professional design room techniques.
Corequisite: FAS 101 or consent of instructor.
- FAS 104 Apparel Design and Construction II (2-4)** 4 crs.
Develops patterns from basic sloper set. Actual construction of finished garments. Emphasis on styling, fit and professional finishing.
Prerequisite: FAS 103 with a grade of C or better.
Corequisite: FAS 102.
- FAS 105 Fashion Design and Illustration I (0-2)** 1 cr.
Introduces basic fashion sketching — front, back and side views. Relationship of figure and garment. Sketching of original design.
- FAS 106 Fashion Design and Illustration II (0-2)** 1 cr.
Focuses on advanced fashion sketching and fabric rendering. Emphasis on development of individual style. Basic layout and presentation.
Prerequisite: FAS 105 with a grade of C or better.
- FAS 107 Textiles I (1-2)** 2 crs.
Studies basic design and color principles in development of creative fabrics. General analysis and identification of fabrics and employment of various methods such as weaving, printing and dyeing.
- FAS 108 Textiles II (1-2)** 2 crs.
Continues FAS 107. Contemporary fabrics analyzed and studied.
Prerequisite: FAS 107 with a grade of C or better.
Corequisite: FAS 109.
- FAS 109 Fashion Arts and Design (2-0)** 2 crs.
Focuses on theory and principles of design for fashion. The elements of design and color are covered. Develops the perception and awareness to judge good design and to analyze potential trends. Studies the influence of present-day cultural trends on the field of design.
Corequisite: FAS 108.
- FAS 110 Costume History (2-0)** 2 crs.
Introduces the elements of design and color in historical perspective. A survey of historical periods of design focusing on costumes. Examines the influences of social, political and economic forces on these periods.
- FAS 111 Twentieth Century Costume and Trends (3-0)** 3 crs.
Presents an overview of fashion history and current trends in the 20th century. Includes fashion design, merchandising and factors which influence fashion from the merchandiser's point of view such as arts, technology and socioeconomic aspects. Students participate in video production.
- FAS 112 Fashion Basics (3-0)** 3 crs.
Presents fashion merchandise through evaluation of fashion products. Develops awareness of construction, as well as workmanship and design elements, such as fabric, color silhouette and taste.
- FAS 113 Advanced Industrial Sewing Methods (1-4)** 3 crs.
Focuses on application and mastery of basic sewing skills in pattern and fabric recognition and problem solving related to individual creative design. Emphasis on technology, technical accuracy and appropriate use of selected material and supplies. (NOTE: This course is intended for students with basic sewing skill and machine proficiency.)
Prerequisite: FAS 100 with a grade of C or better or placement as demonstrated through Fashion Design Department testing. Contact program coordinator for additional information.
- FAS 116 Fashion Industries Career Practicum and Seminar (1-10)** 3 crs.
Studies an overview of career and employment possibilities in the fashion businesses and industries. Places emphasis on individual career path selections through interest testing and career counseling. (NOTE: Concurrent employment of ten hours or more in a fashion related field is required. Contact program coordinator for additional information.)
- FAS 201 Advanced Flat Pattern Design and Draping I (2-4)** 4 crs.
Continues advanced development of basic sloper set, including coat and suit slopers, basics of grading (sizing). Patterns tested in muslin for fit and accuracy.
Prerequisite: FAS 101 and FAS 102 with a grade of C or better.
Corequisite: FAS 203.
- FAS 202 Advanced Flat Pattern Design and Draping II (2-4)** 4 crs.
Continues FAS 201. Studies advanced techniques of pattern making and draping, such as trend jacket and coat. Actual construction of jacket and coat will be involved.
Prerequisite: FAS 201 with a grade of C or better.
Corequisite: FAS 204.
- FAS 203 Advanced Diversified Apparel Design I (2-4)** 4 crs.
Develops patterns for the translation of original designs into completed garments. Includes visits to manufacturers and speakers from industry.
Prerequisite: FAS 103 and FAS 104 with grades of C or better.
Corequisite: FAS 201.
- FAS 204 Advanced Diversified Apparel Design II (2-4)** 4 crs.
Continues FAS 203. Works on collection of individual design and actual construction of coordinated garments.
Prerequisite: FAS 203 with a grade of C or better.
Corequisite: FAS 202.
- FAS 205 Tailoring Techniques I (0-4)** 2 crs.
Introduces professional assembling procedures, details and finishes. Particular emphasis on coats and suits.
Prerequisite: FAS 102 and FAS 104 with grades of C or better, or consent of program coordinator.
- FAS 209 Advanced Fashion Illustration I (0-2)** 1 cr.
Emphasizes work on a professional studio level. Focuses on work sketches as well as finished art. Fashion illustration as advertising, publicity, promotion and display.
Prerequisite: FAS 106 with a grade of C or better, or consent of program coordinator.
- FAS 210 Advanced Fashion Illustration II (0-2)** 1 cr.
Continues FAS 209. Preparation of professional portfolio.
Prerequisite: FAS 209 with a grade of C or better.
- FAS 212 Visual Fashion Merchandising (2-0)** 2 crs.
Studies the communications of design and methods of interpreting consumer needs and motivations. Explores the techniques of educating the consumer and promoting good design through advertising, publicity, display, fashion shows, special events, employee development, etc.
Prerequisite: FAS 110 with a grade of C or better.

COURSE DESCRIPTIONS

- FAS 229 Promotion of Fashion (3-0)** 3 crs.
Introduces various techniques and media for methods to sell fashion. Emphasis on advertising: newspapers, magazines, direct mail, catalogs, radio and television. Includes sales promotion in window displays, interior displays, shops; special events, fashion shows and publicity. Analysis of practical creative assignments developed by the students.
- FAS 230 Fashion Forecasting (3-0)** 3 crs.
Focuses on the social, economic, political and psychological forces that influence fashion. Introduces methods of forecasting fashion trends. Contemporary consumer lifestyles will be analyzed.
- FAS 240 Fashion Projects (3-0)** 3 crs.
Studies the use of oral and written communication in a fashion career with special emphasis on preparing for and staging fashion shows. Also, practice in effective speaking in small groups or to individuals; effect of grooming and etiquette on communication; style and technique in getting a job; and performing effectively in the fashion industry.
- FAS 245 Topics in Fashion Design (1-0 to 3-0)** 1-3 crs.
Studies selected problems or topics in fashion design. The exact content and instructional methodology will vary from semester to semester depending on the material to be studied. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. The course may be repeated two times to a maximum of three credit hours.
Prerequisite: FAS 107 with a grade of C or better, or consent of instructor.

FIS Fire Science

- FIS 100 Fundamental of Fire Protection (3-0)** 3 crs.
Provides an overview of fire protection; career opportunities in fire protection and related fields; philosophy and history of fire protection/service; fire loss analysis; organization and function of public and private fire protection services; fire departments as part of local governmental; laws and regulations affecting the fire service; fire service nomenclature; specific fire protection functions; basic fire chemistry and physics; fire protection systems; introduction to fire strategy and tactics.
- FIS 102 Fire Service Management I (3-0)** 3 crs.
Introduces the student to the role of the company officer. Provides an introduction to basic management theories, practices and functions with an emphasis on fire service leadership from the perspective of the company officer. Provides an introduction to the organization and management of a fire department and the relationship of government agencies to the fire service.
Prerequisite: FIS 100 and FIS 121 with grades of C or better, or consent of program coordinator.
- FIS 103 Fire Strategies and Tactics I (3-0)** 3 crs.
Introduces basic principles and methods associated with fireground strategies and tactics as required of the company officer. Emphasizes the incident management system, fire behavior, basic firefighting size-up, pre-fire planning, engine company and truck company operations.
Prerequisite: FIS 100 and FIS 121 with grades of C or better, or consent of program coordinator.
- FIS 104 Building Construction for Fire Protection (3-0)** 3 crs.
Studies the components of building construction that relate to fire and life safety. The focus of this course is on firefighter safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, preplanning fire operations and operating at emergencies.
Prerequisite: FIS 100 with a grade of C or better, or consent of program coordinator.

- FIS 106 Fire Service Career Exploration Practicum (5-2)** 1 cr.
Studies fire science career and employment possibilities in the fire service. Includes observation practices at various fire departments and attendance at a seminar to discuss related experiences. Students will gain an accurate perception of how their personal and professional goals match with the fire service, as well as learn about ways to reach their goals. Specifically, the course challenges students to look at their values, interests, and skills as they relate to a career in the fire service.
- FIS 109 Firefighter II Certification (9-6)** 12 crs.
Provides a member of a regularly constituted fire department within the State of Illinois with instruction and certification as a state recognized Firefighter II. Satisfies the didactic and manipulative requirements for the Illinois Office of State Fire Marshall Firefighter II Certification Course.
(NOTE: Student must be a member of a fire department who has entered into a training agreement with Harper College. Sponsoring department must provide proof of student's recent completion of physical examination that satisfies Illinois Department of Labor requirements and includes respiratory fitness.)
- FIS 121 Fire Behavior and Combustion (3-0)** 3 crs.
Explores the theories and principles of how and why fires start, spread, and are brought under control. Students will be able to relate the principles by which fires spread with the appropriate methods of control.
- FIS 122 Introduction to Fire Prevention Principles (3-0)** 3 crs.
Provides fundamental information regarding the history and philosophy of fire prevention, organization and operation of a fire prevention bureau, use of fire codes, identification and correction of fire hazards, and the relationships of fire prevention with the built-in fire protection systems, fire investigation, and fire and life-safety education.
- FIS 123 Advanced Fire Prevention Principles (3-0)** 3 crs.
Provides the theories of fundamental fire prevention principles including the various techniques that can be utilized to prevent the occurrence of or reduce the impact from a fire. Emphasis will be placed on plan reviews, code interpretation, and built-in fire protection systems.
Prerequisite: FIS 122 with a grade of C or better.
- FIS 132 Hazardous Materials I (3-0)** 3 crs.
Reviews basic chemistry, storage, handling, laws, standards and fire fighting practices pertaining to hazardous materials. Emphasis on identification, labeling, handling, firefighting, and mitigation of hazardous materials emergencies. Students who wish to satisfy the Illinois Office of the State Fire Marshall Certificate Requirements must successfully complete this course as well as the required practical skills evaluation prior to taking the state examination by the Authority Having Jurisdiction (A.H.J.).
- FIS 133 Hazardous Materials II (3-0)** 3 crs.
Continues FIS 132. Provides those personnel who are, or will be, operating at the technician level of a hazardous materials response team with the advanced skills needed to evaluate and mitigate an incident involving direct release of hazardous materials. Students who wish to satisfy the Illinois Office of the State Fire Marshal Certificate Requirements must successfully complete this course as well as the required practical skills evaluation prior to taking the state examination by the Authority Having Jurisdiction (A.H.J.).
Prerequisite: FIS 132 with a grade of C or better.
- FIS 145 Fire and Emergency Services Instructor I (3-0)** 3 crs.
Provides instruction to individuals in the fire and emergency services. Provides basic fundamentals in human relations in the teacher-student learning environment, methods of instruction and proper methods of writing lesson plans.

FIS 200 Fire Service Internship (1-10) 3 crs.
 Applies and expands fire science skills and knowledge in the workplace environment. Conducted under joint partnership agreements between Harper College and a host fire department. Regularly conducted review sessions will be conducted to assess the student's progress, problem areas, and to review appropriateness of work involvement. Actual permissible duties and activities will be determined based upon the student's qualifications and host department restrictions. Student must complete a minimum of 100 contract hours to earn 3 semester hours of credit. Appropriate skills to the fire science technology field.
Prerequisite: FIS 100, FIS 103, FIS 121 and FIS 122 with grades of C or better and consent of program coordinator.

FIS 202 Fire Service Management II (3-0) 3 crs.
 Examines and discusses supervisory and various forms of communications that occur in the work setting. Examines work group dynamics and assists the fire officer to understand and function within the work group. Introduces health and safety within the work setting.
Prerequisite: FIS 102 with a grade of C or better, or consent of program coordinator.

FIS 203 Fire Strategies and Tactics II (3-0) 3 crs.
 Examines the tactical deployment of manpower and equipment for extra alarm fires, high-rise fires and extraordinary incidents. Studies manpower and equipment necessary for large-scale fireground operations.
Prerequisite: FIS 103 with a grade of C or better and consent of program coordinator.

FIS 210 Fire-Arson Investigation (3-0) 3 crs.
 Provides the identification of the nature and behavior of fire, combustion properties, sources of ignition, the techniques and procedures for the identification of the cause and origin of fires, the detection of arson, the role of the fire investigator, the role of the crime laboratory, arson law, and fire report writing.
Prerequisite: FIS 100 and FIS 121 with grades of C or better.

FIS 212 Fire Protection Systems (3-0) 3 crs.
 Provides information relating to the features of design and operation of fire detection and alarm systems, heat and smoke control systems, special protection and sprinkler systems, water supply for fire protection and portable fire extinguishers.
Prerequisite: FIS 100 with a grade of C or better.

FIS 220 Fire and Emergency Services Instructor II (3-0) 3 crs.
 Provides advanced instruction to individuals in the fire and emergency services. This course introduces advanced instructional skills necessary to teach fire and emergency services personnel. It will familiarize the student with behavioral objectives, cognitive, psychomotor skills, different teaching methods and applications in training sessions. This course will also familiarize the student with training records, reports, and in the development and administration of evaluation instruments.
Prerequisite: FIS 145 with a grade of C or better.

FIS 230 Fire and Emergency Services Law (3-0) 3 crs.
 Enables the student to acquire a basic knowledge of the law in specified subject areas that directly or indirectly affect fire and emergency services by providing basic knowledge of the methodology through which to locate, read and comprehend various statutes, regulations, and cases that are the framework of the law.

FIS 240 Fire Apparatus Engineer (2-2) 3 crs.
 Provides students with a foundation of theoretical knowledge and psychomotor skills in order to understand principles of the use of water in fire protection and to apply hydraulic principles to analyze and solve water supply problems. Also provides students with the psychomotor requirements to satisfy the Illinois Office of State Fire Marshal Fire Apparatus Engineer Course. Evaluates students' ability to perform the manipulative functions required to properly operate a National Fire Protection Associate compliant fire apparatus in simulated fireground settings.
Prerequisite: MTH 080 with a grade of C or better.

FIS 250 Industrial Fire Protection (3-0) 3 crs.
 Studies the recommended practices for protection of industrial properties and processes from fire, explosion and damage specific to certain types of public and private industry; including fire and accident prevention programs, identification of special hazards, fire protection equipment and systems, handling of emergencies, the development of policy, rules, and regulations, the inspection and investigation of accidents, and standardized record keeping.

FIS 260 Emergency Services Safety (3-0) 3 crs.
 Provides a foundation of knowledge and understanding of safety as applied to emergency services. Examines the need for safety in the everyday performance of all aspects of their jobs and gain an understanding of the essential elements needed to reduce accidents and injuries.

FRN French

FRN 101 Elementary French I (4-0) 4 crs.
 Introduces the language skills of listening, understanding, speaking, reading and writing in their logical sequence. Designed for students with no previous experience in French.

FRN 102 Elementary French II (4-0) 4 crs.
 Continues FRN 101. Situational conversations in French; reading and writing stressed. One year of high school French is recommended.
Prerequisite: FRN 101 with a grade of C or better, or consent of instructor.

FRN 201 Intermediate French (4-0) 4 crs.
 Continues FRN 102. Conversation with emphasis on pronunciation, intonation, stress and rhythm. Introduction to composition, reading of short stories and grammar review.
Prerequisite: FRN 102 with a grade of C or better, two years of high school French or consent of instructor.

FRN 202 Intermediate French (4-0) 4 crs.
 Continues FRN 201. Increases knowledge of the language and focuses on the culture of the French speaking countries. Continues grammar study. Three years of high school French are recommended.
 IAI H1 900
Prerequisite: FRN 201 with a grade of C or better, or consent of instructor.

FRN 205 French Intensive Oral Practice (3-0) 3 crs.
 Conversational practice to develop oral facility; specially designed exercises in pronunciation, stress and rhythm. Individual readings of modern French works discussed in class. Written and oral compositions based on readings. Designed to help students bridge the gap between the intermediate and advanced levels.
Prerequisite: FRN 202 with a grade of C or better or equivalent or consent of instructor.

COURSE DESCRIPTIONS

FRN 210 Introduction to Modern French Literature (3-0) 3 crs.
Reading of selected 20th century masterpieces. Introduction to poetry and "analyze de texte." Oral readings stressing pronunciation and diction. Speaking based on discussion works read. Writing based on readings and class discussions. Designed to help students bridge the gap between the intermediate and advanced levels.
IAI H3 917
Prerequisite: FRN 202 or equivalent with a grade of C or better, or consent of instructor.

FSM Hospitality Management

FSM 107 Basic Quantity Bread and Pastry Arts (2-5) 4 crs.
Introduces basic quantity baking of breads and pastries. Students will learn the fundamentals of baking science, terminology, ingredients, weights and measures, formula conversion, and storage. Sanitation and hygienic work habits conforming to health regulations are emphasized.

FSM 108 Advanced Quantity Bread and Pastry Arts (2-5) 4 crs.
Continues instruction in the finer arts of breads and pastry preparation, including emphasis on pastry arts work, pastries and breads as used in exclusive establishments and ornamental skills for culinary exhibits.
Prerequisite: FSM 107 with a grade of C or better.

FSM 109 Introduction to Food Prep/Production (2-5) 4 crs.
Introduces basic cooking skills that can be developed to produce quality food products. Students will learn fundamentals of cooking and baking through daily assignments and production. All aspects of the industry will be covered including proper handling and storage, heating and holding, weights and measures, safety, sanitation, and personal hygiene.

FSM 110 Advanced Quantity Culinary Arts (2-5) 4 crs.
Continues FSM 109 with special emphasis in the dining experiences. Students will prepare meals for the College dining room, banquets, catered functions and special culinary arts events. Students will discuss theory as well as procedures in the "back of the house."
Prerequisite: FSM 109 with a grade of C or better.

FSM 111 Introduction to the Hospitality Industry (3-0) 3 crs.
Orients students to the hospitality industry, its organizational structure and integration of the modern industry components. Operational considerations are discussed. Career opportunities are explored.

FSM 113 Dining Room Operations (1-5) 3 crs.
Introduces theory and practice of quantity food serving including practical experience in dining rooms and catering services. Involves set-up, tableside preparation and presentation of food and beverage. Examines various roles of dining room personnel.

FSM 114 Food Standards and Sanitation (2-0) 2 crs.
Introduces safe food handling practices and discusses the standardized procedures involved in the procurement, storage, preparation, holding, and service of safe food. Prepares students for the State of Illinois-approved Food Service Sanitation Manager's Certification test.

FSM 115 Menu Planning (3-0) 3 crs.
Studies menu planning theory and principles for various types of food service operations. Examines the relationship of menu planning to the functional areas within food facilities. Menu planning and its importance as a determination of food cost, selling price, and profitability is also emphasized.

FSM 120 Front Office Operations (3-0) 3 crs.
Establishes a systematic approach to front office operations detailing the flow of business through the hotel from reservations to checkout. Front office management is placed within the context of the overall operation of the hotel. Methods of handling guest folios, reservation systems, property management systems, and cash controls are discussed.

FSM 121 ProStart I (4-0) 4 crs.
Introduces students to fundamentals of professional foodservice management. Explores careers within the hospitality industry and basic knowledge of kitchen activities, safety and equipment. Students will earn their ServSafe Sanitation Certificate and the Illinois State Sanitation Certification. Students must be currently enrolled in high school, must have completed one foods class, and be at least 16 years old.
Prerequisite: High school students only.

FSM 122 ProStart II (2-2) 3 crs.
Continues FSM 121 with additional fundamentals of professional foodservice management. Students will broaden their basic kitchen knowledge of foods and managerial skills and integrate work experience gained in corequisite FSM 140. Preparation for the Year One comprehensive final from the National Restaurant Association's Educational Foundation is included. Students taking this course must be currently enrolled in high school.
Prerequisite: FSM 121 with a grade of C or better.
Corequisite: FSM 140.

FSM 123 ProStart III (2-2) 3 crs.
Prepares students for the Illinois Restaurant Association's Knowledge Bowl competition. Includes menu development and food costing and introduces managerial skills required by the lodging and restaurant industries. Students taking this course must be currently enrolled in high school.
Prerequisite: FSM 122 with a grade of C or better.
Corequisite: FSM 141.

FSM 124 ProStart IV (2-2) 3 crs.
Integrates the previous three semesters of class work and internships. Students prepare for the National ProStart Certification Test, complete their skills portfolio, and finalize their résumé. Students taking this course must be currently enrolled in high school.
Prerequisite: FSM 123 with a grade of C or better.
Corequisite: FSM 142.

FSM 140 ProStart Internship I (0-15) 1 cr.
Applies knowledge, skills and abilities developed in FSM 121 with work experience in assigned employment opportunities. Trained mentors will help develop skills, knowledge and abilities for entry level supervisory employment at the end of the two-year ProStart program. Students will work 12-15 hours weekly.
(NOTE: Second semester, first year ProStart students only.)

Prerequisite: FSM 121 with a grade of C or better, and recommendation of the program coordinator.
Corequisite: FSM 122.

FSM 141 ProStart Internship II (0-15) 1 cr.
Applies knowledge and abilities developed in FSM 121, FSM 122 and FSM 140. Students will be assigned a work experience in a different industry component than that of FSM 140. Students will work 12-15 hours weekly.
(NOTE: First semester, second year ProStart students only with recommendation of the program coordinator.)
Prerequisite: FSM 122 and FSM 140 with grades of C or better.
Corequisite: FSM 123.

FSM 142 ProStart Internship III (0-15) 1 cr.
 Applies knowledge, skills and abilities developed in the ProStart curriculum. Students will be assigned a work experience in a different industry component than that of FSM 140 and FSM 141. Students will work 12-15 hours weekly. (NOTE: Second semester, second year ProStart students only with the recommendation of the program coordinator.)

Prerequisite: FSM 123 and FSM 141 with grades of C or better.
Corequisite: FSM 124.

FSM 162 Classical Cuisines (2-5) 4 crs.
 Introduces comprehensive integration of previous culinary production course work or work experience and provides food production for the department's special events, culinary competitions, and the College dining room. Demonstrations, food labs, and lectures are used to present the material.

Prerequisite: FSM 109 and FSM 110 with grades of C or better.

FSM 163 Garde Manger (1-3) 2 crs.
 Provides students with skills and knowledge in the preparation of cold hors d'oeuvres, sandwiches, salads, garnishes, pates, terrines, mousses, vegetable carving, chaud froid sauce, tallow and ice carving.

Prerequisite: FSM 109 with a grade of C or better.

FSM 172 Classical Baking (1-3) 2 crs.
 Concentrates on methods and procedures for producing high quality specialty tortes and buffet items for bakeries and fine dining clubs, hotels and restaurants. Pulled sugar, pastillage, nougat, marzipan, chocolate, ice cream, candies and desserts are included. Emphasis is on individual skill development through practice.

Prerequisite: FSM 108 with a grade of C or better.

FSM 173 Cake Decoration (1-3) 2 crs.
 Presents methods and procedures for producing high quality wedding and specialty cakes for bakeries and fine dining clubs, hotels and restaurants. Emphasis is on individual skill development through practice.

FSM 210 Hospitality Facility Maintenance (3-0) 3 crs.
 Focuses on the organization, duties and administration of a restaurant and lodging facility maintenance department. Discusses purchasing, furniture, carpeting, linens and supplies. Identifies and evaluates care and maintenance techniques of the areas serviced by a facility maintenance department.

FSM 211 Purchasing and Storage (3-0) 3 crs.
 Standards and identification of quality meats, dairy products, produce, groceries, frozen foods and supplies. Methods of purchasing, purveyor relations and proper storage techniques and purchase standards for convenience foods.

FSM 212 Hospitality Supervision (3-0) 3 crs.
 Studies the theory and techniques of supervision as related to the hospitality industry.

FSM 213 Seminar and Internship (1-15) 3 crs.
 Furnishes participation in a supervised cooperative work experience program in a College approved hospitality operation. Enrollment is restricted to sophomores in the Hospitality Management program.

Prerequisite: FSM 212 with a grade of C or better.

FSM 214 Hospitality Operations Analysis (3-0) 3 crs.
 Provides practical application of operational analysis used by food, lodging and travel-related fields. Use of ledgers, automated information systems and basic financial statements are discussed.

FSM 215 Restaurant Layout and Equipment (3-0) 3 crs.
 Maximizing employee productivity through various types of food equipment and proper equipment arrangement. Effects of use of convenience foods on equipment planning.

FSM 216 Introduction to Wines, Spirits and Beverage Management (3-0) 3 crs.

Studies alcoholic beverage classifications, alcoholic beverage laws, wine regions, purchasing and control, promotion and service. Beverage management principles and theories are presented which support and reinforce the practical aspects.

Prerequisite: Minimum age of 21.

FSM 220 Hospitality Promotions (3-0) 3 crs.
 Provides Hospitality Management majors with a solid background in hospitality promotions. Focuses on promoting highly perishable, people-intensive intangibles in a highly competitive environment.

FSM 230 Hospitality Law and Risk Management (3-0) 3 crs.
 Surveys our legal system as applied to the hospitality industry. Examines contracts, torts and various labor laws pertinent to the industry. Analyzes insurance costs, including fire, accident, worker's compensation and employee liability and their effect on various types of facilities.

FSM 299 Topics in Hospitality Management (.5-0 to 3-0) .5-3 crs.
 Studies selected issues or topics in hospitality management. The exact content and instructional methodology will vary semester to semester depending on the material to be studied. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. This course may be repeated two times to a maximum of three credit hours.

FYE First Year Experience

FYE 101 First Year Experience (1-0 to 2-0) 1-2 crs.
 Focuses on strategies that assist students in making a successful transition to college life. Students will identify personal strengths to increase self-efficacy as it relates to persistence in college. Students will interact with other students in a supportive environment. Using techniques designed to foster student engagement, students will learn to assume responsibility for their academic decision making as it relates to success in college and in life.

GEG Geography

GEG 100 Cultural Geography (3-0) 3 crs.
 Surveys the contemporary topics of human geography; population, migration, language, religion, ethnicity, and political, economics and urban geography. Teaches the methods and tools geographers use in their science and practice.
 IAI S4 900N

GEG 101 World/Regional Geography (3-0) 3 crs.
 Surveys the major world regions emphasizing their physical, cultural, economic and historical geographies; provides a geographic interpretation of major current events.
 IAI S4 900N

GEG 103 The Developing World (3-0) 3 crs.
 Surveys the technologically less developed regions of the World, including East Asia, South Asia, Middle and South America, Southwest Asia and North Africa, and Sub-Saharan Africa. Emphasis is placed on the spatial arrangement of resources, population, human institutions, economic activities, political patterns, religion, and cultural and physical landscapes. Each cultural realm is analyzed in respect to the larger international community with special attention to current events and issues.
 IAI S4 902N

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GEG 104 The Developed World (3-0) 3 crs.
Surveys the technologically more developed regions of the world, including Europe, the United States and Canada, the former Soviet Union, Japan, Australia and New Zealand. Emphasis is placed on the spatial arrangement of resources, population, human institutions, economic activities, political patterns, religion, and cultural and physical landscapes. Each cultural realm is analyzed in respect to the larger international community with special attention given to current events and issues.
IAI S4 901

GEG 111 Physical Geography (3-0) 3 crs.
Examines the spatial distribution of elements of Earth's four physical spheres: the atmosphere, the hydrosphere, the lithosphere, and the biosphere including landforms, climates, weather, vegetation, and soils. Consideration is given to the causes of these distributions and to their effects on human populations.
IAI P1 909

GEG 112 Physical Geography Laboratory (0-2) 1 cr.
Applies the scientific method of observation, hypothesis formation, and experimentation to Earth's four physical spheres: the atmosphere, the hydrosphere, the lithosphere, and the biosphere.
IAI P1 909L

Prerequisite: Prior or concurrent enrollment in GEG 111.

GEG 151 Geographic Information Systems I (2-2) 3 crs.
Introduces the theory and problem solving capabilities of Geographic Information Systems (GIS). Examines underlying fundamental concept of cartography, including the concepts of map projection, the Cartesian coordinate system, spatial data collection, and data generalization. Students will acquire spatial data in the field and from published sources, and will learn basic functions of GIS software and creating GIS databases and maps.

GEG 152 Geographic Information Systems II (2-2) 3 crs.
Continues GEG 151. Emphasizes the practical application of Geographic Information Systems (GIS) technology to solve problems and answer questions. Increases level of proficiency using GIS and performing spatial analysis of data. Introduces GIS operational and management issues.

Prerequisite: GEG 151 with a grade of C or better.

GEG 210 Economic Geography (3-0) 3 crs.
Studies the spatial distribution and interaction of economic activities. Emphasis is on land use patterns, population movement, the principles governing the location of agricultural, manufacturing and commercial centers and the impact of economic activity on the environment.
IAI S4 903N

GEO Geology

GEO 101 Physical Geology (3-2) 4 crs.
Provides an introduction to the earth's minerals, rocks and natural resources and the processes which have shaped the Earth's surface such as sedimentation, mountain building, and action of water, wind, ice and down slope movements. Covers Earth's fundamental structure and the behavior of Earth materials. Focuses on the roles of volcanism, earthquakes, sea-floor spreading and paleomagnetism in explaining plate tectonic theory.
IAI P1 907L

GEO 102 Historical Geology (3-2) 4 crs.
Geological history of the earth including principles employed to reconstruct this history. One-day field trip required.
Prerequisite: GEO 101 with a grade of C or better, high school earth science or consent of instructor.

GEO 103 Environmental Geology (3-2) 4 crs.
Examines the relationships between humans and the geological environment. Includes the study of use and abuse of natural resources such as water, minerals, and energy; an overview of natural hazards; an examination of urban geology and land management issues, and the relationship between community status and land use; an analysis of pollution and waste disposal; and an introduction to climate change and global warming. Emphasis is on issues and practices in the Chicagoland area. Knowledge of high school algebra is assumed.
IAI P1 908L

GEO 201 Rocks and Minerals (3-2) 4 crs.
Physical description of minerals and rocks. Introduction to crystallography, economic minerals, natural resources. Field trip required.
Prerequisite: GEO 101 and CHM 121 with grades of C or better, or consent of instructor.

GEO 202 Paleontology (3-2) 4 crs.
Fossil record of life, principles of evolution and ecology. One-day field trip required.
Prerequisite: BIO 101, BIO 140 and GEO 102 with grades of C or better, or consent of instructor.

GER German

GER 101 Elementary German I (4-0) 4 crs.
Introduces the language skills of listening, understanding, speaking, reading and writing in their logical sequence. Designed for students with no previous experience in German.

GER 102 Elementary German II (4-0) 4 crs.
Continues GER 101. Situational conversations in German; reading and writing stressed. One year of high school German is recommended.
Prerequisite: GER 101 with a grade of C or better, or consent of instructor.

GER 201 Intermediate German (4-0) 4 crs.
Continues GER 102. Conversation with emphasis on pronunciation, intonation, stress and rhythm. Introduction to composition, reading of short stories and grammar review. Two years of high school German are recommended.
Prerequisite: GER 102 with a grade of C or better, or consent of instructor.

GER 202 Intermediate German (4-0) 4 crs.
Continues GER 201. Provides a crucial bridge between the basic grammar and language structure that is taught in the first three semesters and the more in-depth study of history, geography, literature and culture that is taught in the advanced German courses. Integrates students' basic German language skills and applies them to everyday living situations. Begins the study of German literature, focusing on the modern history and culture of the German-speaking people. Three years of high school German are recommended.
IAI H1 900
Prerequisite: GER 201 with a grade of C or better, or consent of instructor.

GER 205 German Intensive Oral Practice (3-0) 3 crs.
Conversational practice to develop oral facility; specially designed exercises in pronunciation, stress and rhythm. Individual readings of modern German works discussed in class. Written and oral compositions based on readings. Designed to help students bridge the gap between the intermediate and advanced levels.
Prerequisite: GER 202 with a grade of C or better, or equivalent or consent of instructor.

- GER 210 Introduction to Modern German Literature (3-0)** 3 crs.
 Readings of selected 20th century masterpieces. Introduction to poetry. Oral readings stressing pronunciation and diction. Speaking based on discussion of works read. Writing based on readings and class discussions. Designed to help students bridge the gap between the intermediate and advanced levels.
 IAI H3 917
Prerequisite: GER 202 with a grade of C or better, or equivalent or consent of instructor.
- GER 230 German Civilization and Culture (3-0)** 3 crs.
 Introduces students to multiple aspects of German culture and civilization from the 20th century to today. Familiarizes students with history, political institutions, economic development, literature, art, and culture of Germany. Gives students an overview of the German-speaking regions of Austria, Switzerland and Liechtenstein. This course is taught in English.

GRA Graphic Arts

- GRA 101 Introduction to Graphic Arts Technology (2-2)** 3 crs.
 Gives students an overview of the graphic arts industry. Covers various occupations including basic information for making career and education choices. Builds the foundation for continuing education in the graphic arts program. Includes historical, current and potential developments in the printing industry. Provides a comprehensive understanding of desktop publishing software and the steps related to producing printed materials.
- GRA 102 Graphic Arts Desktop Publishing (2-2)** 3 crs.
 Presents a clear understanding of graphic desktop software and their many functions in the printing industry. Provides hands-on training using the most current desktop publishing software. Focuses on project work, page layouts and output functions.
Prerequisite: Prior or concurrent enrollment in GRA 101.
- GRA 103 Digital Imaging I (2-2)** 3 crs.
 Covers fundamentals of professional image-editing software (Adobe Photoshop). Emphasizes skills to manipulate photos using current software tools and special effects filters. Explores program tools, color correct photos, channels, layers and color separation.
Prerequisite: ATE 105 or prior or concurrent enrollment in GRA 101 with a grade of C or better.
- GRA 105 Color Management (2-2)** 3 crs.
 Examines the fundamentals of color theory and color management, throughout the entire graphic arts process. Students will explore all color management techniques of input and output devices as well as tools and concepts for successful color control.
Prerequisite: GRA 101 or GRA 103 with a grade of C or better.
- GRA 111 Press Operations (2-2)** 3 crs.
 Covers fundamentals of offset printing as well as new technologies in the digital print arena. Provides knowledge of press maintenance and safety, feeder systems, registration requirements, ink systems and color management tools and techniques in the print industry.
Prerequisite: GRA 102 with a grade of C or better.
- GRA 112 Digital Illustration I (2-2)** 3 crs.
 Presents vector graphics software and its applications to the graphic arts industry. Explores tools and functions within the current software. Focuses on creating illustrations, working with type, color, and all tools needed to create multi-colored illustration and separation. Emphasizes techniques to create illustration files for use in digital print production.
Prerequisite: Prior or concurrent enrollment in GRA 101.

- GRA 113 Digital Imaging II (2-2)** 3 crs.
 Covers advanced functions of digital image-editing software. Emphasizes advanced software functionality, color correction and color management needs as well as commercial imaging practices in a prepress environment. Focuses on different types of image capture and file manipulation.
Prerequisite: GRA 103 with a grade of C or better.
- GRA 120 Graphic Design I (2-2)** 3 crs.
 Focuses on beginning fundamentals of graphic design utilizing all design principles and involves an overview of design and layout rendering techniques. Focuses on typography, images and graphics, utilizing design processes and current graphic software for print. Projects are critiqued for aesthetics and production for print.
Prerequisite: GRA 102 with a grade of C or better.
- GRA 130 Introduction to Photography (2-0)** 2 crs.
 Explores beginning fundamentals of photography, its history, and the development of photography in both commercial and creative usage. Presents a past and present use of photography focusing on techniques and applications in a conventional camera-based environment as well as the digital photographic arena.
- GRA 131 Digital Photography I (2-2)** 3 crs.
 Explores the techniques and applications of digital image capture, manipulating images in Photoshop and outputting digital images. Focuses on the technical aspect of digital photography, lighting needs, application use and color management basics. Project based instruction utilizing basic photographic concepts, commercially and creatively.
Prerequisite: GRA 103 and GRA 130 with grades of C or better.
- GRA 202 Advanced Color Management (2-2)** 3 crs.
 Analyzes real world color management in the digital and conventional print industry. Focuses on advanced under-the-hood technology in color management systems building closed loop systems. Covers color fidelity, models and the understanding of how devices interpret and deliver. Profile building and editing for input and output devices.
Prerequisite: GRA 105 with a grade of C or better.
- GRA 211 Project Management, Scheduling and Estimating (3-0)** 3 crs.
 Provides essential information needed to estimate, schedule, and project manage a print job. Analyzes cost calculations of various functions within the graphic arts industry. Covers workflow, scheduling, and quantity estimation to produce a quality document. Explores CSR (Customer Service Representative) roles in graphic arts workflow.
Prerequisite: GRA 101 with a grade of C or better.
- GRA 213 Bindery and Finishing Operations (2-2)** 3 crs.
 Covers fundamentals of binding and finishing. Provides knowledge of safety and the planning of a printed piece to be bound, which includes binding, cutting, folding, padding and saddle stitching.
Prerequisite: GRA 102 with a grade of C or better.
- GRA 214 Digital Illustration II (2-2)** 3 crs.
 Explores advanced vector illustration graphic software in the graphic arts industry. Focuses on prepress techniques and print production uses. Includes an understanding of four-color print production requirements and advanced menus/tools.
Prerequisite: GRA 112 with a grade of C or better.
- GRA 220 Graphic Design II (2-2)** 3 crs.
 Teaches advanced graphic design that is project- and process-focused to refine creative and technical skills. Projects will follow the design process from initial research and sketches to refined computer layouts and final production-ready art files. Assignments will utilize graphic design principles and current graphic software. Projects are critiqued for design process, aesthetics, presentation and file production accuracy. Projects may become part of a professional portfolio.
Prerequisite: GRA 120 with a grade of C or better.

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GRA 221 Graphic Portfolio Design (1-2) 2 crs.
Covers preparation of portfolio book and digital portfolio presentation. Focus is on the understanding of the professional portfolio needs and its presentation in the graphic design job market. Existing projects are critiqued for aesthetics, arrangement and presentation. Graphic resume preparation.

Prerequisite: GRA 120 with a grade of C or better.

GRA 229 Page Layout (2-2) 3 crs.
Explores advanced desktop publishing focusing on page assembly in QuarkXpress, transitioning to InDesign. Projects focus on creating documents that follow industry standards and best practice for print production. Emphasis is placed on projects for print and preflighting techniques.

Prerequisite: GRA 102 with a grade of C or better.

GRA 230 Prepress Production (2-2) 3 crs.
Covers prepress procedures, including preflight, the understanding of manufacturing specs and press layouts. Emphasis on postscripting, ripping in a high end workflow, press imposition of ripped files, trapping needs of files, proofing and film/plate output. Proof and plate assessment and quality control. Color management instruction for inputs and outputs as well as PDF requirements for file exchange.

Prerequisite: GRA 102 with a grade of C or better.

GRA 231 Variable Data Technologies (2-2) 3 crs.
Covers selected topics utilizing digital print technologies. Studies variable data applications, data management and cross media web-to-print solutions for the graphic arts industry. Includes aspects of personalized and customized data and marketing through text and images for print, web, email and phone delivery. Covers application training and utilization through output and trends, VDP procedures and languages, postal specifications and bindery needs.

Prerequisite: GRA 230 with a grade of C or better or consent of program coordinator.

GRA 232 Digital Photography II (2-2) 3 crs.
Explores advanced techniques and applications of digital image capture, concentrating on application uses and output. Focuses on different types of digital photography in the graphic arts arena, from product shots, food, fashion and location techniques. Investigates different equipment and color management in a commercial studio environment.

Prerequisite: GRA 105 and GRA 131 with grades of C or better.

Heating, Ventilation and Air Conditioning (HVAC)

See: RAC Heating, Ventilation and Air Conditioning (HVAC)

HIT Health Information Technology

HIT 196 Current Procedural Terminology (CPT) Coding (2-2) 3 crs.

Introduces the student to the Current Procedural Terminology (CPT) coding systems used in ambulatory care and services rendered by physicians. Emphasizes the six sections of the CPT Coding Manual. Uses the CPT Coding Manual to assign individual code numbers for the procedures and services performed by physicians. (Also listed as MOA 196. Credit will be given for either HIT 196 or MOA 196, but not both.)

Prerequisite: BIO 135, BIO 136 and HSC 112 with grades of C or better.

HIT 197 International Classification of Disease (ICD) Coding (2-2) 3 crs.

Introduces the student to the current International Classification of Diseases (ICD). ICD coding is designed for the classification of patient morbidity (sickness) and mortality (death) information for statistical purposes and for the indexing of hospital records by disease and operation for data storage and retrieval. Includes elements of coding techniques and guidelines, structured learning exercises and computer applications. (Also listed as MOA 197. Credit will be given for either HIT 197 or MOA 197, but not both.)

Prerequisite: BIO 135, BIO 136 and HSC 112 with grades of C or better.

HIT 200 Introduction to Health Information Systems (3-0) 3 crs.

Familiarizes students with health care information systems used to support health care clinical and administrative functions. Emphasizes the understanding of sources of health care information, assessment of data quality, and current and emerging clinical information systems. Includes system implementation and support as well as security requirements for health information systems.

Prerequisite: BIO 135 and HSC 112 with grades of C or better, and prior or concurrent enrollment in BIO 136 with a grade of C or better.

HIT 210 Inpatient Billing and Coding (3-0) 3 crs.

Introduces students to the processes of inpatient billing and coding. Includes multiple processes used in hospital billing to ensure accuracy and timely reimbursement. Introduces the hospital revenue cycle, services performed in in-patient facilities, and the billing/coding process associated with those services.

Prerequisite: HIT 200 with a grade of C or better.

HIT 220 Health Care Information Management (3-0) 3 crs.

Familiarizes students with health care information systems including an introduction to the organizational structure, function and issues related to the health care environment. Emphasizes the structure and use of health information, health record data collection tools, data sources, storage and retrieval.

Prerequisite: HIT 200 with a grade of C or better.

HIT 225 Electronic Health Records (3-1) 3 crs.

Provides the student with a thorough knowledge of the terminology involved with Electronic Health Record systems, and their practical use in medical settings. Introduces the student to different types of software used in electronic medical records, and how information flows through the health record. Describes code sets, privacy and security, and how EHRs improve patient care.

Prerequisite: HSC 112 with a grade of C or better.

HIT 230 Health Care Information Analysis (3-0) 3 crs.

Introduces students to the analysis of data and information generated by health services and public health organizations that document health events and epidemiological phenomena. Analytical applications will be introduced to improve health services delivery, enhance productivity, support planning efforts, evaluate health outcomes, and to monitor public health surveillance programs. Emphasizes data selection, interpretation, and presentation so students will be able to compile data associated with neoplasms, vital events, morbidity, clinical diagnoses, medical procedures and other health measures maintained in selected indices, databases and registries.

HIT 240 Health Information Technology Externship (1-10) 3 crs.

Provides supervised experience in an inpatient or outpatient health care office/facility to enhance the student's familiarity with health information technology applications. Includes weekly one-hour meetings throughout the semester to discuss and process the externship experience.

Prerequisite: HIT 210 and HIT 220 with grades of C or better.

HIT 250 Law for Health Information (3-0) 3 crs.
 Introduces the student to the legal and ethical issues involved in protecting the privacy, confidentiality, and security of health information. Introduces the terminology used in the US legal system and laws that pertain specifically to health information. Emphasizes the importance of protecting health information in all forms, electronic and paper.
Prerequisite: HIT 200 with a grade of C or better.

HMS Human Services

HMS 101 Introduction to Human Services (3-0) 3 crs.
 Covers history and philosophy of human services; function and orientation of human services agencies and institutions; career opportunities and qualifications at various entry levels of human services employment. Includes opportunities for volunteer and/or shadowing experiences to help students better understand the human services arena.

HMS 102 Helping Skills in Human Services (3-0) 3 crs.
 Studies practical aspects of helping strategies and interpersonal skills. Focuses on the use of techniques to improve communication, better evaluate relationships and resolve conflicts. Designed for persons in helping roles, professional and paraprofessional, or volunteers in human services.
Prerequisite: HMS 101 with a grade of C or better, or concurrent enrollment.

HMS 112 Group Work in Human Services (3-0) 3 crs.
 Investigates group work theories, different types of groups, group dynamics, stages of group process, group facilitation, participant role/influences, and group counseling techniques. Cooperative learning and role playing are incorporated into the learning experience.
Prerequisite: HMS 101 with a grade of C or better.

HMS 121 Multiculturalism in Human Services (3-0) 3 crs.
 Explores a variety of issues related to multicultural competency in human services practice. Concepts of race, ethnicity, culture, class, religion, gender, sexual orientation, ethnocentrism, oppression, and power will be explored. Practical application of acquired awareness, knowledge and skills will be stressed.
Prerequisite: HMS 102 with a grade of C or better.

HMS 211 Crisis Intervention (3-0) 3 crs.
 Introduces techniques for beginning crisis counseling, including recognition of crisis, assessment of crises, and referral to the appropriate crisis agency. Special attention will be given to the process of intervention and to the recording of information regarding problems with alcohol and other drugs. Participants will implement a variety of crisis skills through an experiential format.
Prerequisite: HMS 102 with a grade of C or better.

HMS 221 Introduction to Gerontology (3-0) 3 crs.
 Introduces the field of social gerontology, utilizing a multidisciplinary approach to examine the basic biological, psychological and social theories of aging. Emphasizes the special needs and problems impacting the aged population. Examines historical, social, and cross-cultural issues in aging.
Prerequisite: HMS 102 and prior or concurrent enrollment in PSY 228 with grades of C or better.

HMS 232 Law and Ethics in Human Services (3-0) 3 crs.
 Studies interpretation and practice of legal/ethical responsibilities and liabilities encountered in providing and utilizing human services with special focus on privileged relationships, counseling, and confidentiality.
Prerequisite: HMS 102 and HMS 121 with grades of C or better.

HMS 241 Disabilities and Human Service (3-0) 3 crs.
 Introduces students to developmental, physical, and mental disabilities by exploring behavioral management programs, record maintenance, and facility and/or home maintenance techniques. Covers treatment history and present methods. Introduces students to working with an interdisciplinary team to provide care to a varied population.
Prerequisite: HMS 102 with a grade of C or better.

HMS 251 Family Issues and Interventions (3-0) 3 crs.
 Studies family dynamics with an emphasis on family preservation. Introduces various family theories, approaches and intervention strategies. Explores concepts related to intergenerational patterns of behavior and family traits. Introduces signs and symptoms of behaviors associated with abuse, domestic violence and neglect. Introduces basic family legal issues, ethics and reporting policies and procedure. Introduces the systems and services of the local Department of Children and Family Services. Develops human service skills to service families. Explores range of services and resources available to families. Students will develop assessment skills with emphasis on relationships, parenting, abuse and/or neglect.
Prerequisite: HMS 102 and prior or concurrent enrollment in PSY 228 with grades of C or better.

HMS 290 Field Experience and Seminar (1-10) 4 crs.
 Offers observation and participation in the operations of human services agencies. Students will document 125 hours of supervised field study per semester and will attend a one-hour lecture per week.
Prerequisite: HMS 211 with a grade of C or better.

HSC Health Science Core

HSC 104 Health Care Technology and Informatics (1-2) 2 crs.
 Introduces student to informatics and the use of technology in health care delivery systems. This includes a review of hardware and software, and an in-depth look at hospital/health care-based user interfaces, data bases, telecommunications and networks, and healthcare-based information systems. Also includes research methods and patient education via computers.

HSC 105 Introduction to Health Care Today (2-0) 2 crs.
 Familiarizes student to the health care delivery system including an introduction to the organization, structure, function and issues related to the health care environment. Emphasis placed on the importance of effective communication skills for health care professionals, team building, professionalism and diversity in the health care center.

HSC 106 Health Occupations Career Observation (5-2) 1.5 crs.
 Provides students an opportunity to observe selected occupations within a health care setting. The student will attend 16 two-hour sessions under the supervision of the instructor and departmental specific mentors.
Prerequisite: Prior or concurrent enrollment in HSC 105 with a grade of C or better.

HSC 107 Basic Health Care Skills (5-1) 1 cr.
 Provides the knowledge and techniques required to perform basic clinical skills including asepsis, health history, vital signs, positioning and transfer, and oxygen therapy. Emphasizes clinical skills needed by health care workers to effectively work in a variety of health care settings. Upon completion of the course, the student will demonstrate safe and effective basic clinical skills.

HSC 112 Medical Terminology (1-2) 2 crs.
 Emphasizes the origin and the basic structure of medical words, including prefixes, suffixes, word roots, combining forms and plurals. Offers pronunciation, spelling, and definition of medical terms based on the body systems approach. Emphasis on rendering a professional vocabulary required for work in the health care field.

HSC 165 Basic Pharmacology (1-0) 1 cr.
Examines the mechanism of action of the major medication groups as they relate to the physiology and pathology of disease. Identifies examples in each major pharmacological category in order to understand pharmacological activity within each group. Addresses areas of drug action, clinical application, and adverse events for each medication discussed. Intended for students in allied health majors.
Prerequisite: Prior or concurrent enrollment in BIO 135, BIO 160 or HSC 112 with a grade of C or better.

HSC 201 Advanced Pharmacology (2-0) 2 crs.
Builds on pharmacology content begun in previous coursework (either NUR 111 or HSC 165). Discusses the pharmacokinetics and pharmacodynamics of the major classifications of medications at an advanced level in order to understand the pharmacological activity within each classification. Incorporates the principles of safe drug administration. NOTE: This course is designed for nursing students.
Prerequisite: BIO 135 and HSC 165, or BIO 160 and NUR 111, or HSC 112 and HSC 165 with grades of C or better.

HSC 213 Legal and Ethical Issues in Health Care (2-0) 2 crs.
Introduces the legal and ethical issues that pertain to various health care delivery settings. Discusses how these issues impact the health care practitioner in a diverse culture. Practices and standards are discussed as they relate to professional behavior and ethical decision-making.

HST History

HST 105 Great Ideas of World Civilizations (3-0) 3 crs.
Introduces students to a selection of formative historical and contemporary texts in a variety of disciplines, including philosophy, the social sciences, literature, gender/multi-cultural studies, and the history of science. (Also listed as HUM 105. Credit will be given for either HST 105 or HUM 105, but not both).
IAI H9 900

HST 111 The American Experience to 1877 (3-0) 3 crs.
Surveys the American experience through the pre-revolutionary period, the expansion westward and the Civil War. Special stress is placed upon the social, economic, cultural, political and constitutional development of the United States.
IAI S2 900

HST 112 The American Experience Since 1877 (3-0) 3 crs.
Surveys the end of Reconstruction to the present, with primary stress on political and economic development. Also includes social, intellectual and cultural phases, expanded role of government in national affairs and the participation of the United States in international relations.
IAI S2 901

HST 121 History of Latin America (3-0) 3 crs.
Surveys the political and constitutional history of the principal Latin American nations. The course will cover movements leading to independence and social and economic events which are pertinent to relationships with the United States.
IAI S2 910N

HST 141 History of Western Civilization to 1650 (4-0) 4 crs.
Stresses political, social, cultural, economic and technological developments from prehistoric times and concludes with the last manifestation of essentially medieval ideology; i.e., the Protestant Reformation.
IAI S2 902

HST 142 History of Western Civilization Since 1650 (4-0) 4 crs.
Continues HST 141. Commences with the emergence of modern times, i.e., the development of royal absolutism and the beginnings of the modern nation state and concludes with the 20th century and the modern world.
IAI S2 903

HST 151 History of England Norman Conquest to 1600 (3-0) 3 crs.
Surveys the social, cultural, economic, political and religious history of England from the Norman Conquest through the age of Elizabeth I.

HST 152 History of England 1600 to Present (3-0) 3 crs.
Surveys the social, cultural, imperial, economic and political history of England from the Stuart Dynasty through the present era.

HST 153 British Culture and Society (3-0) 3 crs.
Surveys the culture and society of England from the Norman Conquest to the present.

HST 202 Topics in History (1-0 to 3-0) 1-3 crs.
Examines selected eras or topics in the various fields of history. The exact content and instructional methodology will vary from semester to semester depending on the material to be studied. A syllabus and/or course outline containing additional information will be available with other pre-registration materials each time the course is offered. Experience or interest in history is recommended, but not required. This course may be taken from one to three credit hours.

HST 210 Women: The American Experience (3-0) 3 crs.
Studies history of the status, roles and contributions of women in America, and a survey of the attitudes and movements that have affected the lives of women in America.

HST 212 Recent American History 1945-1980 (3-0) 3 crs.
Provides students with a comprehensive analysis of the critical period 1945-1980 in American history. Incorporates politics and culture of the Cold War, the revival of liberalism, the Civil Rights movement, the rise of the New Left in the '60's, the social and political history of the Vietnam War, the counterculture, Watergate, the personalization of political activism in the '70's, the women's movement, and the resurgence of conservatism. Emphasizes social history and cultural trends as well as political and economic history.

HST 214 African-American History (3-0) 3 crs.
Studies African-Americans from African slave trade through slavery, reconstruction, years of neglect and civil rights revolution in the United States and their contributions to American culture.

HST 219 Illinois and Local History (3-0) 3 crs.
Focuses upon Illinois from its prehistory to the present with special attention to the local setting. Explores the impact of the state's geography upon its history and investigates the contributions of different group—African, American, European, Native American, male and female—in the economic, social, political and literary development of Illinois. Considers the ways in which the history of this state illustrates, amplifies and explains the larger history of the United States.

HST 231 History of the Middle East to 1453 (3-0) 3 crs.
Surveys the Ancient Near East and Middle East from its origins in Ancient Summer up to 1453. Emphasis will be placed on social, political, economic, religious and military institutions. The process of change and broad continuities will be examined in relationship to the historical evolution and growth of the region.
IAI S2 918N

HST 232 History of the Middle East From 1453 to the Present (3-0) 3 crs.
Surveys the history of the Middle East from 1453 to the present. Emphasis is placed on social, political, economic, religious and military institutions that shape the region. The establishment of colonial rule is highlighted along with the struggle for independence, modernization and development.
IAI S2 919N

HST 241 History of China: Earliest Time Through Ming Dynasty (3-0) 3 crs.
Surveys the history of China from prehistory to the end of the Ming Dynasty. Major emphasis is placed on the evolution and growth of the Imperial system and forces that shaped its continuation and growth. IAI S2 914N

- HST 242 History of China: From the Ching Dynasty to the Present (3-0)** 3 crs.
 Surveys the history of China from 1644, the Ching Dynasty, to the present. The content will stress the evolution of China from a period of strength and unity to one of disunity and change during the revolutionary times of 1911-1949. Special emphasis will be placed on the establishment of the Communist government in 1949 to the present. Economic modernization, role of foreigners and cultural advancements will also be highlighted. IAI S2 915N
- HST 243 The Far East in the Modern World (3-0)** 3 crs.
 Studies history of East Asia since 1800. The traditional cultures of China and Japan, the Western impact and the Asian response will be covered. IAI S2 909N
- HST 245 The World Since 1945 (3-0)** 3 crs.
 Surveys the history of the world from 1945 to the present with major emphasis on historical issues and events that have global impact. IAI S2 913N
- HST 261 American Civil War 1848-1865 (3-0)** 3 crs.
 Focuses on the causes, events and immediate outcomes of the American Civil War during the period 1848-1865. Political, military and social history is presented so that students receive a comprehensive understanding of this seminal event in American history.
- HST 270 History of Rome (3-0)** 3 crs.
 Surveys Roman history from the time of the Roman monarchy through the reign of Constantine. Emphasizes the origins and history of the great Roman Legions. Includes references to works of Latin literature including Tacitus, Suetonius, Sallust, Catullus, Ovid, Virgil and Horace. Covers Roman pre-history, the Roman Republic, the end of the Republic and the early and late Roman empire. Discusses prominent Roman citizens such as Marcus, Sulla, Pompey, Gracchi, Caesar and Augustus.
- HST 281 World War I (3-0)** 3 crs.
 Examines the causes, impact, outcomes and legacy of the Great War, the first modern war since the Industrial Revolution. Emphasizes current and past interpretations of this conflict. Highlights the experiences of the people, societies and countries/nation-states that participated in this first "total" war. Considers how this conflict changed the twentieth century.
- HST 282 World War II (3-0)** 3 crs.
 Surveys the history of World War II, the most destructive conflict of the twentieth century. Covers major military operations (strategy and tactics) with an emphasis on diplomacy, doctrine and conflicts over resources. Examines the origins of the war in Europe and the Pacific and details the time period 1919-1939, Pearl Harbor, the homefront, American participation in Europe and the Pacific, new technologies, the Holocaust, the atomic bomb, the end of the war, and the outcomes and impact of the war on the U.S. and the world beyond 1945.

HUM Humanities

- HUM 101 Ancient Through the Medieval West (3-0)** 3 crs.
 Explores architecture, art, history, literature, music, philosophy, and the theatre of the Western world from the Stone Age(s) through the Middle Ages. May include a special focus; consult the course schedule for specific topics. NOTE: HUM 101 and HUM 102 need not be taken in sequence. IAI HF 902
- HUM 102 Renaissance Through the Modern West (3-0)** 3 crs.
 Explores architecture, art, history, literature, music, philosophy, and the theatre of the Western world from the Renaissance to the present. May include a special focus; consult the course schedule. IAI HF 903

- HUM 103 Asia and African Humanities (3-0)** 3 crs.
 Examines the arts and worldviews of Asian and African cultures from ancient times to the present. Studies examples of the visual arts, music, dance and literature from selected civilizations in South Asia, East Asia, Southeast Asia, and Africa. IAI HF 904N
- HUM 104 Introduction to Middle Eastern Civilizations (3-0)** 3 crs.
 Examines the cultural structures and the literary, visual, and performing arts of the various societies of the Middle East. Examines and compares the great contributions these cultures have made in the various arts as living artifacts to both the present day Middle East and to other cultures including those of the West. IAI HF 904N
- HUM 105 Great Ideas of World Civilizations (3-0)** 3 crs.
 Introduces students to a selection of formative historical and contemporary texts in a variety of disciplines, including philosophy, the social sciences, literature, gender/multicultural studies and the history of science. (Also listed as HST 105, Credit will be given for either HUM 105 or HST 105, but not both.) IAI H9 900
- HUM 110 Women and Creativity (3-0)** 3 crs.
 Explores the nature of female creativeness, focusing on women in the traditionally male arenas of art and literature and on areas in which the female creative impulse manifests itself under other names: the shaping of social attitudes, domestic arts and religious experiences. IAI HF 907D
- HUM 115 International and Regional Studies in Humanities (1-0 to 4-0)** 1-4 crs.
 Students travel with faculty to international or regional locations which may vary from year to year to study the humanities. May emphasize the literature, language, philosophy or humane arts of the locale visited. Presentation by onsite individualized study, lectures, field trips. Classes held on campus prior to and following the off-campus learning experience. Travel expenses are paid for by the student.
One Credit: Students must attend all classes and field trips, submit a daily log covering one week of travel and write a personal essay of at least five typewritten pages.
Two Credits: Students must attend all classes and field trips, submit a log covering one-two weeks of travel and write a research paper of at least eight typewritten pages, plus bibliography and footnotes.
Three Credits: Students must attend all classes and field trips, submit a log covering three weeks of travel and write a research paper of at least 10 typewritten pages, plus bibliography and footnotes.
Four Credits: Students must attend all classes and field trips, submit a log covering four weeks of travel and write a research paper of at least 12 typewritten pages, plus bibliography and footnotes.
- HUM 120 Classical Mythology (3-0)** 3 crs.
 Studies the myths of Greece and Rome. Focuses on the stories of gods and heroes in classical literature and art. Considers the influence of classical mythology on later Western culture. IAI H9 901
- HUM 125 World Mythology (3-0)** 3 crs.
 Studies world mythic themes and patterns, excluding those of Greece and Rome. Focuses on archetypal figures/situations, symbolism, and figurative language found in creation stories, heroic legends and/or other traditional narratives. May include a special focus; consult the course schedule. IAI H9 901

IDS Independent Study

IDS 290 Independent Study (1-0 to 4-0) 1-4 crs.
 Designed to permit the student to pursue a course of study not typically available under traditional course structure. The student will contract with the appropriate faculty member for the objectives to be accomplished in the course. May be repeated up to a maximum of four credit hours.
Prerequisite: Sophomore standing, C average or consent of instructor.

IND Interior Design

IND 100 Theory and Fundamentals of Design (1-2) 2 crs.
 Introduces students to theoretical principles and nomenclature of design. Studies theories pertaining to elements and principles of design, color theory, psychology and color phenomenology as it relates to interior design. Studies human environment, proxemics and spatial behaviors. Examines universal design, designing for specific cultures and genders as well as other topical subjects. Covers the interior design profession, professional organizations and career employment.
 Recommended **Corequisite:** IND 101.

IND 101 Interior Design Studio I (2-2) 3 crs.
 Studies interior design room arrangement and furniture selection. Investigates the elements and principles of design as they relate to interiors. Studies aesthetic aspects of interior design. Develops interior projects using space planning, furniture selection, the development of furniture elevations, and presentation techniques. (NOTE: Students will need to purchase drafting board and kit in addition to textbooks. Expense estimate may exceed \$300.)
Prerequisite: Prior or concurrent enrollment in IND 100.

IND 102 Interior Design Studio II (2-2) 3 crs.
 Continues the study of interior space planning and furniture selection as it relates to a functional and aesthetic interior. Investigates the use of fabric, finishes, color, and texture to complement the interior. Explores aesthetic application of color in interior design.
Prerequisite: IND 101 and IND 106 with grades of C or better.
 Recommended **Corequisite:** IND 103.

IND 103 History of Furniture and Interior Architecture (3-0) 3 crs.
 Surveys furniture, design motifs and structures from antiquity to the present. Studies authentic designs and their relationship to contemporary applications. Examines the basis for determining the taste level and quality of reproductions and adaptations to the market today.

IND 106 Materials and Sources (3-0) 3 crs.
 Studies the construction and finishing of materials other than those of a structural nature, including limitations, quality control, application, uses, installation methods, and quantity calculations. Examines sources available to the designer.

IND 107 Interior Perspective and Rendering (2-2) 3 crs.
 Studies drawing and sketching methods of furniture and interior spaces. Develops drawing techniques for interior perspective views of buildings. Explores the use of axonometric drawing and the use of various media to present the three-dimensional delineation of interior design. Examines balance and proportions of interior items within a three-dimensional space. Uses drawing techniques and color to define light and shadow, textures, and material characteristics.
Prerequisite: ART 121, IND 100 and IND 101 with grades of C or better.

IND 110 Problem Solving and Design Communication (1-2) 2 crs.
 Introduces the process of visual communication for interior designers. Identifies interior and architectural challenges and examines the design process of problem-solving through space analysis and planning. Utilizes collaborative methods to develop appropriate design strategies and solutions. Applies research and the use of elements and principles of design to skillfully manipulate interior spaces. Utilizes conceptual sketching and oral presentation to communicate design solutions.
 Recommended **Corequisite:** IND 100 and IND 101.

IND 114 Codes for Interior Designers (1-2) 2 crs.
 Examines how interior building codes, governmental standards and federal regulations affect and are applied to interior design. References BOCA, CABO and various accessibility requirements including the Americans with Disabilities Act.
Prerequisite: IND 101 with a grade of C or better.

IND 116 Interior Detailing and Construction Drawing (2-2) 3 crs.
 Studies the methods and materials of interior construction and the graphic methods of communicating this information. Practices fundamental drafting conventions and develops drawing skills necessary for the production of working drawings such as floor plans, elevations, sections, finish schedules, reflected ceiling plans, and details. Discusses methods of electrical, plumbing, and HVAC distribution.
Prerequisite: IND 100 and IND 101 with grades of C or better.

IND 203 3-D Design Studio (2-2) 3 crs.
 Studies advanced problems in three-dimensional interior design which concentrate on the development of relationships of interior furnishings, walls, floors and ceilings into a unified design. Applies principles and elements of design theory within a three-dimensional volume of space.
Prerequisite: IND 102, IND 107, IND 114 and IND 116 with grades of C or better.

IND 205 Historic Styles Studio (2-2) 3 crs.
 Reviews furniture history. Recreates historic interior designs. Explores creation of interior design through the mixing and stylizing of furniture and finishes.
Prerequisite: IND 102, IND 103 and IND 106 with grades of C or better.

IND 206 Architectural Lighting (3-1) 3 crs.
 Examines artificial and natural lighting in interior design. Considers environmental comfort, effects on colors and information required for selection of lamps and fixtures. Acquaints students with the basic calculation methods as they relate to the lighting design process.
Prerequisite: IND 101 with a grade of C or better.

IND 207 Interior Design Internship (1-10) 3 crs.
 Provides an opportunity for selected students who meet the prerequisite requirements to work with professionals in approved residential and contract design firms, retail stores, wholesale stores and showrooms specializing in interior design and related products. Students are exposed to various aspects of the interior design field and must present a report about their experience. Recommend preparation: ENG 101 or ESL coursework, or testing equivalency.
Prerequisite: IND 203, IND 205, IND 206 and IND 230 with grades of C or better.

IND 209 Contract Design Studio (2-2) 3 crs.
 Applies interior design skills and disabled access to contract interior projects, including floor plans, elevations or perspectives, cabinet drawings, lighting plans, selection of contract furnishings and finishes. Projects may include office spaces, restaurants and other public buildings.
Prerequisite: ATE 105, IND 116, IND 203, IND 205, IND 206, and IND 230 with grades of C or better.

IND 211 Professional Practices for Interior Design (3-0) 3 crs.
Examines the business principles required for a successful interior design practice, including establishing an interior design practice, design project business issues, billing, writing client contracts, interviewing and job opportunities.
Prerequisite: IND 101 with a grade of C or better.

IND 215 Topics in Interior Design (5-0 to 3-0) .5-3 crs.
Studies selected problems or topics in interior design. The exact content and instructional methodology will vary semester to semester depending on the material to be studied. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. This course may be repeated two times to a maximum of three credit hours.

IND 217 Advanced Sketching and Perspective Drawing (1-2) 2 crs.
Reviews the development of two-point mechanical perspective drawing. Studies freehand drawing and sketching methods of interior and exterior spaces. Develops drawing techniques for interior perspective views of buildings. Explores the use of various media to define light, shadows, textures, and material characteristics.
Prerequisite: ART 121 and IND 107 with grades of C or better.

IND 220 CAD Studio (2-2) 3 crs.
Covers advanced CAD techniques for two-dimensional space planning and interior elevations. Introduces 3-dimensional CAD and 3-D sketching to develop perspectives and walk-throughs of interior spaces. Emphasizes development of computer graphics to augment and represent interior spaces.
Prerequisite: ATE 105 with a grade of C or better.

IND 221 3D CAD Studio for Interior Designers (2-2) 3 crs.
Develops conceptual and schematic designs for interior design projects by utilizing the tools and techniques of 3D CAD. This studio-level course will explore the basics of AutoCAD 3D and how to draw models for various types of spaces utilizing different modeling techniques. The use of cameras, applying materials to objects will be explored. Using AutoCAD Architectural (ADT), students will learn how to use advanced 3D object types such as mass elements, walls, doors, and windows and applying them to design projects. The course will also address what to draw, and how much to draw for conceptual design and visual presentation.
Prerequisite: IND 220 with a grade of C or better.

IND 222 3D Design Studio Presentation (2-2) 3 crs.
Develops the skills and techniques for creating photo-realistic renderings suitable for client presentations. This is an advanced level computer-assisted design (CAD) course covering all the basics of the Autodesk 3D Studio Max/Viz program which produces realistic renderings of still images and animations of interior space.
Prerequisite: IND 221 with a grade of C or better.

IND 230 Kitchen Design Studio (2-2) 3 crs.
Examines the technical aspects and accessibility issues of designing kitchens. Practices fundamental drafting conventions including lettering, line work, dimensioning, and symbol usage. Develops drawing for the kitchen including floor plans, electrical and lighting plans, elevations, and cabinet sections using NKBA guidelines and graphic presentation standards.
Prerequisite: IND 102, IND 114 and IND 116 with grades of C or better.

IND 232 Kitchen and Bath CAD Studio (2-2) 3 crs.
Covers an introduction to kitchen and bath industry software techniques for two-dimensional space planning and interior elevations. Introduces 3-dimensional CAD to develop perspectives and walk-through of interior spaces. Emphasis is on the development of computer graphics to augment and represent kitchens, baths, and other interior space.

IND 233 Bathroom Design Studio (1-2) 2 crs.
Examines the technical aspects and accessibility issues of designing bathrooms. Practices fundamental drafting conventions including lettering, line work, dimensioning, and symbol usage. Develops drawing for the bathroom including floor plans, electrical and lighting plans, elevations, and cabinet sections using NKBA guidelines and graphic presentation standards.
Prerequisite: IND 102, IND 114 and IND 116 with grades of C or better.

IND 250 Portfolio Review (1-1) 1 cr.
Prepares students to enter the job market when completing this capstone course. Develops a professional presentation portfolio utilizing printed and multimedia applications. Explores, examines, and executes various presentation options. Discusses writing and designing a resume, cover letter, and interviewing techniques. Emphasizes organizing a strong body of work focused on a specific area of expertise dictated by the students' individual career goals.
Prerequisite: ATE 105, IND 203, IND 205 and IND 230 with grades of C or better OR ATE 105 and ATE 201 or ATE 203 with grades of C or better, or consent of program coordinator.

IND 281 Environmental Design Studio (2-2) 3 crs.
Studies building systems and their impact on the environment. Includes indoor air quality, thermal control, lighting, acoustic and water systems, solar power, wind power, and other sustainable design alternatives. Application of these systems will be applied to various sustainable interior design projects and practices. Investigates LEED certification and other legislative issues. Covers physical and psychological implications of environmental stress, crowding and institutional living and applies them to projects along with the introductory concepts and procedures for effective facilities management. Intended for advanced-level students preparing for the NCIDQ licensing exam.

IND 283 Interior Design Studio III (2-2) 3 crs.
Applies design techniques for privacy and accessibility to the development of public and private spaces including floor plans, elevations, perspectives, custom and semi-custom millwork, kitchen and bath planning, lighting and reflected ceiling plans, selection of furnishings and finishes, budgeting and utilization of pre-existing furnishings. Projects may include health care and assisted living facilities; restaurant, hospitality and food service; unusual residential spaces; educational facilities; sports and recreational facilities; and/or religious and community facilities. Please refer to the course schedule for specific focuses. Intended for advanced-level students preparing for the NCIDQ licensing exam.
Prerequisite: IND 203 and IND 205.

IND 285 Contract Studio II (2-2) 3 crs.
Explores spatial problems and design interventions in commercial and contract spaces. Researches various systems and how design solutions affect and are impacted by them. Includes construction systems and methods; power distribution systems; mechanical systems, energy management; data/voice telecommunication systems, lighting systems, ceiling systems; flooring systems; security systems; acoustics; and interface of workstation furniture. Applies building codes, fire and life safety principles and other regulations and standards to projects. Intended for advanced-level students with work experience who are preparing for the NCIDQ licensing exam.

ITP Sign Language Interpreting

ITP 101 Introduction to Interpreting (3-0) 3 crs.
 Provides an overview of the field of interpreting and highlights key historical developments within the profession. Introduces terminology, service models, and cognitive processes necessary for interpreting. Examines the communication process and select variables across cultures. Compares and contrasts values and ethics, and introduces the Registry of Interpreters for the Deaf Code of Professional Conduct. Addresses role and responsibilities of an interpreter, and presents demand-control theory with an emphasis on environmental demands.
Prerequisite: SGN 202 with a grade of C or better, or consent of program coordinator.

ITP 105 Vocabulary Development for Interpreters: English (1-0) 1 cr.
 Focuses on increasing vocabulary and developing English language skills. Emphasizes one or more of the following: subject-specific terminology; idioms, metaphors and figures of speech; vocabulary pertaining to current local, national and world events. Students will also analyze meaning of lexical items in order to produce equivalents based on meaning versus form. This course is designed for interpreting students. May be repeated up to a maximum of two credit hours.
Prerequisite: ITP 101 and SGN 205 with grades of B or better, or consent of program coordinator.

ITP 106 Vocabulary Development for Interpreters: American Sign Language (1-0) 1 cr.
 Focuses on increasing vocabulary and improving language skills in American Sign Language. Emphasizes one or more of the following: subject-specific terminology; idioms, metaphors and figures of speech; vocabulary pertaining to current local, national and world events. This course is designed for interpreting students. May be repeated up to a maximum of two credit hours.
Prerequisite: ITP 101 and SGN 205 with grades of B or better, or consent of program coordinator.

ITP 110 Consecutive Interpreting: English to ASL (3-0) 3 crs.
 Begins with analyzing English texts, translating them from English into American Sign Language, and culminates with interpreting consecutively. Introduces note-taking skills and completion of linguistic patterns. Emphasizes component skills necessary for interpreting including: listening, remembering, chunking and identifying main ideas. Identifies settings where consecutive interpreting may be used.
Prerequisite: ITP 101 and SGN 205 with grades of B or better, or consent of program coordinator.

ITP 111 Consecutive Interpreting: ASL to English (3-0) 3 crs.
 Begins with analyzing texts in American Sign Language, translating them into English, and culminates with interpreting consecutively. Emphasizes comprehension and composition skills. Highlights component skills necessary for interpreting including: remembering, visualizing, paraphrasing and completing linguistic patterns. Introduces select cognitive process models. Reviews demand-control theory and examines paralinguistic challenges encountered while interpreting from ASL to English.
Prerequisite: ITP 101 and SGN 205 with grades of B or better, or consent of program coordinator.

ITP 120 Simultaneous Interpreting: English to ASL I (3-0) 3 crs.
 Moves from consecutive interpreting and introduces simultaneous interpreting from English to American Sign Language with less time between receiving the source message and delivering the target. Further develops skills addressed and practiced in ITP 110, including message reformulation and comparison of target message to source for equivalence. Introduces expansion techniques and focuses on vocabulary development. Further analyzes cognitive process models.
Prerequisite: ITP 110 with a grade of C or better, or consent of program coordinator.

ITP 121 Simultaneous Interpreting: ASL to English I (3-0) 3 crs.
 Moves from consecutive interpreting and introduces simultaneous interpreting from American Sign Language to English with less time between receiving the source message and rendering the target. Further develops and refines skills introduced in ITP 111. Emphasizes register variation. Integrates error analysis and self-correction techniques. Introduces the teaming process and select partnering techniques. Provides an overview of select interpreting settings.
Prerequisite: ITP 111 with a grade of C or better, or consent of program coordinator.

ITP 200 Transliterating and the Educational Setting (3-0) 3 crs.
 Focuses on the development of transliterating skills with monologic and dialogic texts. Students render rehearsed and spontaneous target messages, from spoken to signed English and from signed to spoken English. Emphasizes role and responsibilities of the practitioner in educational settings. Highlights soft skills necessary for this setting and further develops assignment preparation skills. Addresses demand-control theory and highlights demands encountered within the educational setting and possible controls.
Prerequisite: ITP 110 and ITP 111 with grades of C or better, or consent of program coordinator.

ITP 201 Topics in Interpreting (1-0 to 4-0) 1-4 crs.
 Presents selected topics in interpreting. The exact content and instructional methodology will vary from semester to semester depending upon the material and topics to be studied. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. This course may be repeated two times to a maximum of four credit hours.
Prerequisite: Consent of program coordinator.

ITP 211 Simultaneous Interpreting: ASL to English II (3-0) 3 crs.
 Further develops and refines skills presented in ITP 121. Focuses on interpreting increasingly complex source texts. Emphasizes process management skills and analysis of target message accuracy and acceptability. Addresses cross-cultural equivalency and reviews demand-control theory and highlights paralinguistic challenges encountered while interpreting from American Sign Language to English. Examines select process models.
Prerequisite: ITP 121 with a grade of C or better, or consent of program coordinator.

ITP 215 Interpreting: Dialogic Discourse (4-0) 4 crs.
 Provides instruction and practice in the development of dialogic interpreting and transliterating skills in live, unrehearsed situations. Examines turn-taking, cross-cultural behaviors and discourse management skills. Students apply professional ethics and standards of behavior to real-life situations. Students analyze work to determine success of message equivalency. Introduces setting-specific vocabulary, protocol and logistics. Further addresses demand-control theory and examines interpersonal demands and various controls.
Prerequisite: ITP 211 and ITP 216 with grades of C or better, or consent of program coordinator.

- ITP 216 Simultaneous Interpreting: English to ASL II (3-0)** 3 crs.
Reinforces and refines skills addressed in ITP 120, emphasizes developing English to American Sign Language interpreting skills in increasingly complex texts. Allows for practice and analysis of interpreting live presentations. Introduces assignment preparation strategies, public speaking skills, and addresses composure and demeanor. Emphasizes working with a partner and peer feedback. Further examines demand-control theory highlighting paralinguistic demands encountered while interpreting from English to ASL. Provides an overview of select interpreting settings.
Prerequisite: ITP 120 with a grade of C or better, or consent of program coordinator.
- ITP 220 Interpreting Practicum (3-10)** 5 crs.
Provides opportunities for students to apply their knowledge and skills in a variety of interpreting settings which may include business, education, performing arts, religious and community service. Classroom sessions allow for discussion of ethical issues and business practices. Students will also begin their preparation for state and national credentialing examinations.
Prerequisite: ITP 215 with a grade C or better, and consent of program coordinator.

JPN Japanese

- JPN 101 Elementary Japanese I (4-0)** 4 crs.
Introduces the language skills of pronunciation and useful expressions, listening, speech patterns, syllabary reading and writing, basic vocabulary and grammar. Cultural and sociolinguistic orientation.
- JPN 102 Elementary Japanese II (4-0)** 4 crs.
Continues JPN 101. Skill developments in simple, everyday conversation and contemporary and idiomatic expressions; continued mastery of beginning grammar, reading and writing, and more vocabulary. Orientation in verbal and non-verbal skills and simple composition.
Prerequisite: JPN 101 with a grade of C or better, or consent of instructor.
- JPN 201 Intermediate Japanese I (4-0)** 4 crs.
Continues JPN 102. Emphasis on more complex conversation and advanced grammatical components; continued reading and writing. Emphasis on advanced composition.
Prerequisite: JPN 102 with a grade of C or better, or consent of instructor.
- JPN 202 Intermediate Japanese II (4-0)** 4 crs.
Continues JPN 201. Accuracy and ease in more complex conversation; advanced study of reading and writing. Study of more complex syntax and composition.
IAI H1 900
Prerequisite: JPN 201 with a grade of C or better, or consent of instructor.
- JPN 205 Japanese Intensive Oral Practice (3-0)** 3 crs.
Develops oral facility with the Japanese language using specially designed exercises in pronunciation, stress, and rhythm. Discusses individual readings of modern Japanese works in class. Assigns written and oral compositions based on readings. Helps students to bridge the gap between the intermediate and advanced levels. Develops the ability to use the Japanese language with fluency and accuracy of expression that is achieved by extensive oral conversation in class.
Prerequisite: JPN 202 with a grade of C or better, or consent of instructor.

LEJ Law Enforcement and Justice Administration

- LEJ 101 Introduction to Criminal Justice (3-0)** 3 crs.
Studies the history, role, development, and constitutional aspects of law enforcement and public safety. Review of agencies and functions involved in processes of administration of criminal justice.
IAI CRJ 901
- LEJ 104 Corrections (3-0)** 3 crs.
Provides the student with an integrated knowledge about the system through which the criminal offender is processed. Emphasis will be placed upon the philosophical bases of punishment and treatment techniques in institutional community-based programs plus parole programs.
IAI CRJ 911
- LEJ 107 Vice and Drug Control (3-0)** 3 crs.
Studies historical and sociological development problems in drug addiction and vice control; fundamental understanding of narcotic addiction and effects of hypnotic drugs; the operation of lotteries, bookmaking and other types of gambling and prostitution as these factors are involved in the daily routine of police work.
- LEJ 111 Traffic Enforcement and Investigation (3-0)** 3 crs.
Applies principles of enforcement of traffic laws and the proper way to investigate traffic accidents. This course will address the Illinois Vehicle Code (laws), traffic law enforcement, crash investigations, officer safety issues and Field Sobriety Testing. Methods of documenting evidence are also examined along with hands-on classroom and field projects that increase student knowledge.
Prerequisite: LEJ 101 with a grade of C or better.
- LEJ 116 Forensics I (3-0)** 3 crs.
Introduces student to the use of scientific disciplines in crime investigation. Identifies the variety of sources of evidence and the means by which comparative analysis can be made. Introduces student to probability theory. Develops skills in crime scene technology, fingerprinting, photography and recording.
- LEJ 122 Principles of Policing (3-0)** 3 crs.
Examines police operations including patrol, investigation, traffic, juvenile and special operations. Manpower distribution, analysis of operations and enforcement policy will be stressed.
- LEJ 135 Patrol Procedures (3-2)** 4 crs.
Introduces techniques and procedures used by police in job-related activities. Includes discussion and practice in areas such as vehicle stops, initiating investigations, responding to calls, building checks, emergency situations, crowd control and report preparation.
Prerequisite: LEJ 101 with a grade of C or better.
- LEJ 138 Defensive Techniques (2-2)** 3 crs.
Introduces principles of self-defense and weaponless control for police and security personnel. Includes psychology, physical and mental preparation, practice in defense and control techniques.
Prerequisite: Signed waiver of liability required.
- LEJ 200 Leadership and Ethics for Law Enforcement (3-0)** 3 crs.
Prepares students to successfully resolve critical ethical and leadership issues they will encounter in their law enforcement careers. Includes developing and maintaining professional integrity, the proper exercise of discretion and authority, morale and motivation, and responsibility for ethical conduct.
Prerequisite: LEJ 101 and LEJ 210 with grades of C or better.
- LEJ 201 Criminal Law (3-0)** 3 crs.
Examines local, state and federal criminal law. Topics include a definition of the crimes, their elements, and attendant circumstances and related defenses.
IAI CRJ 913
Prerequisite: LEJ 101 with a grade of C or better.

COURSE DESCRIPTIONS**LEJ 202 Criminal Procedures (3-0) 3 crs.**

Examines and analyzes federal and state law relating to arrest, search and seizure, First Amendment activities, interrogation, civil liability of police, and trial procedures.

Prerequisite: LEJ 101 with a grade of C or better.

LEJ 205 Juvenile Justice (3-0) 3 crs.

Examines organization, jurisdiction and functions of juvenile agencies. Juvenile court movement, juvenile detention, processing and treatment. Statutes and court procedures for juveniles.

Problems of juvenile delinquency, theories of causation and prevention programs. Police responsibilities and contacts, current community, state and federal prevention programs.

IAI CRJ 914

Prerequisite: LEJ 101 with a grade of C or better.

LEJ 210 Criminology (3-0) 3 crs.

Examines the nature and extent of crime in American society, theories of crime causation and control of criminal behavior.

IAI CRJ 912

LEJ 214 Community Policing (3-0) 3 crs.

Examines issues in community policing with emphasis on the concept of public and community relations as well as police involvement in community problems. Stresses the role of the police in maintaining public order and safety as a member of the community and in partnership with other community constituencies.

Prerequisite: LEJ 101 with a grade of C or better.

LEJ 216 Investigative Process (3-0) 3 crs.

Studies the art of investigation to reconstruct facts and circumstances of any event. Prepares students to plan and execute investigations commonly performed in civil and criminal work with concentration on obtaining direct evidence through interviewing, interrogation, observation and the use of documents and records.

Prerequisite: LEJ 101 with a grade of C or better.

LEJ 217 Forensics II (3-2) 4 crs.

Provides an expanded understanding of the procedures for collection and analysis of physical evidence, concentrating on the evidentiary significance of items commonly found at crime scenes. Includes detailed methods of processing a crime scene; documentation, location and proper collection of evidence; proper handling of evidence; and analytical techniques of interpreting evidence.

Prerequisite: LEJ 116 with a grade of C or better.

LEJ 218 Forensics III (2-4) 4 crs.

Focuses on specialized evidence and reconstruction of crime scenes with the use of hands-on training in advanced techniques of identifying, collecting and preserving physical evidence with the use of luminal, biological presumptive tests, trace evidence, arson and explosive evidence.

Prerequisite: LEJ 217 with a grade of C or better.

LEJ 230 Organized Crime (3-0) 3 crs.

Studies the phenomenon of Organized Crime in America and throughout the world. Focuses on the changing nature of Organized Crime from its traditional underpinnings of the Tammany Hall politics of the East coast to the new wave of Organized Crime concerns in street gangs and newly-arrived ethnic gangs from Eastern Europe, South America and Asia.

LEJ 281 Topics in Law Enforcement and Justice Administration (1-0 to 6-0) 1-6 crs.

Examines selected problems or topics in Law Enforcement and Justice Administration. The specific course content and instructional methodology will vary from semester to semester depending on the material presented. A syllabus containing specific topics will be available with pre-registration materials each time the course is offered. This course may be repeated to a maximum of 6 credit hours.

Prerequisite: LEJ 101 with a grade of C or better.

LEJ 295 Forensics IV (1-4) 3 crs.

Provides a unique course in crime scene investigation incorporating a combination of lecture and hands-on training utilizing advanced techniques of crime scene analysis and reconstruction. Students will process a crime scene from its initial discovery to the testimony in court.

Prerequisite: LEJ 218 with a grade of C or better.

LEJ 299 Law Enforcement Internship (1-10) 3 crs.

Provides students with a broad educational experience through appropriate observation and directed experience in operating segments of law enforcement. Conducted under joint partnership agreements between Harper College and host law enforcement agencies. Students will be assigned to the agency in addition to participation in regularly conducted review sessions to assess the student's progress, problem areas and the work environment to which they are assigned. (Students in last semester will receive priority in assignments.) Permissible duties and activities will be determined based upon the student's qualifications and the agency's needs and restrictions. The students must complete 8 hours of service a week for 14 weeks during the semester to earn 3 semester credit hours.

Prerequisite: Sophomore standing and consent of program coordinator.

LIT Literature**LIT 105 Poetry (3-0) 3 crs.**

Facilitates the understanding, appreciation and enjoyment of poetry. Presents poetry of American, European and other literary philosophies and movements. Challenges students to develop skills in responding personally to poetry and in developing literary analyses. Reveals the link between the whole poem and particular literary qualities such as imagery, figurative language, allusion, connotation and the music of poetry—sound and rhythm. Offers a forum for exchanging ideas about poetry in guided conversation and writing.

IAI H3 903

LIT 110 Drama (3-0) 3 crs.

Presents a survey of drama from various countries and eras. The course will include representative selections from such modes as tragedy, comedy, melodrama, romance, satire and social commentary as well as absurdist drama. The selections would include such authors as Ibsen, Miller, Moliere and Shakespeare. (See SPE 111 [Introduction to the Theatre] for theatrical study of drama.)

IAI H3 902

LIT 112 Literature and Film (3-0) 3 crs.

Introduces methods of reading, interpreting and analyzing literary works as well as examining methods used in translating those works to the medium of film. Presents the short story, novel and the drama in conjunction with their cinematic counterparts. Relates the development of film to such schools as German expressionism, film verite, etc. Focuses on analysis of each form both on its own and in relation to the others through reading, viewing and writing.

IAI HF 908

LIT 115 Fiction (3-0) 3 crs.

Presents short stories and novels of high interest level. The selections typify authors and styles representative of major American and European literary movements and philosophies. Challenges the student to develop skills in literary analysis. Students will study characterization, narration, dialogue, plot and various other techniques of fiction. Individual sections may concentrate on particular periods, authors or topics.

IAI H3 901

LIT 206 World Literature to 1800 (3-0) 3 crs.

Presents selected works of universal significance contributed by people and civilizations from ancient times to 1800.

IAI H3 906

- LIT 207 World Literature Since 1800 (3-0)** 3 crs.
Continues LIT 206. Selected works of universal significance contributed by people and civilizations from 1800 to the present. IAI H3 907
- LIT 208 Non-Western Literature (3-0)** 3 crs.
Studies selected works from non-western civilizations, such as Africa, China, India, Japan and the Middle East. Fiction, poetry and drama will be included. IAI H3 908N
- LIT 210 Introduction to Shakespeare (3-0)** 3 crs.
Introduces Shakespeare's acting company, theater and audience. Discusses his techniques in building scenes, developing characters, handling dialogue. Readings and interpretations will consist of representative comedies, tragedies, histories and problem plays. IAI H3 905
- LIT 215 Eastern European Prose Since 1800 (3-0)** 3 crs.
Presents a survey of prose, predominantly fiction, starting with the creative outpouring in the early nineteenth century (Lermontov, Gogol) and moving through Soviet and post-Soviet writing from socialist realism to glasnost and beyond (Sholokhov, Solzhenitsyn, Klima, Kundera, Pavic). Other writers may include Tolstoy, Dostoevsky, Turgenev, Chekhov, Babel, Bely, Bulgakov, Mandelstam, Nabokov and Pasternak. Not limited to Russian literature, this course encompasses a wide range of Eastern European writers that may include Albanians, Bosnians, Bulgarians, Croats, Czechs, Hungarians, Poles, Serbs, Slovenes, Ukrainians, Roma, and others. Political, cultural, and historical background will help to illuminate crucial differences between these groups as reflected through literature. All texts taught in English translation.
Prerequisite: ENG 101 with a grade of C or better.
- LIT 216 Science Fiction (3-0)** 3 crs.
Surveys science fiction short stories and novels. Considers science fiction as popular literature and assesses its unique contribution to the history of ideas.
- LIT 217 Crime Literature (3-0)** 3 crs.
Examines various subgenres of crime literature of various length either thematically or historically. Analyzes the literary predecessors of these works and crime literature's influence upon other genres of literature.
Prerequisite: ENG 101 with a grade of C or better.
- LIT 219 Children's Literature (3-0)** 3 crs.
Introduces the various types of children's literature. Includes the history of children's literature, as well as the classic and current authors and illustrators. Covers such areas as picture and concept books, myths, poetry, fantasy and realism.
- LIT 220 Japanese Literature in Translation (3-0)** 3 crs.
Surveys English-language translations of Japanese poetry, fiction, and non-fiction. Reviews Noh and Kabuki drama and selections from Japanese cinema. Works will be studied in the context of Japanese history, but each work will be studied also as the product of its author's creative self-expression. No speaking or reading knowledge of Japanese is required; no background knowledge of Japan is required. IAI H3 909
- LIT 221 American Literature—Colonial Days to Civil War (3-0)** 3 crs.
Presents American literature as an expression of American life through early social and political documents, novels, short stories and poems. IAI H3 914

- LIT 222 American Literature—The Civil War to Present (3-0)** 3 crs.
Explores American prose, drama and poetry, Civil War to present, including minority literature, regional literature, literary journalism, criticism, and social and historical novels in their historical, social and cultural context to reflect current controversies and social changes. IAI H3 915
- LIT 223 Minority Literature in America (3-0)** 3 crs.
Investigates what it means to be a minority in the United States. Examines the ways in which minority writers, through fiction, nonfiction, poetry and drama, question the quality of American life and the authenticity of American democracy, thus helping students appreciate more fully the range of American cultures and subcultures. May include such writers as Olaudah Equiano, Frederick Douglass, Amiri Baraka, Rudolfo Anaya, Leslie Marmom Silko, Toni Morrison, Rita Dove, Leslea Newman, Li-Young Lee, Vassar Miller, Vivienne Finch. IAI H3 910D
- LIT 224 Women in Literature (3-0)** 3 crs.
Examines the evolving portrayal of women—the many images, impressions and stereotypes—in literature. Includes literature written about women by women. Selections reflect a diversity of cultures, eras, authors and genres. The student will read selections from such authors as Bronte, Chekhov, Chopin, Hardy, Morrison and Woolf. IAI H3 911D
- LIT 231 English Literature to 1800 (3-0)** 3 crs.
Surveys English writers from beginning English literature to 1800. Reading and interpretation of writers such as Boswell, Chaucer, Congreve, Donne, Dryden, Johnson, Jonson, Malory, Milton, Pope and Swift. IAI H3 912
- LIT 232 English Literature 1800-1914 (3-0)** 3 crs.
Surveys English writers from Romantic Period to World War I. Reading and interpretation of such writers as Austen, Browning, Byron, Conrad, Dickens, Hardy, Keats, Shaw, Tennyson and Wordsworth. IAI H3 913
- LIT 241 20th Century British and American Literature (3-0)** 3 crs.
Surveys important writers and writings in British and American literature since World War I.
- LIT 250 Topics in Literature (1-0 to 3-0)** 1-3 crs.
Examines selected eras or topics in the various fields of literature and literary theory. The exact content and instructional methodology will vary from semester to semester depending on the material to be studied. A topic-specific syllabus containing additional information will be available in the Liberal Arts Division Office with other pre-registration materials each time the course is offered. This course may be repeated to a maximum of 12 credit hours.

LNG Linguistics

- LNG 105 Introduction to Language and Linguistics (3-0)** 3 crs.
Explores language - its origins, properties, use, structure, and meaning. Studies sound systems, word-information systems, syntactic systems, and derivations of meaning from spoken and written forms. Includes first and second language acquisition and properties of visual languages.
- LNG 205 Language and Culture (3-0)** 3 crs.
Explores the relationship between language and culture. Includes the language socialization of children, gender differences in language, standard varieties and dialects of language and the effect of language on thought. Examines the nature of language in power relationships.

LNG 220 Methods of Teaching English as a Second Language (3-0) 3 crs.
 Introduces the teaching of English to speakers of other languages. Intended for those who contemplate a career working with non-native speakers of English. Through a program of lectures, readings, discussions, observations and practical teaching exercises, students will explore the educational contexts in which English is taught and learned. In addition, the course will offer practical techniques for teaching and assessing the skill areas of listening and speaking, reading, writing and grammar. The foundation of the methods explored will be based on theories in applied linguistics.

MCM Mass Communication/Journalism

MCM 120 Introduction to Mass Communication (3-0) 3 crs.
 Examines the history, technical development and cultural impact of the media, including books, newspapers, magazines, radio, sound recording, movies, television and the Internet; as well as related areas of public relations and advertising. Focuses on media convergence, trends and issues. Analyzes the impact and effects of media on our consumer culture and democratic system. Encourages critical evaluation of the media.
 IAI MC 911

MCM 126 Introduction to Broadcasting (3-0) 3 crs.
 Introduces the basic history, technology and terminology of the radio and television broadcasting and cable industries. Explores commercial and non-commercial station operation, the roles of advertising and ratings, programming trends and career opportunities. Examines the effects of mega mergers and media convergence and the cultural impact of broadcasting over the years. Recognizes the importance of regulation, legislation and community standards in broadcasting.
 IAI MC 914.

MCM 130 Introduction to Journalism (3-0) 3 crs.
 Introduces the basics of writing for the media and Associated Press (AP) style, focusing on print journalism. Explores the history, legal and ethical concerns, and culture of journalism. Develops fundamental skills in writing, interviewing and conducting research using traditional and Internet sources. Emphasizes accuracy, conciseness, grammar and spelling skills. Explores career opportunities in journalism. Some beginning reporting and writing in computer lab.
 IAI MC 919

MCM 131 News Reporting and Writing (3-0) 3 crs.
 Presents theory and techniques for gathering and writing news in political, police, social and civic coverage. Develops advanced reportorial and writing skills. Uses industry standard computer hardware and software.
 IAI MC 919
Prerequisite: MCM 130 with a grade of C or better.

MCM 133 Feature Writing (3-0) 3 crs.
 Focuses on writing and selling non-fiction articles. Develops the techniques to analyze markets, develop story ideas, prepare the query and submit the article. Stresses the importance of interviewing and researching, descriptive language and writing with clarity. Uses Macintosh computers with current word processing programs.

MCM 136 Broadcast Writing (3-0) 3 crs.
 Develops skills needed to write for the broadcast media including television, radio and film. Focuses on the oral style. Emphasizes gathering of information, interviewing, writing and editing scripts and writing for continuity for video or film. Examines the legal, ethical and social implications of broadcast writing and programming.
 IAI MC 917

MCM 137 Media Writing (3-0) 3 crs.
 Provides an overview of the various formats and structures used in writing for the media. Includes writing for newspapers, radio and television stations, advertising and public relations agencies, business and industrial communications and new media technology. Focuses on information gathering, the elements of good writing, and matching message and audience.

MCM 140 Writing, Editing, and Design for the Internet (2-2) 3 crs.
 Introduces the writing styles, design principles and techniques to develop and manage web sites for journalism outlets such as newspapers, magazines and broadcast stations. Demonstrates the design process through storyboarding. Illustrates considerations in planning navigation, linking and site maps. Includes transferring photos, audio and video images using web design software. Discusses legal and ethical issues that apply to new media. Upon completion of this course, students are strongly encouraged to select WEB 150 to further their knowledge of Internet technology and Web-authoring tools.
 IAI MC 922

Prerequisite: MCM 130 and WEB 101 with grades of C or better.

MCM 141 Basic News Editing (2-2) 3 crs.
 Introduces the principles and techniques of copy editing for newspapers. Demonstrates the process of editing and rewriting while maintaining story's original focus. Students will learn to write appropriate headlines and cutlines, and to select and edit wire service copy. Builds on the Associated Press (AP) style knowledge. Teaches layout and design basics including typography and incorporation photos and other visual elements. Emphasizes legal and ethical concerns editors face in decision making on deadline schedule.
 IAI MC 920.

Prerequisite: MCM 130 and MCM 131 with grades of C or better.

MCM 230 Graphic Design Communication (3-0) 3 crs.
 Introduces students to contemporary design, photo manipulation, Web page design, animation, audio techniques, and page layout necessary for producing a variety of journalistic publications.

MCM 232 Introduction to Advertising (3-0) 3 crs.
 Explores the theory and practice of the advertising industry. Introduces students to the business and creative aspects of advertising. Students prepare original advertising campaigns from market and product research to evaluation. Familiarizes the student with desktop publishing using various software programs. Computer design experience is strongly recommended.
 IAI MC 912

Prerequisite: MCM 120 with a grade of C or better.

MCM 233 Introduction to Public Relations (3-0) 3 crs.
 Explores the history, theory, practice and role of public relations in government, corporate, non-profit and private organizations. Introduces students to the business and creative aspects of public relations, as well as the complexities of issue management. Students will prepare original public relations campaigns for print, broadcast and electronic media. Familiarizes the student with computer software for desktop publishing. Recommended preparation: MCM 230 with a grade of C or better, or computer design experience.
 IAI MC 913

MCM 235 Magazine Editing and Design (3-0) 3 crs.
 Introduces advanced writing, rewriting, and editing practices. Teaches students how to produce various publications using computer applications. Focuses on preparation and production of magazines, flyers, brochures, newsletters, and annual reports. Incorporates writing, copy editing, photography and illustrations, typography, page design and printing. Students produce a publication as a class project. Recommended preparation: MCM 230 with a grade of C or better, or computer design experience.

MCM 240 Topics in Mass Communication (1-0 to 6-0) 1-6 crs.
Studies selected problems or topics in mass communication. The exact content and instructional methodology will vary semester to semester depending on the material to be studied. A syllabus or course outline containing additional information with pre-registration materials will be available each time the course is offered. This course may be repeated up to a maximum of six credit hours.

MCM 241 Online Magazine Publishing (2-2) 3 crs.
Explores online magazine publishing for new media writers and designers. Focuses on the preparation and publication of an online magazine through writing, page design, and Web site usage.
Prerequisite: MCM 140 with a grade of C or better.

MCM 242 Using the Internet as a Communications Tool (2-0) 2 crs.
Explores the theory and practice of using the world wide Web for communication. Introduces students to the journalistic and creative aspects of using the Web for training, advertising, marketing, and research.
Prerequisite: WEB 101 with a grade of C or better, or consent of instructor.

MCM 243 Communication Web Site Applications (2-2) 3 crs.
Applies writing and design skills to create a communications Web site for businesses from start to finish, including background information and links to related sites.
Prerequisite: MCM 241 with a grade of C or better.

MCM 250 Public Relations Writing and Production (3-0) 3 crs.
Focuses on development of speed, clarity, brevity and style in writing for a range of audiences. Stresses the role of the public relations specialist as a bridge between the interests of the client organization and its stakeholders. Teaches how to write professionally in formats most frequently used by the public relations practitioners including news releases, feature articles, brochures, newsletters and public service announcements.
Prerequisite: ENG 101 and MCM 233 with grades of C or better.

MCM 251 Media Interviewing (3-0) 3 crs.
Explores the critical art of interviewing. Teaches skills from both sides of the interview process including basic psychology and techniques of cultivating contacts, dealing with difficult sources, retrieving sensitive information, and tracking down elusive people. Focuses on preparation for and the conducting of a strong interview to aid in the production of materials for print, broadcast, or electronic media. Also explores confidentiality and interview ethics.
Prerequisite: MCM 131 or MCM 137 with grades of C or better.

MCM 252 Special Events and Promotions (3-0) 3 crs.
Introduces students to one of the key tools of the public relations practitioner, the special event. Focuses on the role special events and promotions play in organizational communication including understanding the function, implementation and evaluation of the event. Identifies the various kinds of events and their particular uses. Covers the special event planning process, creative brainstorming, budgeting, overcoming obstacles, attracting sponsorships, soliciting volunteers, and event evaluations.
Prerequisite: MCM 233 with a grade of C or better.

MCM 260 Campaign Communication and Message Design (3-0) 3 crs.
Explores the development and execution of comprehensive public relations campaigns within real-world circumstances. Examines what an organization's expectations of a public relations practitioner are and how to use this function to support other departments of the organization. Focuses on contemporary cases and the public relations tools necessary for effective strategic campaigns. This course is a capstone experience for public relations students and takes a hands-on approach to creating a public relations campaign for a client.
Prerequisite: MCM 250 with a grade of C or better.

MGT Management

MGT 111 Introduction to Business Organization (3-0) 3 crs.
Introduces the nature of business and the environment in which it operates. Forms of business ownership, introduction to operative and facilitating facets of business operation, management, marketing, accounting, statistics, business law, finance, investments, insurance and labor-management relations.

MGT 115 Introduction to International Business (3-0) 3 crs.
Provides introductory concepts, principles and practice of the international business environment. The issues include the nature of international business; international organizations and monetary systems; the various foreign forces such as labor, legal, political, and cultural; and the impact on the U.S. economy and business.

MGT 150 Business Math (3-0) 3 crs.
Introduces arithmetic as a tool of business. Topics include fractions, decimals and percentages, computations of interest, bank discounts, depreciation, commissions, compound interest, payrolls and taxes and graph and chart design. Students must score satisfactorily on a mathematics placement test prior to registering for this course.
Prerequisite: MTH 054 or MTH 055 with a grade of C or better, or placement test.

MGT 154 Small Business Management (3-0) 3 crs.
Organization and operation of the small-scale retail, trading, service or manufacturing business. Location, financing, marketing, labor, accounting, and in the case of manufacturing, production, plus related problems of stock control, taxes and insurance.

MGT 160 Principles of Supervision (3-0) 3 crs.
Introduces the responsibilities of the first or second echelon supervisor in either the industrial or administrative environment. Leadership qualities, human relations skills, motivation, communications, training techniques and problems of the work group are discussed.

MGT 165 International Management (3-0) 3 crs.
Analyzes the problems and practices in international business management activities. The issues include American management techniques in foreign settings, comparative management among different countries and the complexity introduced by the management of international companies. The course focuses on international organizational functioning to help the student gain a diversity of views.
Prerequisite: MGT 111.

MGT 168 OSHA Standards and Compliance Procedures (3-0) 3 crs.
Develops skills and competencies needed in instituting proper occupational safety and health environment in commercial and manufacturing business establishments for compliance with federal OSHA standards.

MGT 170 Principles of Individual Financial Planning (3-0) 3 crs.
Introduces the student to the fundamentals of equity and fixed income investing. The course will also explore other investment management subjects such as mutual funds, international investing and retirement planning as well as tax-advantaged investments. Basic derivatives such as futures and options will also be discussed. (Credit will be given for either MGT 170 or BFC 200, but not both.)

MGT 204 Training and Development (3-0) 3 crs.
Introduces the student to the principles of training practices with emphasis on the concerns of human learning: acquisition, retention and transfer of skills. Includes supervisory and management skills, designing performance goals, MBO (Management by Objectives) forming lesson plans, mechanics of training, experiential instruction, role playing, case studies and technologies available.

MGT 205 Leadership Foundations (1-0) 1 cr.

COURSE DESCRIPTIONS

Introduces the concept of leadership and the impact a leader has on an organization. Emphasis is on the values of leadership traits, motives of recognized leaders and their styles and ethical behavior.

MGT 206 Leadership Skills (1-0) 1 cr.

Explores skill areas necessary for the successful leader in any organization. Emphasis is on problem-solving, motivation, conflict and negotiations, organizational vision and cultural diversity.

MGT 207 Leadership Trends (1-0) 1 cr.

Examines the impact of the future on leadership development today. Connects the need to understand one's self with internal and external influences on an organization in order to better prepare the leader for the 21st century.

MGT 211 Internship in Small Business (1-15) 3 crs.

Provides cooperative work experience working in a small business. Credit is given for participation in a supervised work experience. The work must take place in a College-approved work station.

Prerequisite: MGT 154.

MGT 218 Introduction to Finance (3-0) 3 crs.

Methods of financing business enterprises and their relationships to personal and company investment policies.

Prerequisite: ACC 101 and MGT 111.

MGT 225 Applied General Statistics (4-0) 4 crs.

Introduces both descriptive and inductive statistics. Collection of data; frequency distributions and measures of location (mean, median, mode); measures of variation; probability, theoretical distributions including sampling distributions, estimation, tests of hypotheses; correlation, regression analysis and index numbers; and time series. Computer applications using Microsoft Excel are included. (Credit will be given for either MGT 225 or MTH 165, but not both.)

IAI BUS 901, IAI M1 902

Prerequisite: MTH 070 (or equivalent) with a grade of C or better or Geometry placement test and MTH 080 with a grade of C or better or placement test. An ACT Math score of 23 or more will satisfy all the previous prerequisites mentioned for this course.

MGT 230 Topics in Business (5-0 to 3-0) .5-3 crs.

Studies selected problems or topics in business. The exact contents and instructional method will vary from semester to semester. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. This course may be repeated two times to a maximum of three credit hours.

MGT 254 Small Business Formation (3-0) 3 crs.

Examines the problems in starting, expanding, and diversifying a small business. Includes forms of ownership; evaluation of risk in various types of businesses; performance measurement and market research; site location and layout; growth and trend analysis. It is recommended that MGT 154 be taken prior to enrollment.

MGT 265 Human Resources Management (3-0) 3 crs.

Addresses personnel problems and labor relations. Employment techniques, wages and hours, job evaluation, training, rating, collective bargaining, pensions, and fringe benefits will be examined.

Prerequisite: MGT 111.

MGT 266 Wage Analysis and Administration (3-0) 3 crs.

Studies the compensation process: wage, salaries, wage theory and legal considerations. Examines various fringe benefits, profit sharing, job analysis and its evaluations.

Prerequisite: MGT 265.

MGT 270 Principles of Management (3-0) 3 crs.

Presents the theory and major functions of management and describes the role of the manager. Major concepts in organization are developed along with an understanding of the decision-making process and consideration of the human factor in management.

Prerequisite: MGT 111.

MGT 274 Operations Management (3-0) 3 crs.

Introduces the student to operations management stressing operational problems. The characteristics of industrial enterprise, the problems of materials procurement, plant organization and layout, labor relations and personnel policies, efficiency techniques, automation and production development are considered. Related problems of inventory control, quality control, production control and budgetary control are included.

Prerequisite: MGT 111.

MGT 275 Labor-Management Relations (3-0) 3 crs.

Deals with the processes and the framework that influences the relationship between management and labor. The history of the labor movement, collective bargaining process, labor contract dispute resolution, labor and employment law, and the characteristics of both the public and private sector are discussed.

MGT 276 Collective Bargaining (3-0) 3 crs.

Studies the collective bargaining method preparations and patterns; strategies and tactics of negotiations; and the use of mediators and arbitrators.

Prerequisite: MGT 265.

MGT 280 Organizational Behavior (3-0) 3 crs.

Emphasizes a managerial and interpersonal relations process approach to problem solving, communication and group dynamics. Specific treatment is given to managing change, appraisal and reward, solving communication problems, status needs of the work force, understanding individuals, group dynamics and reducing conflict.

Prerequisite: MGT 111.

MGT 291 Problems in Management and Supervision (3-0) 3 crs.

Provides the student with a logical integration of management principles with representative supervisory problems found in business firms. Emphasis is given to decision making. Case problems, simulation and directed reading.

Prerequisite: MGT 160 and MGT 270 or consent of the instructor.

MKT Marketing

MKT 105 Sports Marketing (3-0) 3 crs.

Focuses on the strategic marketing process as it is applied to the sports industry. Topics to be investigated include sponsorships, understanding spectators as consumers, and the application of the marketing mix in a sports environment.

MKT 106 Retail Merchandising (3-0) 3 crs.

Focuses upon the merchandising activities related to hardlines, apparel and other softline merchandise. Examines the role and qualifications of the buyer and the influence of consumer preference. Includes budgeting by dollars and assortment, pricing strategy, managing assortments, the selection and promotion of merchandise, and the coordinator of merchandising functions and processes.

MKT 110 Retail Store Layout and Imaging (2-0) 2 crs.

Examines the importance and relationship of store layout, image projection, interior merchandise presentation and site location to store success. This course is designed to allow the learner to understand the relationship of image and product positioning to sales and profit. Emphasis is placed on layout, space allocation, interior merchandise presentation and store operations.

MKT 120 Customer Service (1-0) 1 cr.
Studies the importance of customer service satisfaction and the functions of various customer relation systems. This course is designed to promote an understanding of customer service in general and how it specifically contributes to the success of the marketplace and individual businesses. Emphasis is placed on the importance of striving for excellence in service to win and hold customers and to gain a competitive advantage.

MKT 140 Principles of Professional Selling (3-0) 3 crs.
Focuses upon the principal factors of successful selling of goods or ideas. Examines buying motives, sales psychology, customer approach and sales techniques.

MKT 141 Sales Management (3-0) 3 crs.
Focuses on the responsibilities of the sales executive in planning and evaluating sales activities as well as supervision of a sales force. Attention is given to the administrative activities of sales managers at all levels with emphasis directed to the management of sales forces of manufacturers, service marketers and wholesaling middlemen.
Prerequisite: MKT 140 or consent of program coordinator.

MKT 190 Export Documentation (3-0) 3 crs.
Provides an understanding of the procedures and necessary documentation for exporting both goods and services. Course content will cover shipping documentation as well as insurance, banking and finance and governmental forms required for export marketing.
Prerequisite: MKT 260 or consent of program coordinator.

MKT 191 Business in the European Union (3-0) 3 crs.
Presents a general overview of cultural, political and economic infrastructure characteristics in the European Union with an emphasis on how these affect businesses in the United States. Focuses on unique and similar characteristics of member countries, and trade relationships and opportunities.

MKT 193 Business in Asia (3-0) 3 crs.
Studies of global business applications in Asia. Researches economic, social, political, technological and competitive factors. Explores relationships among countries and geographic pacts (including ASEAN and APEC).

MKT 196 Business in Latin America (3-0) 3 crs.
Presents a general overview of cultural, political and economic conditions in Latin America (including the Caribbean, Central America, Mexico and South America) with an emphasis on how these affect businesses in the United States. Studies regional trade pacts such as NAFTA, FTA and MERCOSUR.

MKT 202 Marketing for Non-Profit Organizations (3-0) 3 crs.
Provides practical applications in marketing for non-profit organizations. Encompasses the entire marketing process including positioning, targeting, and effective research methods.

MKT 217 Advertising (3-0) 3 crs.
Purposes of advertising, how advertisements are prepared and delivered in media, and how effectiveness of advertising is measured and evaluated in relation to the selling and marketing process.
IAI MC 912
Prerequisite: MKT 245 or consent of instructor.

MKT 240 Advanced Sales Strategies (3-0) 3 crs.
Develops and refines sales techniques established in previous course work and/or on-the-job sales experience. Opportunities will be available to apply specific selling skills to various sales situations and product categories through presentations and term projects.
Prerequisite: MKT 140 or consent of instructor.

MKT 245 Principles of Marketing (3-0) 3 crs.
Focuses on marketing activities that will cover product planning, pricing strategies and promotional efforts including advertising, selling and sales promotions and distribution channel effectiveness.

MKT 246 Business to Business Marketing (3-0) 3 crs.
Provides a comprehensive understanding of industrial marketing by analyzing concepts and techniques in each of the major functional areas of industrial marketing. Topics to be investigated would include market development, product planning, price competition, promotional strategies, customer relations and marketing logistics.
Prerequisite: MKT 245 or consent of coordinator.

MKT 247 Consumer Buying Behavior (3-0) 3 crs.
Reviews and analyzes areas of consumer and organizational buying behavior that guide marketing management decisions. The focus of this course will be directed toward the application of concepts on buying behavior to specific functional areas of marketing management in both the industrial and consumer markets.

MKT 248 Direct Marketing (3-0) 3 crs.
Explores the principles involved in the introduction of goods and services directly to the customer through various media sources without the use of a retail facility. Emphasis is placed on determining the correct target market, creating a measurable database, measuring the rate of response, selection and planning of media, and strategic implementation of a planned campaign. Development of direct mail pieces, telemarketing tools and broadcast and print media will be covered.
Prerequisite: MKT 245 or consent of program coordinator.

MKT 250 Retailing (3-0) 3 crs.
Surveys types of retail institutions, including consideration of store location and organizational procedures, buying and merchandising practices, promotional and personnel policies.

MKT 251 Retail Merchandise Management (3-0) 3 crs.
Emphasizes the nature and importance of retail merchandise management in relation to the success of the retail firm. The student will demonstrate knowledge and decision making skills of retail management by using case study and problem solving activities to interpret and analyze information faced by merchandise department managers, buyers and independent retailers. The focus will be on strategic merchandise planning; advanced purchasing and pricing strategies; inventory valuation and analysis of profit and productivity performance.
Prerequisite: MKT 106 or MKT 250.

MKT 252 Internet Marketing (3-0) 3 crs.
Presents techniques on how to design, maintain, and market effective digital storefronts. Focuses on communicating, selling and providing content to Web-based stores and other Internet businesses.

MKT 255 Marketing Research (3-0) 3 crs.
Provides students with a basic overview of marketing research. Includes an understanding of how and why marketing research is conducted and how it interacts with marketing decision making.
Prerequisite: MKT 245 or consent of program coordinator.

MKT 260 International Marketing (3-0) 3 crs.
Allows students to gain a broad understanding of the field of international marketing. It also provides insight into how international marketing is conducted, the requisites for effective performance and a knowledge of the special problems involved in language, finance and customs. Most importantly, it assists students in understanding international marketing problems and how marketing procedures apply to international business.

MKT 280 Marketing Problems (3-0) 3 crs.
Focuses on the application of marketing skills and knowledge to marketing problems, case studies, projects or decision-making simulation.
Prerequisite: MKT 245 and nine hours of marketing courses, or consent of program coordinator.

COURSE DESCRIPTIONS

MKT 281 Internship in Marketing (1-15) 3 crs.
Provides work experience in a marketing related field. Credit is given for participation in a supervised work experience wherein an organized training plan will be followed at a College approved training station. One lecture hour per week for a seminar devoted to issues dealing with preparation for success in a marketing career.
Prerequisite: Consent of program coordinator.

MKT 285 Topics in Marketing (.5-0 to 3-0) .5-3 crs.
Studies selected problems or topics in marketing. The exact content and instructional methodology will vary semester to semester depending on the material to be studied. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. This course may be repeated two times to a maximum of three credit hours.

MKT 290 Principles of Exporting and Importing (3-0) 3 crs.
Provides a conceptual overview of the world marketing environment with emphasis on both global exporting and importing. Introduces students to marketing strategies and procedures to capitalize on domestic and overseas world trade potential.
Prerequisite: Prior or concurrent enrollment in MKT 260.

MNT Maintenance

MNT 105 Machining Processes I (1-5) 3 crs.
Covers fundamentals of machine shop theory and safe practice. Provides familiarization with tools, equipment and practices of tool, die, and precision metal working industries. Includes theory and operation of lathes, mills and surface grinders. Students are provided classroom and laboratory learning experiences while making a working tool.

MNT 110 Basic Welding (1-4) 3 crs.
Covers fundamentals of oxyacetylene welding theory and practices and beginning electric welding. Includes arc welding and gas welding, brazing and cutting in the horizontal position.

MNT 111 Prints and Schematics (1-2) 2 crs.
Develops understanding and skills necessary to read and interpret building blueprints including engineering site drawings. Emphasizes plan, elevation and section projection techniques. Provides experience using commercial product sketches, schematics and electrical ladder diagrams.

MNT 115 Basic Carpentry (1-2) 2 crs.
Covers basic knowledge of wood materials, products for construction, framing and safety. Techniques for using measuring, layout and hand tools are covered. Principles of stationary and portable power tools including pneumatic nailers will be demonstrated.

MNT 120 Machining Processes II (1-4) 3 crs.
Covers advanced machine shop theory with emphasis on safe practices and applications. Includes lathes, grinders (I.D., O.D., and surface), milling machines and tool grinders. Studies production machining, feed and speed applications, and quality control techniques applied to precision machining. Students are introduced to gauge blocks, height gauges, magnetic sine plate, and modern indexable tooling.
Prerequisite: MNT 105 and MTH 060 with grades of C or better, or consent of program coordinator.

MNT 125 Basic Plumbing (1-2) 2 crs.
Covers working knowledge and basic plumbing skills for installations and maintenance. Provides experience in pipe material selection, assembly, and tools commonly used by plumbers in their daily work.

MNT 210 Advanced Welding (1-4) 3 crs.
Covers advanced welding theory and practice in arc welding. Provides experience in MIG and TIG (Heliarc) techniques. An introduction to strength of weld testing will be included.
Prerequisite: MNT 110 with a grade of C or better, or consent of instructor.

MNT 211 Welding III (2-4) 4 crs.
Covers advanced welding theory and extensive practice in major arc welding process. Provides experience in advanced GMAW (gas metal arc welding), FCAW (flux cored arc welding), GTAW (gas tungsten arc welding), and other arc welding techniques. Plasma arc and air carbon arc cutting will be included.
Prerequisite: MNT 210 with a grade of C or better, or consent of program coordinator.

MNT 212 Welding IV (2-4) 4 crs.
Covers advanced out-of-position and multi-pass arc welding including GMAW (gas metal arc welding), SMAW (shielded metal arc welding) and GTAW (gas tungsten arc welding). Emphasis will be placed on working from blueprints and development of welding skills necessary to pass welder qualification tests. Students must pass guided bend tests to become "certified welders" in accordance with AWS (American Welding Society) D1.1 Structural Welding Code.
Prerequisite: MNT 211 with a grade of C or better, or consent of program coordinator.

MNT 215 Commercial Carpentry (1-2) 2 crs.
Covers advanced framing with floor and roof trusses, structural steel beams and columns BCI-Joists and GlueLam girders. Metal stud framing techniques for commercial codes are developed both field cut and shop fabrication of building walls and roofs.
Prerequisite: MNT 115 with a grade of C or better.

MNT 225 Commercial Plumbing (1-2) 2 crs.
Covers methods of removing, installing, supporting safely, reconnecting and testing drain, vent and waste systems. Provides techniques for controlling supply. Includes valve, faucet and fixture removal, repair and replacement in commercial properties.
Prerequisite: MNT 125 with a grade of C or better.

MNT 235 Maintenance Troubleshooting Skills (2-2) 3 crs.
Covers methods of system analysis using schematics, circuit diagrams and installation drawings. Develops troubleshooting diagnostics for control, electrical and mechanical systems based on problem reduction through fault tree analysis.
Prerequisite: MNT 111 with a grade of C or better.

MNT 255 Belts/Bearings and Mechanical Drives (1-2) 2 crs.
Covers a practical knowledge of machine elements and power transmission with emphasis on belts, bearings and mechanical drive systems. Provides knowledge in system maintenance, lubrication and power efficiencies.
Prerequisite: MNT 235 with a grade of C or better.

MNT 281 Topics in Maintenance Technology (1-0 to 6-3) 1-6 crs.
Examines selected problems or topics in Maintenance Technology. The specific course content and instructional methodology will vary each semester offered depending on the material presented. A syllabus containing specific topic information will be available in the division office with pre-registration materials each time the course is offered. This course may be repeated up to a maximum of 6 credit hours.
Prerequisite: Consent of instructor.

MOA Medical Office Administration

MOA 145 Health Care Records Management (1-2) 2 crs.
 Introduces types of patient-care records prepared and maintained by health care personnel. Includes elements of records, record keeping, medical records ethics and confidentiality, correction techniques and use of health care references, with transcription and computer applications. Beginning transcription techniques including grammar, punctuation and proof-reading skills are emphasized. Basic keyboarding skills and knowledge of Microsoft Word are necessary for this course.
Prerequisite: ENG 101, HSC 104 and HSC 112 with grades of C or better.

MOA 150 Math Applications in Health Care (1-0) 1 cr.
 Develops skill necessary to calculate medication dosages and solutions. A basic math ability, including decimals, fractions and percentages, is necessary to be successful in this course. Use of calculators emphasized with health care-related applications.

MOA 195 Principles of Health Insurance Billing (2-2) 3 crs.
 Explores and compares major types of health insurance contracts and describes benefits and limitations. Provides practice in processing insurance claim forms. Current Procedural Terminology (CPT) and International Classification of Diseases (ICD) coding techniques are introduced. Emphasis is on insurance rules and regulations, claim submission, reimbursement and collections.
Prerequisite: HSC 112 with a grade of C or better and prior or current enrollment in either BIO 135 or BIO 136 with a grade of C or better.

MOA 196 Current Procedural Terminology (CPT) Coding (2-2) 3 crs.
 Introduces the student to the Current Procedural Terminology (CPT) coding system for procedures used in ambulatory care and services rendered by physicians. Emphasis is on the six sections of the CPT Coding Manual, elements of coding techniques and guidelines. The CPT Coding Manual is used to code the procedures and services performed by physicians. Individual code numbers are assigned to identify all procedures and services. (Also listed as HIT196. Credit will be given for either HIT 196 or MOA 196, but not both.)
Prerequisite: BIO 135, BIO 136 and HSC 112 with grades of C or better. Prior or concurrent enrollment in MOA 195.

MOA 197 International Classification of Disease (ICD) Coding (2-2) 3 crs.
 Introduces the student to the current International Classification of Diseases (ICD). ICD coding is designed for the classification of patient morbidity (sickness) and mortality (death) information for statistical purposes and for the indexing of hospital records by disease and operation for data storage and retrieval. Includes elements of coding techniques and guidelines, structured learning exercises and computer applications. (Also listed as HIT197. Credit will be given for either HIT 197 or MOA 197, but not both.)
Prerequisite: BIO 135, BIO 136 and HSC 112 with grades of C or better. Prior or concurrent enrollment in MOA 195.

MOA 215 Clinical Procedures (4-8) 8 crs.
 Offers basic and advanced clinical techniques in the physician's examining room. Includes diagnostic and laboratory testing techniques, principles of medications, and assisting the physician in specialty examinations and minor surgical procedures. Demonstration of clinical skills in outpatient care is emphasized, with maintenance of proper patient and technician protection guidelines. Includes a clinical rotation in a health care facility. (NOTE: The program's health requirements and American Heart Association Cardiopulmonary Resuscitation (CPR) certificate must be completed prior to placement in clinical rotation.)
Prerequisite: HSC 104, HSC 105, HSC 107, HSC 112, HSC 165, MOA 145 and MOA 150 with grades of C or better.
Corequisite: MOA 235.

MOA 235 Health Care Office Procedures (2-2) 3 crs.
 Offers development of skills in office procedures used in a health care facility. Emphasizes patient relations in health care and office simulations. Strong emphasis on cultural diversity issues and application in the health care field.
Prerequisite: HSC 112 and MOA 145 with grades of C or better.

MOA 240 Medical Transcription I (2-2) 3 crs.
 Develops speed and accuracy in transcribing a variety of basic medical reports, using a transcriber and computer. Enhances student's knowledge of health care reports and terminology. Emphasis is on basic transcription techniques and guidelines.
Prerequisite: BIO 135, BIO 136, HSC 104, HSC 105, HSC 112 and MOA 145 with grades of C or better.

MOA 242 Medical Transcription II (2-2) 3 crs.
 Offers speed and accuracy development in transcribing various health care reports and familiarizes student with the report formats. Extensive use of transcriber and computer. Progresses to advanced, specialized hospital dictation. Emphasis is on advanced transcription techniques and guidelines. Course is designed for students intending to enter the medical transcription profession.
Prerequisite: MOA 240 with a grade of C or better.

MOA 245 Health Care Office Management (3-0) 3 crs.
 Introduces the qualities of a health care office supervisor necessary to effectively manage the physician's office. Includes human relations skills, personnel recruitment, coordinating and supervising office personnel, office facilities, the office policy manual, records management, patient education and time management. Class focuses on teaching the student how to be a supervisor but also how to work with and interact with their own supervisor(s).
Corequisite: MOA 265 or MOA 280.

MOA 265 Medical Office Administration Externship (1-10) 3 crs.
 Provides 160 hours during the semester of supervised experience in a health care office/facility to enhance the student's administrative technical skills. One-hour seminar each week devoted to health care issues. NOTE: The program's health requirements must be completed prior to placement in externship.
Prerequisite: MOA 235 or MOA 240 with a grade of C or better.

MOA 280 Medical Assistant Externship (1-10) 3 crs.
 Provides 208 hours during the semester of supervised experience in a health care facility to enhance the student's administrative technical skills. One-hour seminar each week devoted to health care issues. NOTE: The program's health requirements and American Heart Association Cardiopulmonary Resuscitation (CPR) certificate must be completed prior to placement in externship.
Prerequisite: MOA 215 and MOA 235 with grades of C or better and prior or concurrent enrollment of HSC 165 with a grade of C or better.
Corequisite: MOA 245.

MOA 299 Medical Office Capstone (3-0) 3 crs.
 Applies and integrates skills from with Medical Office Administration courses within the AAS degree program. Discusses medical office management issues and methodologies and puts them into practice.
Prerequisite: MGT 111, MGT 270 and MOA 235 with grades of C or better.
Corequisite: MOA 245.

MTH Mathematics

MTH 051 Arithmetic of Whole Numbers (0-2) 1 cr.
Covers reading and writing whole numbers and whole number operations. Students will learn whole number operations of addition, subtraction, multiplication and division without the use of a calculator. Estimation is introduced as an aid to computation as well as place value and problem solving techniques with applications. Course material will be individualized. Carries no transfer credit.
Prerequisite: Math placement test.

MTH 052 Arithmetic of Fractions and Decimals (0-2) 1 cr.
Covers the operations associated with addition, subtraction, multiplication, and division of common fractions, mixed numbers and decimals. Includes work with word problem applications. Course material will be individualized. Carries no transfer credit.
Prerequisite: MTH 051 with a grade of C or better or math placement test.

MTH 053 Arithmetic of Ratio, Proportion, Percent and Measurement (0-2) 1 cr.
Covers operations of ratio and proportion, percent, and measurement, including both English and metric systems and conversions between them. Includes estimation and word problem applications. Course material will be individualized. Carries no transfer credit.
Prerequisite: MTH 052 with a grade of C or better or math placement test.

MTH 054 Graphs, Geometry and Signed Numbers (0-2) 1 cr.
Covers graph interpretation, geometric measurement, and introduction to the arithmetic of signed and rational numbers. Rational numbers includes work with word problem applications. Course materials will be individualized. Carries no transfer credit.
Prerequisite: MTH 053 with a grade of C or better or math placement test.

MTH 055 Basic Mathematics (3-0) 3 crs.
Covers the arithmetic of fractions, decimals, ratio, proportion, percent, measurement and rational numbers. Includes estimation, applications and graph interpretation. This course includes content of MTH 052, MTH 053 and MTH 054 and is offered as a lecture course or in the Math Lab as a lab course. Carries no transfer credit.
Prerequisite: MTH 051 with a grade of C or better or math placement test.

MTH 060 Foundations of Mathematics I (4-0) 4 crs.
Introduces basic concepts of algebra including real numbers, variables and algebraic expressions, equations, inequalities, ratios and proportions. Cartesian coordinate system and graphs of relations. Emphasizes mathematical reasoning and problem solving utilizing multiple approaches (algebraic, geometric, and numeric techniques) with focus on mathematical definitions, theorems, symbols, and notation. Carries no transfer credit.
Prerequisite: MTH 054 or MTH 055 with a grade of C or better or math placement test.

MTH 061 Elementary Algebra I (1-0) 1 cr.
Introduces basic algebraic vocabulary, operations with signed numbers, linear equations, word problems, ratios and proportions. Course is individualized and is offered in the Math Lab. Carries no transfer credit.
Prerequisite: MTH 054 or MTH 055 with a grade of C or better or math placement test.

MTH 062 Elementary Algebra II (1-0) 1 cr.
Continues MTH 061 and covers linear inequalities, rectangular coordinates, linear equations in two variables, graphing equations, word problems, exponents and scientific notation, adding, subtracting and multiplying polynomials. Course is individualized and offered in the Math lab. Calculator may be used. Carries no transfer credit.
Prerequisite: MTH 061 with a grade of C or better.

MTH 063 Elementary Algebra III (1-0) 1 cr.
Continues MTH 062 and covers multiplying, dividing and factoring polynomials, quadratic equations and word problems involving quadratic equations, multiplication, division, addition and subtraction of rational expressions. A calculator may be used. Course is individualized and offered in the Math Lab. Carries no transfer credit.
Prerequisite: MTH 062 with a grade of C or better.

MTH 067 Foundations of Mathematics 1A (1-2) 2 crs.
Introduces basic concepts of algebra including real numbers, variables and algebraic expressions, equations, ratios and proportions. Cartesian coordinate system and graphs of lines. Emphasizes mathematical reasoning and problem solving utilizing multiple approaches (algebraic, geometric, and numeric techniques) with focus on mathematical definitions, theorems, symbols, and notation. Carries no transfer credit.
Prerequisite: MTH 054 or MTH 055 with a grade of C or better, or math placement test.

MTH 068 Foundations of Mathematics 1B (1-2) 2 crs.
Continues the basic concepts of algebra including real numbers, variable, algebraic expressions, equations, Cartesian coordinate system and graphs of relations and introduces inequalities and solving inequalities. Emphasizes mathematical reasoning and problem solving utilizing multiple approaches (algebraic, geometric, and numeric techniques) with focus on mathematical definitions, theorems, symbols, and notation. Carries no transfer credit.
Prerequisite: MTH 067 with a grade of C or better.

MTH 070 Plane Geometry (3-0) 3 crs.
Introduces concepts of Euclidean plane geometry, including lines, angles, polygons and circles. Carries no transfer credit.
Prerequisite: MTH 060 or MTH 063 with a grade of C or better, or required math placement test score.

MTH 075* Review of Developmental Algebra and Geometry (0-2) 1 cr.
Reviews the topics of elementary and intermediate algebra and geometry as needed with the goal of improving the student's mathematics placement scores. Carries no transfer credit.
Prerequisite: Required math placement test score or consent of the department chair.
**Note: This course is pending ICCB approval.*

MTH 080 Foundations of Mathematics II (4-0) 4 crs.
Continues MTH 060 and introduces fundamental concepts of algebra including rational expressions, complex numbers, and functions that are polynomial, rational, exponential or logarithmic. Emphasizes mathematical reasoning and problem solving utilizing multiple approaches (algebraic, geometric, and numeric techniques) with focus on mathematical definitions, theorems, symbols and notations. Credits earned in this course cannot be applied toward an Associate in Arts or Associate in Science degree. Carries no transfer credit.
Prerequisite: MTH 060, MTH 063 or MTH 068 with grades of C or better or required math placement test score.

MTH 101 Quantitative Literacy (4-0) 4 crs.
Focuses on the analysis and solution of problems. Includes representing and analyzing data using statistical measures, using logical reasoning in a real-world context, estimating, approximating, and judging the reasonableness of answers, and the use of appropriate approaches and tools, such as calculators and computers, in formulating and solving real-world problems. IAI M1 901
Prerequisite: MTH 070 (or equivalent) with a grade of C or better or Geometry placement test and MTH 080 with a grade of C or better, or math placement test. An ACT Math score of 23 or more will satisfy all the previous prerequisites mentioned for this course.

MTH 103 College Algebra (3-0) 3 crs.

Emphasizes algebraic and graphical approaches to college algebra. Topics include but are not limited to: polynomial, rational, exponential, and logarithmic functions; systems of equations and inequalities; matrices; sequences and series, mathematical modeling. NOTE: This course does not fulfill the math requirement for the AA or AS degree.

Prerequisite: MTH 070 or equivalent with a grade of C or better or Geometry placement test and MTH 080 with a grade of C or better, or math placement test. An ACT Math score of 23 or more will satisfy all the previous prerequisites mentioned for this course.

MTH 104 Plane Trigonometry (3-0) 3 crs.

Develops trigonometric functions and relations, solutions of triangles, complex numbers, identities, equations and applications.

Prerequisite: An ACT Math score of 28 or more with consent of the Mathematics Department Chair. (NOTE: Students who have completed MTH 103 with a grade of C or better before Fall 2004 may take MTH 104 to satisfy the prerequisite for MTH 200.)

MTH 124 Finite Mathematics (3-0) 3 crs.

Develops the mathematics of simple models in behavioral, social and management sciences. Studies applications of set theory, vectors and matrices, linear programming, probability rules, and Markov chains with computer assistance.

IAI M1 906

Prerequisite: MTH 070 (or equivalent) with a grade of C or better or Geometry placement test and MTH 103 with a grade of C or better, or math placement test. An ACT Math score of 28 or more will satisfy all previous prerequisites mentioned for this course.

MTH 130 Mathematics for Elementary Teaching I (3-2) 4 crs.

Focuses on mathematical reasoning and problem solving and is designed to meet the requirements of the state certification of elementary teachers when taken in conjunction with MTH 131.

The course examines the underlying conceptual framework for the topics of sets, functions, whole numbers, number theory, integers, rational numbers, irrational numbers and the real number system. Students are expected to be active participants in the learning process. They will apply mathematical reasoning in a variety of problem solving situations using estimation, models, tables, graphs and symbolic representations. The use of appropriate techniques and tools, such as calculators and computers, are a focus of investigations and discussion throughout the course. A weekly lab component is required.

Prerequisite: MTH 070 (or equivalent) with a grade of C or better or Geometry placement test and MTH 080 with a grade of C or better, or math placement test. An ACT Math score of 23 or more will satisfy all the previous prerequisites mentioned for this course.

MTH 131 Mathematics for Elementary Teaching II (3-2) 4 crs.

Completes the two course sequence that begins with MTH 130 and focuses on mathematical reasoning and the solving of real-life problems, rather than on routine skills. The following topics will be studied in depth: geometry, counting techniques and probability, logic and statistics. Students are expected to be active participants in the learning process. Calculators and computers will be used throughout the course. A weekly lab component is required.

IAI M1 903

Prerequisite: MTH 130 with a grade of C or better.

MTH 134 Calculus for Social Scientists (4-0) 4 crs.

Develops an intuitive approach to concepts of differential and integral calculus. Applies these concepts to problems in social, behavioral and management sciences. Not for physical science or mathematics majors.

IAI M1 900

Prerequisite: MTH 070 (or equivalent) with a grade of C or better or Geometry placement test and MTH 103 with a grade of C or better, or math placement test. An ACT Math score of 28 or more will satisfy all the previous prerequisites mentioned for this course.

MTH 140 Precalculus (5-0) 5 crs.

Builds on MTH 103 to provide the foundation in calculus and analytic geometry. Topics include but are not limited to: polynomial and rational functions and inequalities, analytic geometry, trigonometric functions, analytic geometry, inverse functions, applications of trigonometric functions, polar coordinates and vectors, the complex plane and relationships among exponential, logarithmic, and trigonometric functions.

Prerequisite: MTH 070 (or equivalent) with a grade of C or better or Geometry placement test and MTH 103 with a grade of C or better, or math placement test. An ACT Math score of 28 or more will satisfy all the previous prerequisites mentioned for this course.

MTH 165 Elementary Statistics (4-0) 4 crs.

Focuses on mathematical reasoning and the solving of real-life problems in statistics, rather than on routine skills. Includes analysis of data using sample statistics, basic probability theory, probability distributions (normal and binomial), sampling distributions of means and proportions, statistical inference (estimation, hypothesis testing, t-test and chi-square test and errors), correlation and regression, F-test and analysis of variance. Computer labs using statistical software packages are incorporated throughout course. (Credit will be given for either MTH 165 or MGT 225, but not both.)

IAI M1 902

Prerequisite: MTH 070 (or equivalent) with a grade of C or better or Geometry placement test and MTH 080 with a grade of C or better, or math placement test. An ACT Math score of 23 or more will satisfy all the previous prerequisites mentioned for this course.

MTH 200 Calculus with Analytic Geometry I (5-0) 5 crs.

Studies limits, the derivative and the definite integral with applications to geometry, science and engineering.

IAI M1 900-1, IAI MTH 901

Prerequisite: MTH 070 (or equivalent) with a grade of C or better or Geometry placement test and MTH 140 with a grade of C or better, or math placement test or consent of mathematics department chair. An ACT Math score of 28 or more and a trigonometry course with a grade of C or better will satisfy all the previous prerequisites mentioned for this course.

MTH 201 Calculus with Analytic Geometry II (5-0) 5 crs.

Continues MTH 200. Studies differentiation of transcendental functions, techniques of integration, series, conics, polar coordinates and parametric equations with applications to science and engineering.

IAI M1 900-2, IAI MTH 902

Prerequisite: MTH 200 with a grade of C or better.

MTH 202 Calculus with Analytic Geometry III (5-0) 5 crs.

Continues MTH 201. Studies three-dimensional vectors, solid analytic geometry, vector-valued functions, partial derivatives, multiple integrals, Green's theorem, surface integrals, divergence theorem, and Stoke's theorem.

IAI M1 900-3, MTH 903

Prerequisite: MTH 201 with a grade of C or better.

MTH 203 Linear Algebra (4-0) 4 crs.

Introduces matrices, vector spaces, linear transformations. Serves as a first exposure to abstract mathematical structures. Includes matrices and their operations, determinants, solutions of systems of linear equations, Euclidean and general vector spaces, bases and dimension, linear transformations and their associated subspaces, eigenvalues, eigenvectors. Discusses applications to mathematics, computer graphics, and physical sciences.

IAI MTH 911

Prerequisite: MTH 201 with a grade of C or better.

COURSE DESCRIPTIONS

MTH 212 Differential Equations (3-0) 3 crs.
Continues MTH 202. Emphasizes solutions of first order differential equations, linear differential equations, special second order equations and series solutions. Studies selections from these topics: Laplace transforms, Fourier series, numerical methods and applications of matrix algebra.
IAI MTH 912

Prerequisite: MTH 202 with a grade of C or better.

MTH 220 Discrete Mathematics (3-0) 3 crs.
Introduces analysis of finite collections and mathematical foundations of sequential machines, computer system design, data structures and algorithms. Includes sets and logic, subscripts, arrays, number systems, counting, recursion, graph theory, trees, networks and Boolean algebra.
IAI M1 905, IAI CS 915

Prerequisite: MTH 070 (or equivalent) with a grade of C or better or Geometry placement test and MTH 103 with a grade of C or better or placement test. An ACT Math score of 28 or more will satisfy all the previous prerequisites mentioned for this course.

MTH 265 Mathematical Statistics (3-0) 3 crs.
Includes the study of probability spaces, random variables and distributions, laws of large numbers and central limit theorem, joint probability distributions, sampling distributions, theory of estimation, simple linear regression and introduction to SPSS.
Prerequisite: MTH 202 with a grade of C or better.

MUS Music

MUS 100 Introduction to Music Careers (1-0) 1 cr.
Explores issues relating to the successful pursuit of a career in music. Recommended for anyone pursuing a professional music career.

MUS 101 Fundamentals of Music Theory (3-0) 3 crs.
Provides the background to interpret and understand the language of music through the study of notation, rhythm, scales, intervals, triads, cadences, basic forms and musical terms. Students are prepared for the study of harmony and for practical musical activity. Suitable for pre-teachers and non-music majors.

MUS 102 Introduction to Electronic/Computer Music (3-1) 3 crs.
Introduces basic computer applications in music. Explores electronic music technology, MIDI instruments, sequencing, music notation and educational software.

MUS 103 Music Appreciation (3-0) 3 crs.
Introduces standard concert repertory through intensive guided listening. Representative works by major composers from each period are chosen to illustrate the principal styles, forms and techniques of vocal and instrument music.
IAI F1 900

MUS 104 Introduction to American Music (3-0) 3 crs.
Develops a stylistic frame of reference for judging popular music. Surveys characteristic elements of jazz, rhythm and blues, popular music and their relation to western classical music. For non-music majors.
IAI F1 904

MUS 106 Introduction to Jazz (3-0) 3 crs.
Examines the evolution and development of jazz, America's only native musical art form. The study begins in 1851 with the blending of African, European, Haitian, and Creole music and culture in New Orleans, which resulted in the creation of blues and improvisation. The study continues with further development in Chicago, Kansas City, New York, and Los Angeles. The course introduces blues, Dixieland, big band, cool, hard bop, funk, free, and fusion.

MUS 111 Theory of Music I (3-1) 3 crs.
Begins an intensive study of the structure of music of the Common Practice period. Examines, through analysis and composition, the musical practice of the late 17th and early 18th centuries.
Corequisite: MUS 115.

MUS 112 Theory of Music II (3-1) 3 crs.
Continues the study of the structure of music of the Common Practice period. Examines, through analysis and composition, the musical practice of the middle to late 18th and early 19th centuries, paying particular attention to harmonic language and its effect upon musical form.
Prerequisite: MUS 111 with a grade of C or better.
Corequisite: MUS 116.

MUS 115 Aural Skills I (0-2) 1 cr.
Develops skills in melodic, harmonic and rhythmic dictation and sight singing.
Corequisite: MUS 111.

MUS 116 Aural Skills II (0-2) 1 cr.
Develops skills in melodic, harmonic and rhythmic dictation and sight singing.
Corequisite: MUS 112.

MUS 120 Introduction to Music Literature (3-0) 3 crs.
Surveys the styles, periods, literature and personalities in each of the commonly accepted music periods, with primary emphasis on hearing music of each style.
IAI F1 901

MUS 130 Choir (0-3) 1 cr.
Provides mixed voice choral experience for singers of average or above average ability. Stresses fundamentals of good choral diction and tone through choral works of various styles and types. May be repeated up to a maximum of four credit hours.
Prerequisite: Consent of instructor.

MUS 136 Community Chorus (0-3) 1 cr.
Provides a variety of choral experience including larger choral works such as oratorios and cantatas, and selections from grand opera, comic opera and musical comedy. May be repeated up to a maximum of four credit hours.

MUS 140 Band (0-3) 1 cr.
Provides students proficient in playing band instruments the opportunity to perform music of various styles and types. Stresses sight reading and musicianship. Develops skills, musical understanding and enjoyment. May be repeated up to a maximum of four credit hours.
Prerequisite: Consent of instructor.

MUS 145 Ensembles (0-3) 1 cr.
Provides students with proficiency on an instrument or in voice the opportunity to perform in various vocal and instrumental chamber music ensembles. Stresses sight reading and musicianship. Develops skills, musical understanding and enjoyment. May be repeated up to a maximum of four credit hours.
Prerequisite: Consent of instructor.

MUS 150 Orchestra (0-3) 1 cr.
Provides students proficient in playing orchestral instruments the opportunity to perform music of various styles and types. Stresses sight reading and musicianship. Develops skills, musical understanding and enjoyment. May be repeated up to a maximum of four credit hours.
Prerequisite: Consent of instructor.

MUS 165 Class Piano I (1-2) 2 crs.
Develops a rudimentary knowledge of the keyboard and playing skills sufficient to cope with simple, practical situations. Emphasis is on tonal notation, harmonization, transposition, sight reading, improvisation, ensemble playing and basic piano literature.

MUS 166 Class Piano II (1-2) 2 crs.
Continues MUS 165.
Prerequisite: MUS 165 with a grade of C or better or proficiency examination.

- MUS 167 Class Guitar (1-2)** 2 crs.
Provides instruction for students who wish to play the guitar. Designed for the student with little or no traditional music background, the course relates basic music theory concepts to guitar styles. Develops basic performance skills.
- MUS 169 Class Voice (1-2)** 2 crs.
Introduces correct use of the singing voice. Emphasizes proper breathing and tone production, accurate intonation and diction and the fundamentals of music reading.
- MUS 180-199 Minor Applied Music Subject (5-6)** 1 cr.
Provides instruction for those desiring to improve their skills on a particular instrument. One half-hour lesson per week. Minimum of six hours of practice per week. Jury examination required. Students are urged to participate in repertoire classes and music convocations. May be repeated up to a maximum of four credit hours. Does not meet the requirements of the Associate in Fine Arts degree.
Flute and Piccolo, 180; Oboe and English Horn, 181; Clarinet, 182; Bassoon and Contra Bassoon, 183; Saxophone, 184; French Horn, 185; Trumpet, 186; Trombone, 187; Baritone, 188; Tuba, 189; Percussion, 190; Violin, 191; Viola, 192; Cello, 193; String Bass, 194; Harp, 195; Piano, 196; Organ, 197; Voice, 198; and Classical Guitar, 199.
- MUS 211 Theory of Music III (3-1)** 3 crs.
Completes the study of the structure of music of the Common Practice period and begins the study of subsequent periods. Examines, through analysis and composition, the musical practice of the 19th and early 20th centuries.
Prerequisite: MUS 112 with a grade of C or better.
Corequisite: MUS 215.
- MUS 212 Theory of Music IV (3-1)** 3 crs.
Completes the study of the structure of classical and avant-garde music in the 20th century. Explores the structure of tonal music from a linear perspective.
Prerequisite: MUS 211 with a grade of C or better.
Corequisite: MUS 216.
- MUS 215 Aural Skills III (0-2)** 1 cr.
Develops skills in melodic, harmonic and rhythmic dictation and sight singing.
Corequisite: MUS 211.
- MUS 216 Aural Skills IV (0-2)** 1 cr.
Develops skills in melodic, harmonic and rhythmic dictation and sight singing.
Corequisite: MUS 212.
- MUS 223 Instrumental Literature (3-0)** 3 crs.
Surveys the music literature available for performance by musical instruments, excluding keyboard instruments and voice.
- MUS 224 Keyboard and Vocal Literature (3-0)** 3 crs.
Surveys music literature available for performance by keyboard and voice, including opera.
- MUS 265 Class Piano III (1-2)** 2 crs.
Continues MUS 166. Greater emphasis on keyboard harmony, ensemble playing and jazz improvisation.
Prerequisite: MUS 166 with a grade of C or better or proficiency examination.
- MUS 266 Class Piano IV (1-2)** 2 crs.
Continues MUS 265.
Prerequisite: MUS 265 with a grade of C or better or proficiency examination.
- MUS 271 Piano Pedagogy I (3-0)** 3 crs.
Surveys the basic teaching philosophies, methods, materials and skills needed to teach the beginning piano student. Observation of individual and group instruction.
Prerequisite: MUS 265 with a grade of C or better, or consent of instructor.

- MUS 272 Piano Pedagogy II (2-2)** 3 crs.
Continues development of skills begun in MUS 271. Emphasis will be placed on methods and materials for teaching the intermediate piano student. Lab includes supervised student teaching to aid in individual development.
Prerequisite: MUS 271 with a grade of C or better.
- MUS 280-299 Major Applied Music Subject (1-12)** 2 crs.
Provides instruction for music majors. One hour lesson per week. Minimum of 12 hours of practice per week. Jury examination and performance at repertoire classes and music convocations required. May be repeated up to a maximum of eight credit hours.
Prerequisite: Successful audition.
Flute and Piccolo, 280; Oboe and English Horn, 281; Clarinet, 282; Bassoon and Contra Bassoon, 283; Saxophone, 284; French Horn, 285; Trumpet, 286; Trombone, 287; Baritone, 288; Tuba, 289; Percussion, 290; Violin, 291; Viola, 292; Cello, 293; String Bass, 294; Harp, 295; Piano, 296; Organ, 297; Voice, 298; and Classical Guitar, 299.

NAN Nanoscience Technology

- NAN 121 Fundamentals of Nanoscience I (2-2)** 3 crs.
Studies the field of nanotechnology, the capability to observe and manipulate systems at the molecular or atomic scale that is affecting all traditional sciences. Provides an introduction to the history, tools, materials, and current and emerging applications of nanotechnology.
Prerequisite: MTH 080 or higher with a grade of C or better, or required MTH 103 placement test score.
- NAN 122 Fundamentals of Nanoscience II (2-2)** 3 crs.
Covers nanoscience aspects as they relate to the fields of chemistry and physics. Emphasizes the impact of new developments in nanotechnology. Atomic structure, bonding, photonics, quantum effects, and wave/particle structure will be discussed with a focus on nanotechnology. Feasibility of implementation will be covered, as well as the development of a nanoscale understanding of properties such as color, magnetism, electrical forces, strength and rigidity.
Prerequisite: NAN 121 with a grade of C or better.
- NAN 211 Micro to Nanosystems (2-2)** 3 crs.
Covers state-of-the-art processes currently used for the fabrication of microelectronic and nanoelectronic devices. Teaches students to qualify and use semiconductor processes, inspect devices and perform electrical measurements on semiconductor devices. Covers cost, manufacturing methodology and societal impacts. Discusses extensions of these techniques to optical, mechanical, fluidic and biological systems.
Prerequisite: NAN 122 with a grade of C or better.
- NAN 221 Nanobiotechnology (2-2)** 3 crs.
Studies the use of nanotechnology as it applies to biological and agricultural applications. Includes detecting and identifying DNA and proteins; drug delivery and medical imaging; mimicking biological systems to develop catalysts; nanoscale movement and information systems; and nanotechnology for agricultural applications such as ethanol production, sorbitol-based fuel cells, genetics, and uses of cellulose.
Prerequisite: BIO 110 and NAN 122 with grades of C or better.
- NAN 231 Materials Technology (2-2)** 3 crs.
Discusses the opportunity and challenge of manipulating material properties used in products from pharmaceutical coatings to smog-reducing paints to individual crystal structure determination. Emphasizes scale-related change in properties.
Prerequisite: NAN 122 with a grade of C or better.

NAN 295 Independent Research in Nanoscience (0-3 to 0-9) 1-3 crs.

Provides experimental exploration of an authentic scientific research topic under the supervision of a faculty member. This laboratory course is designed to teach the principles and practices of modern experimental nanotechnology. Credit is contingent on the submission of a final report. Consent of the program coordinator is necessary to register for this course.

NAN 299 Nanoscience Internship (1-20) 6 crs.

Applies and expands nanoscience skills and knowledge in a research or industrial setting. Conducted jointly by Harper College and a research institution or industrial partner which will provide students authentic experiences using nanoscience instrumentation. Students must complete a minimum of 200 contact hours and submit a final report to earn 6 semester credit hours.

Prerequisite: Prior or concurrent enrollment in NAN 241 with a grade of C or better, prior consultation with instructor, and consent of program coordinator.

NET Networking

NET 100 Windows Fundamentals (5-1) 1 cr.

Introduces the student to the use of a graphical interface for the Windows operating system. Includes the use of the graphical interface and some of the built-in desktop and system accessories.

NET 101 Windows (2-2) 3 crs.

Introduces a student to the use of a graphical interface for the operating system. Includes the use of the graphical interface, built-in desktop accessories, and built-in system accessories. Covers several features of application packages when used in a Windows environment, networking considerations and switching between applications. Provides students with an introduction to the command-line environment, command-line file management, directory management, disk management, and the use of wildcards and options. Also introduces batch file concepts.

NET 106 Introduction to Linux (2-2) 3 crs.

Provides students with knowledge and hands-on experience in installing Linux, using the command line to manage a personal Linux workstation, and using a Graphical User Interface when appropriate. Students learn to manage files and file permissions, use the vim editor, and are introduced to operating system concepts such as file systems, pipes, filters, redirection, and processes.

NET 111 A+ Hardware (2-2) 3 crs.

Provides students with experience installing, configuring, maintaining, upgrading, diagnosing, troubleshooting, and networking recent and current personal computer hardware. Recommended preparation: CIS 101, NET 101, NET 106 or equivalent experience.

NET 112 A+ Operating Systems Technologies (2-2) 3 crs.

Provides students with experience installing, configuring, upgrading, diagnosing, troubleshooting, and networking recent and current personal computer operating systems. Recommended preparation: CIS 101, NET 101, NET 106 or equivalent experience.

NET 121 Introduction to Networking (2-2) 3 crs.

Provides students with a comprehensive introduction to local area networks. Includes the OSI model, media, topologies, protocols, network maintenance, upgrades, troubleshooting, and current network operating systems.

NET 122 Internet Protocols (2-2) 3 crs.

Provides students with a detailed examination of Internet addressing and protocols. Includes IP addressing, routing, IP, ICMP, ARP, TCP, UDP, DHCP, DNS, HTTP, FTP, and SMTP. Uses protocol analyzers to monitor and examine network traffic. Recommended preparation: NET 121 or equivalent experience.

NET 141 Linux Administration (2-2) 3 crs.

Provides students with knowledge and hands-on experience in installation, using utilities on the command line and using Graphical User Interface, using programming tools, editing text files and simple shell scripting. Also provides an understanding of the Linux kernel, introductory networking concepts, and file systems.

NET 161 Windows Client Administration (2-2) 3 crs.

Provides students with knowledge and experience in installation, operation, administration, and troubleshooting Microsoft's Professional Workstation (PC) Operating System. Recommended preparation: NET 111, NET 112, NET 121 and NET 122 or equivalent experience.

NET 171 Cisco Networking Basics (2-2) 3 crs.

Provides students with a basic understanding of networking terminology, protocols, LANs, WANs, topologies, and communications.

NET 172 Cisco Routing Basics (2-2) 3 crs.

Provides students with a basic understanding of routers and routing including router interfaces, components configurations, IOS, TCP/IP addressing and subnetting, and routing protocols. **Prerequisite:** NET 171 with a grade of C or better.

NET 173 Cisco Switching Basics (2-2) 3 crs.

Provides students with a basic understanding of switching and intermediate routing including switches, VLANs, Spanning-Tree protocol, routing and routine protocols, access control lists, network documentation, security, and troubleshooting. **Prerequisite:** NET 172 with a grade of C or better.

NET 174 Cisco Network Design (2-2) 3 crs.

Provides students with an understanding of basic network design including network requirements, IP addressing, prototyping, WANs and proposal preparation. **Prerequisite:** NET 173 with a grade of C or better.

NET 182 Computer Forensics (2-2) 3 crs.

Provides students with a comprehensive introduction to computer forensics: the preservation, identification, extraction, documentation and interpretation of computer data. Topics include computer forensics tools, file systems and disk structures, information analysis, and proper incident response techniques. Recommended preparation: NET 111 and NET 112 or equivalent experience.

NET 201 Help Desk/Soft Skills (2-2) 3 crs.

Introduces and provides practice in the business, team, communication, and self-management skills needed to provide excellent technical support for computer users. Recommended preparation: NET 111 and NET 112 or equivalent experience.

NET 211 Supporting Operating Systems (2-2) 3 crs.

Provides students with hands-on experience installing, configuring, managing, and troubleshooting a currently popular operating system. Topics also include troubleshooting desktop user environments, networking and network resources such as printers and storage devices. Recommended preparation: NET 111, NET 112, NET 121, and NET 122 or equivalent experience.

NET 212 Supporting Applications (2-2) 3 crs.

Provides students with hands-on experience installing, configuring, managing and troubleshooting currently popular desktop office applications. Topics also include identifying and troubleshooting network issues, configuring application security settings, and monitoring security vulnerabilities and updates. Recommended preparation: CAS 160 and NET 211 or equivalent experience.

NET 221 Wireless Networking (2-2) 3 crs.

Provides students with a comprehensive hands-on overview of wireless networking. Includes radio frequencies, wireless infrastructure, hardware, wireless standards, wireless LAN security, site surveys, and troubleshooting. Recommended preparation: NET 121 or equivalent experience.

- NET 222 Communications Technologies (2-2)** 3 crs.
Provides students with an introduction to communications technologies, telecommunications, and data convergence. Topics include telephony, network engineering, communications applications, hardware, architecture, management and security. Recommended preparation: NET 122 or equivalent experience.
- NET 223 Information Storage and Management (2-2)** 3 crs.
Provides students with an introduction to information storage and management concepts. Includes storage systems, storage networking technologies and virtualization, business continuity, and storage security and management. Recommended preparation: NET 122 or equivalent experience.
- NET 231 Windows Scripting (2-2)** 3 crs.
Provides students with hands-on experience scripting the Windows environment. Topics include Windows Script Host, VBScript, variables and arrays, conditional logic, procedures, file and data access, error handling, and registry settings. A variety of administrative scripts are created throughout the course. Recommended preparation: NET 112 and NET 121 or equivalent experience.
- NET 236 Linux Shell Scripting (2-2)** 3 crs.
Provides students with in-depth knowledge of basic and advanced topics, and the hands-on experience needed to master Shell Programming. Recommended preparation: NET 141 or equivalent experience.
- NET 241 Linux Networking (2-2)** 3 crs.
Provides students with knowledge and hands-on experience in Linux system administration, including user and group account management, file system, set-up and management, back-up strategies, software installation, and performance monitoring. Recommended preparation: NET 141 or equivalent experience.
- NET 242 Linux Security (2-2)** 3 crs.
Provides students with knowledge and hands-on experience in configuring a secure Linux network using command line and graphical utilities. Introduces students to networking technologies and protocols, protection of business assets and user privacy, and system administrator ethics. Recommended preparation: NET 241 or equivalent experience.
- NET 261 Windows Server Administration (2-2)** 3 crs.
Provides students with knowledge and experience in installation, operation, administration, and troubleshooting Microsoft's Server Operating System. Recommended preparation: NET 111, NET 112, NET 121 and NET 122 or equivalent experience.
- NET 262 Windows Network Administration (2-2)** 3 crs.
Provides students with knowledge and skills to administer, upgrade, and maintain a Microsoft-based network. Recommended preparation: NET 261 or equivalent experience.
- NET 263 Windows Directory Services Administration (2-2)** 3 crs.
Provides students the knowledge and skills to administer, upgrade, and maintain the Directory Services in a Microsoft-based network. Recommended preparation: NET 262 or equivalent experience.
- NET 270 Cisco Networking (CCNA) (2-2)** 3 crs.
Provides students with experience configuring Cisco routers and switches for a variety of tasks, including IOS basics, router configuration, routing protocols, NAT, access lists, WAN settings, switching and VLANs. Recommended preparation: NET 111, NET 112, NET 121 and NET 122 or equivalent experience.
- NET 271 Cisco Advanced Routing (2-2)** 3 crs.
Provides students with experience performing advanced routing tasks including selecting and configuring scalable IP addresses; implementing OSPF, EIGRP and BGP; configuring access lists; and designing and attesting edge router connectivity into a BGP network.
Prerequisite: NET 174 or NET 270 with grades of C or better.
- NET 272 Cisco Remote Access (2-2)** 3 crs.
Provides students with experience performing advanced remote access tasks including configuring asynchronous connections, PPP, ISDN, X.25, frame relay and AAA.
Prerequisite: NET 174 or NET 270 with a grade of C or better.
- NET 273 Cisco Multilayer Switching (2-2)** 3 crs.
Provides students with experience performing multiplayer switching tasks including Fast Ethernet, Gigabit Ethernet, VLANs, Spanning Tree Protocol, MLS processes and configuration, and multicasting.
Prerequisite: NET 174 or NET 270 with a grade of C or better.
- NET 274 Cisco Networking Troubleshooting (2-2)** 3 crs.
Provides students with experience performing network troubleshooting tasks in areas such as OSI layers 1, 2 and 3, TCP/IP, switching, VLANs, frame relay, ISDN, EIGRP, OSPF, and BGP.
Prerequisite: NET 273 with a grade of C or better.
- NET 280 Network Security Fundamentals (2-2)** 3 crs.
Provides students with a comprehensive hands-on overview of network security, including authentication, encryption, digital certificates, perimeter topologies, remote access, cryptography, and operational security. Recommended preparation: NET 121 and NET 122 or equivalent experience.
- NET 281 Networking Systems Security (2-2)** 3 crs.
Provides students with hands-on experience securing a variety of networking systems. Topics include Linux and Windows operating systems, routers, wireless networks, auditing and contingency planning. Recommended preparation: NET 280 or equivalent experience.
- NET 282 Network Defense and Countermeasures (2-2)** 3 crs.
Provides students with hands-on experience securing network access. Topics include security policies, firewalls, remote access, virtual private networks, and intrusion detection. Recommended preparation: NET 280 or equivalent experience.
- NET 283 Ethical Hacking (2-2)** 3 crs.
Provides students with hands-on experience using penetration tools and techniques to test and protect computer networks. Topics include network and computer attacks, footprinting, social engineering, scanning, enumeration, cryptography, operating system and device vulnerability, and related ethical considerations. NOTE: A criminal background check is required.
Prerequisite: PHI 115 or PHI 150, NET 231 or NET 236, and NET 280 with grades of C or better.
- NET 284 Computer Security Incident Response (2-2)** 3 crs.
Provides students with hands-on experience preparing for and responding to computer security incidents. Topics include incident response preparation, detection, reaction, recovery, and maintenance. Computer-related disaster recovery and business continuity planning are also addressed. Recommended preparation: NET 280 or equivalent experience.
- NET 289 Security Capstone (1-4)** 3 crs.
Provides students with security implementation and troubleshooting skills. Based upon real-life conditions, students will establish a corporate networking environment. The network will then be alternately analyzed and attacked, providing opportunity for students to determine security risks, forensically identify and document security incidents, and provide proper responses to resolve security issues.
Prerequisite: NET 281 and NET 282 or NET 283 and NET 284 with grades of C or better.

COURSE DESCRIPTIONS

NET 299 Networking Capstone (1-4) 3 crs.
Provides students with network implementation and troubleshooting skills. Based upon real-life conditions, students will establish a corporate networking environment. The network will then be configured in various states of dysfunction, providing opportunity for students to identify problems and provide proper corrections and adjustments to make the network function properly again.
Prerequisite: Prior or concurrent enrollment in NET 231 or NET 236 and NET 270 and NET 280 with grades of C or better.

NUR Nursing

NUR 101 PN Fundamentals (4-9) 7 crs.
Introduces concepts as related to the practical nurse's role as a member of the discipline of nursing and a provider of care. Emphasizes the Neuman Systems Model, the nursing process, essential components of therapeutic communication, basic skills, and legal and ethical professional issues for the delivery of safe and competent care for diverse patients through the lifespan. Provides theory and practice in assisting clients to meet basic needs.
Prerequisite: Admission into the Practical Nursing certificate program and BIO 160 and PSY 101 with grades of C or better.
Corequisite: NUR 105.

NUR 102 Lifespan Nursing for the PN (5-9) 8 crs.
Focuses on the use of the nursing process to meet the needs of older adults, adults, children, infants, and childbearing women by utilizing concepts from the Neuman Systems Model. Emphasis on the normal physiologic and psychosocial aspects of basic care needs as well as the common diseases specific to each client population. Selected clinical experiences in the acute care and clinic settings, where practical nurses can be employed.
Prerequisite: BIO 161, NUR 101 and NUR 105 with grades of C or better.
Corequisite: NUR 108.

NUR 104 PN Field Experience (1-9) 4 crs.
Utilizes the nursing process and the Neuman Systems Model to provide care for clients with commonly occurring problems causing health interferences. Provides opportunity for supervised experience as a member of the nursing care team in health care settings, assuming the role and responsibilities of the practical nurse.
Prerequisite: NUR 102, NUR 105 and NUR 108 with grades of C or better.

NUR 105 PN Pharmacology (0.5-1.5) 1 cr.
Introduces pharmacology as needed for safe medication administration for the practical nurse. Discusses the mechanism of action of the major medication groups and the pharmacological activity within each group. Addresses areas of drug action, clinical application, adverse events and nursing implications for safe medication administration and assessment of medication effects. Lab will address safe medication administration.
Prerequisite: Admission into the Practical Nursing certificate program and BIO 160 and PSY 101 with grades of C or better.
Corequisite: NUR 101.

NUR 108 PN Mental Health Nursing (1-0) 1 cr.
Utilizes the Neuman Systems Model and the nursing process to provide client centered nursing care for clients experiencing psychosocial issues/mental health disorders. Emphasizes health promotion concepts in the care of clients across the life cycle and the continuum of mental health care. Addresses various treatment modalities and interventions including those applicable to community based care and long term care.
Prerequisite: NUR 101 and NUR 105 with grades of C or better.
Corequisite: NUR 102.

NUR 110 Nursing Concepts and Practice (2-0) 2 crs.
Establishes a firm basis on which to build subsequent nursing courses. Examines the essential concepts and core values of the nursing profession including health and wellness, safety, caring, critical thinking, ethics, the nursing process, and standards of practice. The Neuman Systems Model is the framework for the study of client care.
Prerequisite: Admission into the Nursing degree program and BIO 161, ENG 101 and PSY 101 with grades of C or better.
Corequisite: NUR 180.

NUR 111 Introduction to Nursing Roles (2-0) 2 crs.
Introduces the student to the professional roles and relationships of the registered nurse utilizing the Neuman Systems Model, the nursing process, and essential components of professional communication for the delivery of safe and competent care for the adult and aging client.
Prerequisite: NUR 110 with a grade of C or better.
Corequisite: NUR 180.

NUR 112 Nursing Roles Clinical (0-6) 2 crs.
Provides the student with the opportunity to practice and apply basic knowledge and skills to the provision of client care in the laboratory and clinical setting. Students will apply critical thinking, professional communication, and the Neuman Systems Model when providing care to clients in the acute care setting.
Prerequisite: NUR 110 with a grade of C or better.
Corequisite: NUR 111 and NUR 180.

NUR 140 Adult Health Concepts I (2-0) 2 crs.
Develops essential medical and surgical knowledge and skills needed to provide nursing care to clients with respiratory, cardiac, gastrointestinal, metabolic and endocrine dysfunctions throughout the adult life cycle. Utilization of critical thinking, therapeutic communication, and the Neuman Systems Model is used through implementation of the nursing process. Health promotion and disease prevention will be addressed.
Prerequisite: NUR 112 with a grade of C or better.

NUR 141 Adult Health Clinical I (0-6) 3 crs.
Provides the student with the opportunity to apply essential respiratory, cardiac, metabolic, gastrointestinal and endocrine systems' dysfunctions knowledge and skills to the provision of client care in the clinical setting. Students will utilize critical thinking, therapeutic communication and the Neuman Systems Model when providing care to clients. Nursing care will be provided in a variety of setting including acute care, ambulatory care, and the community.
Prerequisite: NUR 112 with a grade of C or better.
Corequisite: NUR 140.

NUR 150 Psychosocial Concepts (2-0) 2 crs.
Utilizes the Neuman Systems Model and the nursing process to provide client-centered nursing care for clients experiencing psychosocial issues/mental health disorders. Emphasizes health promotion concepts in the care of clients across the life cycle and the continuum of mental health care. Addresses various treatment modalities and interventions including those applicable to community-based care.
Prerequisite: NUR 112 with a grade of C or better.

NUR 151 Psychosocial Concepts Clinical (0-4) 2 crs.
Provides experience in caring for clients with psychological issues/mental health disorders in a variety of acute care and community-based health care settings. Students will utilize critical thinking, therapeutic communication and the Neuman Systems Model in providing care to clients across the life cycle in the continuum of mental health care.
Prerequisite: NUR 112 with a grade of C or better.
Corequisite: NUR 150.

NUR 180 Pathophysiology (3-0) 3 crs.
Presents the pathophysiological basis of illness for the beginning professional nurse. Focuses on major diseases and illnesses that affect the health of the individual throughout the life cycle. Theories relating etiology, pathogenesis and clinical manifestations are used to study common disease processes that compromise the client's health.

Prerequisite: BIO 161 with a grade of C or better.

NUR 199 Bridge to Advanced Nursing (2.5-1.5) 3 crs.
Focuses on the transition of the Licensed Practical Nurse into the Harper College Associate Degree Nursing Program. Examines the philosophy of the associate degree nursing program and major concepts of the role of the Registered Professional Nurse. Includes an emphasis on application of the nursing process of selected health problems. Provides learning experiences in the laboratory and clinic to evaluate the student's knowledge of nursing concepts and performance of selected nursing skills. Discusses strategies for success. Registration limited to those students who: 1) hold licensure as Licensed Practical Nurses; 2) meet the admission requirements into the NUR AAS program; and 3) have an LPN HESI minimum test score of 850.

Prerequisite: NUR 104 with a grade of C or better. Prior or concurrent enrollment in BIO 130, NUR 180, and NUR 210 with grades of C or better.

NUR 201 Child Bearing Concepts (2-0) 2 crs.
Utilizes the Neuman Systems Model and the nursing process to provide client-centered nursing care for childbearing women, infants and clients with problems related to the reproductive system. Addresses health promotion and common alterations in body systems.

Prerequisite: NUR 141 and NUR 151 with grades of C or better.

NUR 202 Adult Health Concepts II (2-0) 2 crs.
Develops essential nursing medical and surgical knowledge and skills needed to provide nursing to clients with musculoskeletal, sensory, neurological, and renal dysfunction throughout the adult life cycle with emphasis on the older adult. Utilization of critical thinking, therapeutic communication, and the Neuman Systems Model is used through implementation of the nursing process. Health promotion and disease prevention will be addressed.

Prerequisite: NUR 141 and NUR 151 with grades of C or better.

NUR 205 Pediatric Health Concepts (2-0) 2 crs.
Expands on utilization of the nursing process and application of the Neuman Systems Model in exploring the nurse's role as provider of care, educator and advocate for infants, children, and adolescents. Addresses topics of health promotion and maintenance for children and families. Considers acute, chronic and terminal conditions experienced by children.

Prerequisite: NUR 141 and NUR 151 with grades of C or better.

NUR 210 Physical Assessment (1-2) 2 crs.
Provides theory and demonstration of skills required for basic, systematic physical assessment. Includes content and practical experience in interviewing and obtaining a health history and the skills of inspection, palpation, percussion and auscultation as they are utilized in the routine client assessments performed by the registered nurse. Focuses on the assessment of normal findings and the description of deviations from normal. Discusses cultural considerations and expected findings of individuals across the life cycle, i.e., infant/child, adolescent, young/middle adult, and older adult. Requires the synthesis of previously learned knowledge of anatomy, physiology, nursing concepts and nursing process.

Prerequisite: BIO 160 and EMS 216, or NUR 112 with grades of C or better.

NUR 216 Adult Health Concepts III (2-0) 2 crs.
Focuses on application of advanced nursing medical and surgical knowledge and skills needed to provide nursing care to clients with hematologic, immunologic, and oncology disorders. Concepts regarding critical care will also be presented and discussed. Utilization of critical thinking, therapeutic communication, and the Neuman Systems Model is used through implementation of the nursing process. Health promotion and disease prevention will be addressed.

Prerequisite: NUR 220, NUR 240 and NUR 250 with grades of C or better.

NUR 218 Role Transition Seminar (1-0) 1 cr.
Facilitates the transition from nursing student to entry-level registered nurse. Addresses the challenges and responsibilities associated with management and leadership within an organization, assuming a professional role, career management, nursing research and continuing education.

Prerequisite: Prior or concurrent enrollment in NUR 216 and NUR 260 with grades of C or better.

NUR 220 Child Bearing Clinical (0-4) 2 crs.
Provides experiences in caring for childbearing families and clients with reproductive problems in acute and community-based settings. Students will utilize the Neuman Systems Model and the nursing process to address common alterations in body systems.

Prerequisite: NUR 141 and NUR 151 with grades of C or better.

Corequisite: NUR 201.

NUR 240 Adult Health Clinical II (0-4) 2 crs.
Provides the student with the opportunity to apply knowledge learned about musculoskeletal, sensory, neurological and renal dysfunction to the provision of client care in the clinical setting. Students will utilize critical thinking, therapeutic communication and the Neuman Systems Model when providing care to clients in this area. Nursing care will be provided in a variety of setting including acute care, ambulatory care, and the community.

Prerequisite: NUR 141 and NUR 151 with grades of C or better.

Corequisite: NUR 202.

NUR 250 Pediatric Health Clinical (0-4) 2 crs.
Applies principles of the Neuman Systems Model to the nursing care of infants, children and adolescents in hospital and community-based settings. Experience is provided in caring for children and families with a variety of specific system disorders. Emphasis will be on utilizing critical thinking and the nursing process to provide safe care in various health care settings.

Prerequisite: NUR 141 and NUR 151 with grades of C or better.

Corequisite: NUR 205.

NUR 260 Adult Health Clinical III (0-6) 3 crs.
Provides the student with the opportunity to apply advanced concepts to patients with complex multisystems disorders. Areas of concentration include but are not limited to hematological dysfunction, oncology, multisystem organ failure, shock, and burns. Students will utilize critical thinking, therapeutic communication and the Neuman Systems Model when providing care to clients in this clinical rotation. Nursing care will be provided in a variety of settings including acute care and the community.

Prerequisite: NUR 220, NUR 240, and NUR 250 with grades of C or better.

Corequisite: NUR 216.

COURSE DESCRIPTIONS

NUR 280 Role Transition Practicum (0-15) 5 crs.
Provides experiences to begin the transition from nursing student to registered nurse. Emphasis will be on the collaborative care and management of groups of clients with selected system disorders. The clinical experiences will enable students to assume the role of the registered nurse in the management and delegation of nursing care of clients with system disorders and will be under the direction of a registered nurse preceptor. Students will utilize critical thinking, teaching-learning principles, therapeutic communication and the Neuman Systems Model when providing care to multiple clients in the clinical setting.
Prerequisite: NUR 216 and NUR 260 with grades of C or better.
Corequisite: NUR 218.

OCC Career Foundations

OCC 030 Computers in the Workplace (3-0) 3 crs.
Presents a basic overview of the use of computers in the modern workplace. Emphasis will be placed on practical workplace applications or computer software. Enrollment is limited to students counseled and enrolled through the Office of Access and Disability Services (ADS). Carries no transfer credit.

OCC 040 Workplace Communication I (3-0) 3 crs.
Explores the importance of effective communication in work situations. Methods of effective workplace communication are discussed and modeled by the students. Enrollment is limited to students counseled and enrolled through the Office of Access and Disability Services (ADS). Carries no transfer credit.

OCC 042 Workplace Communication II (3-0) 3 crs.
Continues to explore the importance of effective communication in work situations. Methods of effective workplace and communication are discussed and modeled by the students. Enrollment is limited to students counseled and enrolled through the Office of Access and Disability Services (ADS). Carries no transfer credit.

Prerequisite: OCC 040 with a grade of C or better or consent of instructor.

OCC 050 Career Exploration I (3-0) 3 crs.
Acquaints students with the American workplace. Explores the world of work and current issues and trends affecting employability. Introduces topics such as job/career assessment, individual education and employment plans, employment/life skills, job search techniques, employment documents, interviewing skills, employment practices and job retention skills. Enrollment is limited to students counseled and enrolled through the Office of Access and Disability Services (ADS). Carries no transfer credit.

OCC 052 Career Exploration II (3-0) 3 crs.
Continues to acquaint students with the American workplace. Explores the world of work and current issues and trends affecting employability. Continues discussion of topics such as job/career assessment, individual education and employment plans, employment/life skills, job research techniques, employment documents, interviewing skills, employment practices and job retention skills. Enrollment is limited to students counseled and enrolled through the Office of Access and Disability Services (ADS). Carries no transfer credit.

Prerequisite: OCC 050 with a grade of C or better or consent of instructor.

OCC 060 Business Office Career Observation (1-15) 4 crs.
Provides opportunities for Career Pathways students to apply their knowledge and skills in a business office setting. Classroom sessions allow for discussion of experiences and workplace practices. Enrollment is limited to students counseled and enrolled through the Office of Access and Disability Services (ADS). Carries no transfer credit.

OCC 062 Workplace Experience (1-15) 4 crs.
Provides opportunities for Career Foundation project students to apply their knowledge and skills in a workplace setting. Classroom sessions allow for discussion of experiences and workplace practices. Enrollment is limited to students counseled and enrolled through the Office of Access and Disability Services (ADS). Carries no transfer credit.

Occupational Health and Safety

See: EHS Environmental Health

Paramedic

See: Emergency Medical Services (EMS)

PED Physical Education*

*Some, but not all, physical education courses can be taken more than one time for credit. Course descriptions indicate which courses are approved for repeating.

PED 100 Nutrition and Exercise (1-2) 2 crs.
Provides an individual assessment of physical fitness level and dietary habits of each student. Exercise programming and diet recommendations are outlined and encouraged through topical lectures and active participation in exercise.

PED 104 Basic Weight Training (0-2) 1 cr.
Provides the basic knowledge of the proper use of weight training equipment. Students will learn about the specific muscle groups used during training and the different methods of developing muscular strength and endurance. Students will also be able to apply the principles they have learned and ultimately develop their own individualized program. May be repeated up to a maximum of two credit hours.

PED 105 Basketball (0-2) 1 cr.
Provides instruction in the basic skills, rules, scoring and terminology for the sport of basketball. Students will have the opportunity to practice their skills in game situations. May be repeated up to a maximum of two credit hours.

PED 106 Weight Training — Olympic and Power (0-2) 1 cr.
Provides weight training instruction with an emphasis on olympic and power lifts. Students will have the opportunity to develop advanced weight training skills as well as practice olympic and power techniques. May be repeated up to a maximum of two credit hours.

PED 109 Volleyball (0-1) .5 cr.
Provides instruction in basic skills, rules, scoring and terminology. May be repeated up to a maximum of one credit hour.

PED 110 Intermediate Weight Training (0-2) 1 cr.
Provides the advanced student with a more challenging strength training program. Students will review the muscles used in a personal strength training program, the safety issues regarding appropriate lifts and use of the equipment, contraindicated movements, stretching and spotting techniques, warm-up and cool down techniques. In addition, students will also learn about the use and misuse of ergogenic aids, steroids and nutritional supplements. Students will have the opportunity to develop and participate in their own individualized muscle strength and endurance training program.

PED 119 Mind/Body I (0-2) 1 cr.
Provides a wide variety of mind/body modalities designed to develop balance, strength, flexibility, proper posture alignment and stamina. Additional emphasis is on alleviating tension and fatigue and improving circulation. The fitness guidelines followed in this course are designed for the apparently healthy individual and are not designed for individuals with known heart, pulmonary or metabolic disease.

PED 120 Team Sports (0-2) 1 cr.
Provides instruction in one or two of the following team sports: competitive volleyball, floor hockey, football, soccer and softball. Material covered includes fundamental skills, offensive and defensive tactics of play, game strategy, rules and terminology. May be repeated up to a maximum of two credit hours.

PED 122 Yoga I (0-2) 1 cr.
Provides students with the opportunity to develop a strong healthy body and an increased level of mental and physical relaxation through the use of yoga postures and breathing techniques. Students will learn to recognize the presence of tension and be able to consciously relieve it.

PED 123 Power Yoga (0-2) 1 cr.
Provides students with an introductory course emphasizing the development, maintenance and improvement of concentration, strength and flexibility through yoga postures and breathing techniques. This course is for students who already have muscular strength and cardiovascular endurance. The fitness guidelines followed in this course are designed for apparently healthy individuals and not designed for individuals with known hearing, pulmonary, or metabolic disease. Students with known orthopedic problems such as back or knee pain should see a physician and receive medical clearance.

PED 128 Yoga II (0-2) 1 cr.
Provides students with the opportunity to build on the skills they have gained in PED 122. Special emphasis will be on learning and practicing more advanced yoga postures and breathing. This course is not designed for students who are pregnant or with known heart, pulmonary, metabolic disease or orthopedic problems. Students are encouraged to see a physician before embarking on any exercise program.
Prerequisite: PED 122 with a grade of C or better, or consent of instructor.

PED 129 Mind/Body II (0-2) 1 cr.
Provides advanced instruction in a variety of mind/body modalities. More advanced movement patterns are introduced. Requires strong abdominal core. Advanced breathing techniques are emphasized. The fitness guidelines followed in this course are designed for the apparently healthy individual and are not designed for individuals with known heart, pulmonary or metabolic disease.
Prerequisite: PED 119 with a grade of C or better or consent of instructor.

PED 130 Individual Sports (0-2) 1 cr.
Provides instruction in a variety of individual sports. Fundamental skills, terminology, proper equipment and safety are emphasized. Students will have the opportunity to practice the skills they have learned in a competition situation. Horse-back riding, snow skiing, cross country skiing, in-line skating, canoeing, fly casting, spin casting, cycling and mountain biking are some of the sports offered. May be repeated up to a maximum of two credit hours.

PED 131 Lifeguard Training (0-2) 1 cr.
Provides lifeguard candidates with the skills and knowledge needed to prevent and respond to aquatic emergencies. The course material and activities adhere to the American Red Cross program requirements. Students receive CPR/FPR (Cardio Pulmonary Rescue for the Professional Rescuer), First Aid and Lifeguard Training Certification upon successful completion of this course.
(NOTE: Students must be at least 15 years of age to qualify for American Red Cross Lifeguard Training Certification.)

PED 136 Wrestling (0-2) 1 cr.
Provides instruction in basic collegiate wrestling techniques. Emphasis is on offensive and defensive moves, strategy and physical conditioning. Students will have the opportunity to practice the skills that they learned in a competitive situation.

PED 139 Aquasize (0-1) .5 cr.
Provides an in-water exercise program which emphasizes the development of cardiopulmonary endurance, flexibility, muscle strength, muscle endurance and general movement efficiency. Music is used to help motivate the students. The fitness guidelines followed in this course are designed for the apparently healthy individual and are not designed for individuals with known cardiovascular, pulmonary or metabolic diseases. Students are encouraged to see a physician before embarking on any exercise program. Students need not be able to swim to participate. May be repeated up to a maximum of one credit hour.

PED 140 Sculpturing Muscle Strength and Tone (0-1) .5 cr.
Provides students the opportunity to sculpture the entire body through muscle strength and endurance exercises to music. Flexibility and proper stretching exercises are emphasized. This course utilizes a variety of exercise equipment to accomplish personal exercise goals.

PED 144 Hap Ki Do (0-2) 1 cr.
Provides a basic understanding, training, and practical application of Hap Ki Do self-defense techniques. Includes proper training methods, physical conditioning, and techniques.

PED 145 Tae Kwon Do I (0-2) 1 cr.
Provides a basic understanding, training and practical application of Tae Kwon Do techniques. Includes proper training methods, physical conditioning, techniques, and rules and regulations for contests.

PED 149 Sport Performance Fitness (0-2) 1 cr.
Provides physical conditioning theories and drills for improvement in speed, agility, quickness, strength and power (SAQSP). Applies sport-specific plyometric and high intensity fitness activities. May be repeated up to a maximum of two credit hours.

PED 150 Bowling (0-2) 1 cr.
Provides students with a progressive sequence in learning both basic and advanced skills. History, techniques, scoring and etiquette will also be covered. This course may be repeated up to a maximum of two credit hours.

PED 152 Golf (0-1) .5 cr.
Introduces to students the fundamentals of golf which include the grip, stance and swing using irons and woods. Terminology, etiquette, scoring and safety standards are also emphasized. May be repeated up to a maximum of one credit hour.

PED 153 Swimming-Beginning (0-2) 1 cr.
Provides students with an entry level swimming class with emphasis on learning the basic skills of swimming and aquatic safety. May be repeated up to a maximum of two credit hours.

PED 154 Swimming-Intermediate and Advanced (0-2) 1 cr.
Provides instruction in intermediate and advanced swimming skills with emphasis on learning all the swimming strokes, springboard diving skills, competitive swimming techniques, safety techniques and aquatic fitness. May be repeated up to a maximum of two credit hours. You must be able to swim 50 yards.

PED 158 Tennis (0-1) .5 cr.
Provides instruction of the basic skills, rules and scoring. Students will have the opportunity to practice their skills in both singles and doubles games situations. May be repeated up to a maximum of one credit hour.

PED 159 Competitive Tennis (0-1) .5 cr.
Provides rules, scoring, theory and practice of the skills of competitive tennis. Emphasizes game strategy in singles and doubles play. May be repeated up to a maximum of one credit hour.

PED 160 Modern Dance I (0-2) 1 cr.
Opportunity to explore movement potential, increase technical proficiency and broaden rhythm background; skills in technique and composition stressed. May be repeated up to a maximum of two credit hours.

COURSE DESCRIPTIONS

- PED 162 Introduction to Ballet (0-2)** 1 cr.
Provides instruction for students with little or no previous training in ballet. May be repeated up to a maximum of two credit hours.
- PED 163 Basic Aerobics (0-1)** .5 cr.
Provides a wide variety of aerobic fitness programs structured to tone and trim the body. Vigorous exercise routines may be choreographed to music. Emphasis is on developing cardiovascular endurance, flexibility, muscular strength and endurance and movement efficiency. The fitness guidelines followed in this course are designed for the apparently healthy individual and are not designed for individuals with known heart, pulmonary or metabolic disease. May be repeated up to a maximum of one credit hour.
- PED 166 Advanced Aerobics (0-1)** .5 cr.
Provides a wide variety of advanced fitness programs structured to challenge the experienced student. Vigorous exercise routines may be choreographed to music. Emphasis is on developing a higher level of cardiovascular pulmonary endurance, flexibility, muscular strength and endurance and movement efficiency. The fitness guidelines followed in this course are designed for apparently healthy individuals and are not designed for individuals with known heart, pulmonary or metabolic disease.
Prerequisite: PED 163 with a grade of C or better or consent of instructor.
- PED 167 Jazz Dance I (0-2)** 1 cr.
Provides students with the elements of ballet, modern dance and Afro-Haitian to combine them into a dance form that is idiomatic, syncopated and fast paced. May be repeated up to a maximum of two credit hours.
- PED 168 Racquetball (0-1)** .5 cr.
Offers the theory and practice of the game of racquetball. Students will learn rules, terminology, etiquette and game strategies. Emphasis will be on developing basic and advanced racquetball skills. May be repeated up to a maximum of one credit hour.
- PED 169 Competitive Racquetball (0-1)** .5 cr.
Provides rules, scoring, theory and practice of the skills of competitive racquetball. Emphasis on the strategy of singles and doubles play. May be repeated up to a maximum of one credit hour.
- PED 178 Judo and Self-Defense/ Beginning (0-2)** 1 cr.
Provides a basic understanding and practical application of judo and self-defense techniques. Includes proper training methods, physical conditioning, techniques and rules and regulations for contests.
- PED 179 Judo and Self-Defense/ Advanced (0-2)** 1 cr.
Orientation and instruction in all aspects of judo and self-defense. Provides greater emphasis on Randori and preparation for competition.
Prerequisite: PED 178 with a grade of C or better, or consent of instructor.
- PED 181 Ju-Jitsu I (0-2)** 1 cr.
Introduces Ju-jitsu (Miyama Ryu) the art of the Japanese Samurai from which judo, aikido and karate were derived. Based on mechanical principles, ju-jitsu is designed for self-defense. This non-competitive art is suited for women and men, regardless of size and physical condition, stressing technique and attitude. Benefits are improved fitness, coordination, awareness and defense skills training.
- PED 183 Ju-Jitsu II (0-2)** 1 cr.
Continues PED 181. Building upon the skills obtained in PED 181, a broader range of more advanced techniques and applications are covered.
Prerequisite: PED 181 with a grade of C or better, or consent of instructor.

- PED 191 Hip Hop Dance (0-2)** 1 cr.
Provides students with the fundamentals of hip hop dance which includes basic and complex movements, musicality, rhythms and spatial awareness. Teaches students general patterns and basics for choreographing routines. May be repeated up to a maximum of two credit hours.
- PED 195 Physical Fitness I (0-2)** 1 cr.
Provides a structured aerobic and strength training program designed for individuals free of heart, pulmonary and metabolic disorders. The course offers the student computer assisted fitness evaluations, guidance in developing an individualized exercise prescription and professional supervision. **Prior to beginning the program**, a physician supervised stress test is required for men 45 years or older and women 55 years or older, and all individuals regardless of age who have multiple cardiovascular risk factors. The stress test will be waived provided a written physician's clearance can be obtained.
- PED 196 Physical Fitness II (0-2)** 1 cr.
Continues PED 195. Introduces other wellness components as well, such as nutrition and stress management.
Prerequisite: PED 195 with a grade of C or better.

Physical Education Courses — Theory for Major and Minor Students

- PED 200 Introduction to Physical Education (2-0)** 2 crs.
Provides orientation and history of physical education in the United States. Presents aims and objectives and new approaches to physical education as an academic discipline.
- PED 201 Standard First Aid (3-0)** 3 crs.
Provides a comprehensive first aid course, which is taught under the guidelines of the American Red Cross. This course includes the American Red Cross Responding to Emergencies component, which covers adult, child and infant Cardiopulmonary Resuscitation (CPR) and the use of the Automated External Defibrillator (AED). This course is designed to prepare students to respond to emergency situations with confidence in their ability to perform the necessary skills. Two certificates are issued, Community CPR and Responding to Emergencies certification, after successful completion of the skills and written tests.
- PED 203 Health (3-0)** 3 crs.
Provides an in-depth look at the physical, psychological, emotional, social, spiritual and environmental factors which contribute to the overall quality of a person's life. An investigation of how our lifestyle compares with other people in the world and the role and impact of the World Health Organization is emphasized. Mental health, nutrition, fitness, communicable and non-communicable diseases, killer diseases, drugs, human sexuality, family living (marriage, divorce, parenting), middle and old age issues and death and dying are some of the topics covered. Physical and psychological assessments are included in this class.
- PED 205 Drugs in Our Culture (3-0)** 3 crs.
Presents materials that examine the physiological, psychological and sociological aspects of drug use and abuse. The intent of the course is to provide a potpourri of the facts, attitudes and opinions necessary to understand what drugs do, how they do it, who uses them and why. Also, treatment modalities as well as legal and ethical issues in drug abuse will be discussed.
- PED 207 Human Sexuality (3-0)** 3 crs.
Introduces students to the familial, sociological, biological and emotional implications of human sexuality. Emphasis is on exploring attitudes regarding sexual issues, clarifications of personal beliefs and development of healthy sexual behavior.

PED 208 Personal Training I: Bioscientific Foundations (2-2) 3 crs.
 Provides an analysis of basic human movement skills as they relate to exercise and physical fitness. Emphasis is on human anatomy and exercise physiology, as well as cardiorespiratory development, muscular strength and endurance. Guidelines for training and physical fitness are provided through laboratory experiences. Especially designed for students who plan on becoming a personal trainer, physical education teacher or for those who are entering the fitness field.

PED 209 Personal Training III: Functional Exercise Instruction (1-2) 2 crs.
 Provides the academic and practical experience that will enable students who are interested in becoming certified exercise instructors or personal trainers to design and deliver safe and effective physical training programs.
Prerequisite: PED 208 with a grade of C or better, or consent of Department Chair.

PED 210 Sports Officiating (2-0) 2 crs.
 Provides comprehensive instruction on rules and officiating techniques in interscholastic sports. Students will also have the necessary preparation for the Illinois High School Athletic Association certification exam as well as other certifying agencies. Officiating opportunities are provided in college intramural and intercollegiate athletic programs. Some sports covered, but not limited to, are baseball, basketball and volleyball.

PED 211 Physical Education in Elementary School (3-0) 3 crs.
 Provides instruction on the growth and development of elementary school children and the planning and organizing of elementary physical education programs.

PED 212 Personal Training II: Fitness Assessment Procedures (1-2) 2 crs.
 Provides students with a study of the basic scientific components of physical fitness. It includes the measurement of different indices of physical fitness common to corporate, clinical and lab settings. Especially designed for students who plan on becoming a personal trainer, physical education teacher or those who are entering the fitness field.
Prerequisite: PED 208 with a grade of C or better or consent of instructor.

PED 213 Wellness for Life (2-2) 3 crs.
 Provides students with the knowledge of how to become fit and well and the information and tools which will assist them in formulating a personal fitness/wellness program. The course will cover physical fitness, nutrition, weight management, addictive behaviors, diseases which are lifestyle related and stress management. Students are actively involved in their learning process through the use of computers and lab sessions and will be required to attend weekly workout sessions in the fitness center.

PED 214 Personal Training Internship (0-5) 1 cr.
 Provides students who plan on becoming a personal trainer, physical education teacher or for those entering the fitness field the opportunity to utilize the knowledge and skills provided in PED 208 and PED 212. Students will be assigned to lab settings (fitness centers, clubs) in order to practice their skills and will be under the supervision of both the Harper College physical education instructor and the supervisor of the assigned setting.
Prerequisite: PED 208 and PED 212 with grades of C or better, or consent of the instructor.

PED 218 Introduction to Coaching (3-0) 3 crs.
 Provides students with the knowledge of the critical components involved in the profession of coaching. Helps students develop their coaching philosophy, learn methods of motivating athletes, learn to teach sport techniques and tactics, develop training/fitness conditioning programs, plan season workouts, understand team management, and understand coaching ethics, law and liability. Upon completion of this course, students will be able to take the American Sport Education Program (ASEP) Coaching Principles Certification exam.
 (NOTE: Passing the certification exam is part of the requirement for obtaining the Bronze Level ASEP Coaching Certification.)

PED 219 Care and Prevention of Athletic Injuries (2-2) 3 crs.
 Provides students with the basic principles in the prevention and care of injuries related to sport activities. This course teaches students who plan to coach how to make the correct decisions during athletic play and provides them with the latest first aid protocols. The course meets the requirements for the American Sport Education Program (ASEP) Sport First Aid course. Students have the opportunity to take the ASEP test upon successful completion of the course.

PED 220 Track and Field Techniques (2-0) 2 crs.
 Provides an opportunity for students to learn the history of track and field as well as basic skill techniques, rules, training, conditioning, coaching techniques, meet administration and responsibilities of officials. Students are able to apply their skills by planning, participating and officiating their own track and field meet.

PED 221 Soccer Techniques (2-0) 2 crs.
 Provides the fundamental skills and organizational techniques of the game of soccer. Strategy, rules, terminology, practice drills, conditioning, safety standards and officiating techniques are emphasized.

PED 222 Football Techniques (2-0) 2 crs.
 Provides the fundamental skills and organization techniques of the game of football. Strategy, rules, terminology, practice drills, conditioning, safety standards and officiating techniques are emphasized.

PED 223 Volleyball Techniques (2-0) 2 crs.
 Provides the fundamental skills and organizational techniques of the game of volleyball. Strategy, rules, terminology, practice drills, conditioning, safety standards and officiating techniques are emphasized.

PED 224 Basketball Techniques (2-0) 2 crs.
 Provides students with the knowledge and fundamental skills of basketball. Offensive and defensive playing techniques, game strategy, coaching and applications of the basic rules are also covered. Students will have the opportunity to use these skills and techniques in game situations.

PED 225 Tennis Techniques (2-0) 2 crs.
 Provides the fundamental skills and organizational techniques of the game of tennis. Strategy, rules, terminology, practice drills, conditioning, safety standards and officiating techniques are emphasized for both singles and doubles play.

PED 226 Baseball Techniques (2-0) 2 crs.
 Provides the analysis, instruction and demonstration of fundamental skills, strategy, practice drills, conditioning, safety standards and officiating techniques in teaching and coaching baseball.

PED 228 Aquatics (2-0) 2 crs.
 Provides students with instruction in the planning, development, organization and management of aquatic programs. This course discusses the history of aquatics and covers fundamental skills and techniques. Students will have the opportunity to practice their swimming and water safety skills and techniques. You must be able to swim 50 yards.

COURSE DESCRIPTIONS

- PED 230 Water Safety Instructor (1-2)** 2 crs.
Provides instruction in both American Red Cross Fundamentals of Instructor Training (FIT) and Water Safety Instruction (WSI). The following qualifications apply:
- Students must be 16 years of age or older on the last day of class. Student must perform rescue techniques and demonstrate water safety skills.
 - Student must swim 50 yards of the following strokes with American Red Cross Level 4 accuracy: back crawl, front crawl, elementary backstroke, sidestroke and breast stroke.
 - Student must swim 15 yards of the butterfly stroke.
 - Student must maintain position on back one minute in deep water while floating or sculling.
 - Student must tread water for one minute.

PED 246 Tap Dance (0-2) 1 cr.
Provides instruction in basic techniques of tap dance. Emphasizes the development of tap dance routines.

PED 270 Community Health (2-0) 2 crs.
Presents basic principles of community living and examines scientific methods applied to environmental health in urban and rural communities. Focuses on the functions of community health organizations and the way they relate to individual health needs.

PED 271 Women's Health (3-0) 3 crs.
Focuses on health issues as it pertains to women and the barriers unique to women in gaining a higher health status. Includes physical, mental and spiritual aspects of health; women's anatomy and physiology; pregnancy, childbirth and infertility; violence against women; body image and eating disorders; and societal, historical and political influences of the global woman. Discusses the detection, treatment and prevention of illnesses in women.

PHB Phlebotomy

PHB 101 Phlebotomy Principles and Practice (3-2) 4 crs.
Includes the role of the phlebotomist, infection control and safety in the workplace, venipuncture-collection equipment and supplies, skin puncture collection procedures, specimen handling, basic laboratory tests, quality assurance, communication skills and professionalism. Includes 40 successful micro and macro blood draws.
Prerequisite: Prior or concurrent enrollment in HSC 112 with a grade of C or better.

PHB 102 Phlebotomy Internship (1-8) 2 crs.
Consists of 120 clinical hours of supervised phlebotomy practice at a local health care facility. The internship rotation schedule is arranged on an individual basis. Special registration permit for registering for the internship is required.
(NOTE: Possession of a current Cardiopulmonary Resuscitation (CPR) for the Health Care Provider certification card and completion of the program's health requirements prior to placement in the internship.)
Prerequisite: PHB 101 with a grade of C or better.

PHI Philosophy

PHI 101 Critical Thinking (3-0) 3 crs.
Introduces the student to reasoning in a language-centered context. Students will learn how to identify arguments and distinguish them from other types of discourse. Some topics covered will be: evaluating claims, recognizing informal fallacies, problem solving, evaluating media. Students will also learn how to cast issues in a neutral manner to recognize and appreciate a variety of perspectives, and to argue for and against more than one perspective on an issue. The focus of this course is on everyday practical reasoning.
IAI H4 906

PHI 102 Symbolic Logic (3-0) 3 crs.
Introduces the student to formal symbolic logic. After an introduction to the concept of argument, students will learn both Aristotelian and modern symbolic logic. Applications to the real world include contracts, legal arguments, and computer languages.

PHI 105 Introduction to Philosophy (3-0) 3 crs.
Principles and problems of philosophy as seen in different schools of thought. Topics: validity of human knowledge; nature of reality; mind and body; free will and determinism; moral and aesthetic values; and religious belief.
IAI H4 900

PHI 115 Ethics (3-0) 3 crs.
Consideration of problems of value and conduct, including the question of the "good life" or happiness; and contemporary moral issues such as war, violence, drugs, racism, crime and punishment.
IAI H4 904

PHI 120 Social and Political Philosophy (3-0) 3 crs.
Focuses on the ideas of justice, liberty, equality, law and order, rights and privileges. This includes discussion of such issues as democracy, communism, nuclear war, capital punishment, sexual equality, hunger and drugs.

PHI 150 Business Ethics (3-0) 3 crs.
Introduces philosophical ethical theory and its application to business decisions. Considers theories of economic justice, social responsibility, hiring practices and rights of employees and employers.

PHI 160 Non-Western Philosophy (3-0) 3 crs.
Introduces selected philosophical concepts and value systems of several non-Western cultures. Gives attention to the Bhagavad Gita, Vedanta and other Hindu texts, Confucius, the Tao Te Ching and other Chinese classics and key texts from at least two other traditions.
IAI H4 903N

PHI 170 Environmental Ethics (3-0) 3 crs.
Introduces philosophical ethical theory and its application to environmental issues. Explores the roots of Western ideas about nature (Biblical, Greek, early Modern), the American environmental discussion and current positions including development, conservation, preservation and restoration. Considers issues including human-centered vs. life-centered views, whether species or habitats have value, appreciation vs. cost/benefit approaches, and bioregionalism.

PHI 180 Biomedical Ethics (3-0) 3 crs.
Considers the ethics of the professional-patient relationship (confidentiality, informed consent, paternalism, truth-telling), the ethics of life and death (abortion, euthanasia, suicide), and the ethics of medicine on a social scale (the right to health care, the distribution of medical resources).

PHI 190 Feminist Philosophy (3-0) 3 crs.
Introduces philosophical thinking and its application to issues concerning women. Explores a variety of theories by and about women. Considers a number of issues including images of women, biological vs. social conditioning, the relation of gender to class and race, women's spirituality, education, family, work, violence and pornography. Men are welcome to take the course.

PHI 205 Religions of the World (3-0) 3 crs.
Introduces the teachings, practices, social structures and histories of the religions of India (mainly Buddhism and Hinduism), and China and Japan (mainly Confucianism, Shinto and Taoism), and of the Middle East (mainly Christianity, Islam and Judaism).
IAI H5 904N

PHI 210 Death and Dying (3-0) 3 crs.
Presents an interdisciplinary approach to the meaning of death. Focuses on biological, psychological, legal, philosophical and religious aspects of the phenomena of death and dying.

PHI 215 Religion in America (3-0) 3 hrs
Surveys the contribution of religion to American culture including the differences between rural and urban society, the development of religious freedom and the rise of a "secular religion." Examines the emergence of new forms of belief and practice and the variety of religious issues confronting American society today.
IAI H5 905

PHI 220 Philosophy of Religion (3-0) 3 crs.
Examines the nature and presuppositions of Western religions, especially the reasons which can be given for and against the existence of God. Selected further topics: the problem of evil, life after death, the nature of religious experience, language, knowledge, and authority, religion and science, major philosophical theories on the nature of religion.
IAI H4 905

PHI 231 History of Philosophy—Ancient and Medieval (3-0) 3 crs.
Surveys the major figures and schools in Western philosophical tradition from the pre-Socratic Greeks through the 14th century. Emphasis on interpreting philosophical reflection in light of the social, political, religious and cultural context from which it arises.
IAI H4 901

PHI 232 History of Philosophy—Modern (3-0) 3 crs.
Surveys the major figures and schools in Western philosophical tradition from the 15th to the 20th century. Emphasizes interpreting philosophical reflection in light of the social, political, religious and cultural context from which it arises.
IAI H4 902

PHS Physical Science

PHS 101 Physical Science Survey (3-0) 3 crs.
Designed to give the non-science major an understanding and appreciation of motion and energy applications, geology, atmospheric science and astronomy. Knowledge of high school algebra is assumed.
IAI P9 900

PHS 105 Energy and Society (3-2) 4 crs.
Introduces non-science majors to topics from various sciences as they relate to energy resources and energy consumption. Connects the theory of energy to its practical applications. Examines the connection between science and economics, politics and other social issues, using energy as a focus. (Meets laboratory science requirements for non-science majors.)
IAI P1 901L

PHS 111 Introduction to Physical Science (3-2) 4 crs.
Examines topics from physics including motion, structure of matter, electricity and magnetism, waves and particles, and basic chemical principles. Course is for non-science majors fulfilling laboratory science requirements. Knowledge of high school algebra is assumed.
IAI P1 900L

PHS 112 Exploring the Earth and Universe (3-2) 4 crs.
Examines topics in rocks and minerals, earth forms and history, weather, the solar system, stars and the universe. Course is for non-science majors fulfilling laboratory science requirements. Knowledge of high school algebra is assumed.
IAI P1 905L

PHS 115 Introduction to Meteorology (3-2) 4 crs.
Gives the non-science major an understanding and appreciation of the composition and structure of the atmosphere, thermodynamic processes, forces and related small- and large-scale motions, air masses, fronts, tropical cyclones, solar and terrestrial radiation, severe weather, basic weather forecasting techniques, and general circulations that affect the atmosphere. Knowledge of high school algebra is assumed.
IAI P1 905L

PHY Physics

PHY 121 Introductory Physics I (4-3) 5 crs.
Covers mechanics, heat, fluids, and sound. Intended for students in life science, architecture and technology. Students pursuing degrees in engineering, physics or chemistry should enroll in PHY 201. Knowledge of high school trigonometry assumed. Prerequisite: MTH 140 with a grade of C or better, or required placement test scores into MTH 200.
IAI P1 900L

PHY 122 Introductory Physics II (4-3) 5 crs.
Continues PHY 121. Topics in electricity, magnetism, light and modern physics.
Prerequisite: PHY 121 with a grade of C or better.

PHY 201 General Physics I—Mechanics (4-2) 5 crs.
Introduces mechanics using calculus. Topics include force and motion, work and energy, rotation, oscillations, and fluids. For students in chemistry, engineering, mathematics and physics.
IAI P2 900L
Prerequisite: MTH 201 with a grade of C or better or concurrent enrollment.

PHY 202 General Physics II—Electricity and Magnetism (4-2) 5 crs.
Introduces electricity and magnetism using calculus. Topics include charge; electric field and potential; resistance, capacitance, and inductance; DC and AC circuits; magnetic fields; laws of Gauss, Ampere and Faraday; Maxwell's equations and electromagnetic waves; geometric optics, lenses and mirrors, interference and diffraction, and polarization. For students in chemistry, engineering, mathematics and physics.
Prerequisite: MTH 202 with a grade of C or better or concurrent enrollment, and PHY 201 with a grade of C or better.

PHY 203 General Physics III—Thermal and Quantum Physics (4-2) 5 crs.
Introduces thermodynamics and quantum physics. Topics include temperature and heat, ideal gas law, first and second law of thermodynamics, kinetic theory of gasses, entropy, relativity, quantization, the atom, solid state physics and conduction, nuclear and elementary particle physics. For students in chemistry, engineering, mathematics and physics.
Prerequisite: MTH 212 with a grade of C or better or concurrent enrollment, and PHY 202 with a grade of C or better.

PLS Paralegal Studies

PLS 101 Introduction to Paralegal Studies (3-0) 3 crs.
Surveys the functions of law; courts and lawyers in modern society; analysis of the origin, training and role of the paralegal; professional responsibilities of the lawyer, outline of the fields and specializations within the practice of law; and instruction in legal research and writing upon a review of the sources and works of law. Students must take the Paralegal Studies entrance examination.

PLS 102 Fundamentals of Legal Research (3-0) 3 crs.
Orients students to law library and various legal publications, treatises and other legal writings encountered in day-to-day practice of law. Emphasizes developing student capability to analyze, interpret and communicate facts, ideas and law through comprehension of legal research techniques.
Prerequisite: PLS 101 with a grade of C or better, or consent of program coordinator.

PLS 103 Litigation (3-0) 3 crs.
Emphasizes the role of the paralegal in litigation. Analyzes civil procedure and instruction in preparation of documents used in lawsuits, covering pre-and post-trial matters, evidentiary problems and assistance during trials.
Prerequisite: PLS 101 with a grade of C or better, or consent of program coordinator.

COURSE DESCRIPTIONS

- PLS 105 Family Law (3-0)** 3 crs.
Emphasizes the role of the paralegal in family law. Examines domestic relations law with emphasis on marriage, divorce, annulment, separation agreements, adoption and other legal matters involving the family.
Prerequisite: PLS 101 with a grade of C or better, or consent of program coordinator.
- PLS 123 Real Property Law (3-0)** 3 crs.
Provides historical study of common law estates and interests and statutes. Emphasizes the role of and relationship between the attorney and the paralegal in preparing the more common types of real property transactions and conveyances such as deeds, contracts and leases; drafting problems involving these various instruments; special research projects related to the subject matter, and a study of the system of recording and search of public documents. Students must take the Paralegal Studies entrance examination or have the coordinator's consent prior to registration.
- PLS 200 Probate (3-0)** 3 crs.
Emphasizes the role of the paralegal in probate matters. Surveys the principles, history and sources of probate law; examines probate court forms and tax returns; and details instruction in gathering information and preparing documents for the paralegal's supervising attorney.
- PLS 201 Tort and Insurance Law (3-0)** 3 crs.
Emphasizes the role of the paralegal in tort and insurance law. Studies basic tort and insurance principles, examines insurance claim procedures and pleading forms used in litigation of various actions.
- PLS 202 Estate Planning (3-0)** 3 crs.
Emphasizes the role of the paralegal in estate planning. Examines common forms of wills and trusts; survey of legal principles applicable thereto; and instruction in draftsmanship of documents by the paralegal for the supervising attorney.
- PLS 205 Contract Law (3-0)** 3 crs.
Surveys the principles, history and sources of contract law. Examines the elements of a valid, enforceable contract. Provides instruction regarding the drafting of contracts. Examines Article 2 of the Uniform Commercial Code regarding the sale of goods. Emphasizes the role of the paralegal in contract law.
- PLS 206 Environmental Law (3-0)** 3 crs.
Studies American environmental law. Students will learn about the Clean Air Act, the Clean Water Act, the Comprehensive Environmental Response, Compensation and Liability Act, the Endangered Species Act, wetlands, asbestos, and environmental racism. Emphasis is placed on the role of the paralegal in an Environmental Law issue. Ethical issues dealing with Environmental Law are also presented and discussed.
- PLS 208 Internship in Paralegal Studies (1-10)** 3 crs.
Provides supervised experience in a legal setting to enhance students' technical paralegal skills. One-hour seminar each week devoted to paralegal issues.
Prerequisite: PLS 101, PLS 102, PLS 103, and a PLS elective with grades of C or better.
- PLS 210 Corporate and Securities Law (3-0)** 3 crs.
Prepares paralegal student to aid in incorporation, corporate record keeping and compliance with administrative regulations. This includes the understanding of statutes, rules, forms and releases pertaining to the principal acts administered by the Securities and Exchange Commission.
- PLS 212 Law Office Management (3-0)** 3 crs.
Studies law office management relying on the system analysis approach to examine design, methods and develop processes necessary for integrating the paralegal into the hierarchy of the organization of a law office with emphasis on defining functions of the lawyer, paralegal and legal secretary.

- PLS 220 Community Law (3-0)** 3 crs.
Develops skills and competencies needed to recognize legal problems and comply with the procedures relating to various government agencies. Emphasis will be on federal housing and landlord-tenant law; mental and civil commitments, welfare laws; labor law; social security law; and consumer protection law. The paralegal's role in community law is stressed.
- PLS 221 Bankruptcy Law (3-0)** 3 crs.
Surveys the principles, history and sources of bankruptcy law in the United States. Examines the law relating to Chapters 7, 9, 11, 12 and 13 of the United States Bankruptcy Code. Provides instruction in the drafting of the schedules needed for Chapter 7, 9, 11, 12 and 13 filings. Examines the jurisdiction of the federal bankruptcy courts. Stresses the role of the paralegal in bankruptcy law.
- PLS 222 Intellectual Property (3-0)** 3 crs.
Provides historical study of the development of intellectual property law in the United States. Emphasizes the role of the paralegal in preparing applications for patent, copyright, and trademark protections with federal and state governments. Provides an overview of the role of the paralegal in preparing for litigation involving intellectual property law issues. Reviews ethical issues that arise in the intellectual property arena.
- PLS 223 Computer-Assisted Legal Research (3-0)** 3 crs.
Provides the paralegal student with exposure to and training in the use of the computer to perform legal research. Emphasizes Westlaw, LEXIS, and Internet research. Introduces the student to the latest forms of computer-assisted legal research as they become available.
Prerequisite: PLS 102 with a grade of C or better, or consent of program coordinator.
- PLS 224 Commercial Real Estate Law (3-0)** 3 crs.
Studies American commercial real estate law. Students will learn the anatomy of a commercial real estate transaction; the role of a paralegal in a commercial real estate transaction; the importance of title searches and surveys; and the role of leases, easements, and licenses. Students will also review the process utilized to obtain commercial real estate mortgages and the role of a paralegal in preparing for a commercial real estate closing. Emphasis is placed on the role of the paralegal in commercial real estate transactions. Ethical issues dealing with commercial real estate are also presented and discussed.
- PLS 230 Topics in Paralegal Studies (1-0 to 6-0)** 1-6 crs.
Studies selected problems or topics in paralegal studies. The exact content and instructional methodology will vary semester to semester depending on the material to be studied. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. This course may be repeated two times to a maximum of six credit hours.

PSC Political Science

- PSC 101 American Politics and Government (3-0)** 3 crs.
Focuses on political involvement, elections, campaigns, interest groups, Congress, courts, the presidency and the constitution. Discusses how our government runs, as well as current political controversies. Utilizes political figures as guest speakers and offers opportunities for political participation, especially in election year. IAI S5 900
- PSC 210 Topics in Political Science (1-0 to 6-0)** 1-6 crs.
Studies selected problems or topics in political science. The exact content and instructional methodology will vary from semester to semester depending on the material to be studied. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. This course may be taken from one to six credit hours.

PSC 220 State and Local Government in the United States (3-0) 3 crs.
Examines state and local governments including their powers, organization, functions, development, politics and contemporary issues/problems.
IAI S5 902

PSC 250 Comparative Politics (3-0) 3 crs.
Explores the politics of selected countries in Africa, Asia, Europe, Latin America and/or the Middle East. Examines economic, social and political patterns and problems in different nations.
IAI S5 905

PSC 260 Middle Eastern Politics (3-0) 3 crs.
Examines political, social, economic, military, religious and terrorist forces in the Middle East. Investigates the politics of specific countries in the area.

PSC 270 Global Politics (3-0) 3 crs.
Uses role playing to study how foreign policy is made. Explores human problems such as populations, food and energy on a global dimension. Examines international bodies, including the United Nations, and explores how nations interact.
IAI S5 904

PSC 280 Non-Western Comparative Politics (3-0) 3 crs.
Examines the political systems of selected non-Western countries, including common governmental problems, causes of political instability and revolution and techniques of political analysis.
IAI S5 906N

PSY Psychology *

* Educational Psychology, see EDU 211.

Students with Disabilities in School, see EDU 219.

Introductory Social Psychology, see SOC 215.

PSY 101 Introduction to Psychology (3-0) 3 crs.
Studies human and animal behavior with emphasis on the scientific nature of psychological investigation. The course includes introduction and history of psychology, research methods, life span development, biology of behavior, learning, intelligence, motivation, emotion, personality, abnormal behavior, and therapy.
IAI S6 900

PSY 106 Practical Psychology (1-0 to 3-0) 1-3 crs.
Presents a practical application of the psychological principles that lead to efficiency of learning, adjustment, motivation, communication and attitudes in everyday life and classroom situations. This course does not meet Social Science requirements; it is a Group 6 elective.

PSY 107 Humanistic Psychology (2-0) 2 crs.
Focuses on various aspects of human behavior and personality. Several theories of psychosocial adjustment are presented and discussed. Through class discussion and structured activities in this workshop style course, students will examine their values, attitudes, experiences, strengths, weaknesses and interpersonal skills and how these affect themselves and others.

PSY 108 Topics in Psychology (2-0 to 3-0) 2-3 crs.
Provides specific topic seminars which allow each student the opportunity to examine current issues, such as career development, developing self-esteem, happiness or personal development. The focus is on the analysis and organization of experiences for personal and positive growth. The exact content and instructional methodology will vary semester to semester depending on the material to be studied. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. This course may be repeated two times to a maximum of six credit hours.

PSY 210 Introduction to Research in Psychology (3-0) 3 crs.
Introduction to the logic and theory of the scientific method. Emphasis on the basic statistical procedures and principles of experimental design. The purpose is to promote critical interpretations of behavioral data through an understanding of methods used in psychology.
Prerequisite: PSY 101.

PSY 216 Child Psychology I (3-0) 3 crs.
Individual child from conception to fetal development, infancy and latency. Emphasis placed on child rearing practices and techniques that appear beneficial in creation of independent and well-adjusted personality. Child's interaction with parents, siblings, peers and greater community considered in the formation of the integrated self.
IAI S6 903
Prerequisite: PSY 101.

PSY 217 Adolescent Psychology (3-0) 3 crs.
Psychological study of the human organism from pubescence through adolescence and the beginnings of adulthood. Adolescence is studied as a time of rapid change resulting from increased drive state, physical maturity and changed social expectation. Emphasis is on how these changes are influenced by social institutions such as the family, the schools and the world of work, as well as by the divisions and conflicts taking place in society generally.
IAI S6 904
Prerequisite: PSY 101.

PSY 218 Adult Psychology (3-0) 3 crs.
Focuses on human psychological development from young adulthood to old age and adult psychological processes of personality. Emphasizes identity and intimacy of young adults and changing male and female roles with maturity; the family; work; personality and psychopathology; aging and death.
IAI S6 905
Prerequisite: PSY 101 or consent of instructor.

PSY 220 Biological Basis of Behavior (3-0) 3 crs.
Studies the physiological aspects of behavior. Emphasizes the physiological foundations of motivation, consciousness, learning, emotion, aggression and stress. Clarifies the interaction between physiology, behavior and environment.
Prerequisite: PSY 101.

PSY 225 Theories of Personality (3-0) 3 crs.
Investigates the determining factors and dynamics of human personality. Studies major contemporary approaches such as psychoanalytic, humanistic, learning, trait and factor theories. Also considers the primary methods of research and personality assessment within the field.
IAI PSY 907
Prerequisite: PSY 101.

PSY 228 Psychology of Human Development (3-0) 3 crs.
Introduces a complete coverage of human growth from conception to death. Emphasizes psychological and psychosexual developmental stages and crises. Incorporates interaction of biological factors with psychosocial stressors of one's environment.
IAI S6 902
Prerequisite: PSY 101.

PSY 230 Abnormal Psychology (3-0) 3 crs.
Studies the definition and classification of abnormal behavior. Current theories and empirical findings concerning the biological, psychological, and social cultural causes of behavioral disorders are examined as well as research concerning the treatment and prevention of behavioral disorders. Research methods for discovering the causes of and effective treatments for abnormal behavior are also reviewed.
IAI PSY 905
Prerequisite: PSY 101.

COURSE DESCRIPTIONS

PSY 235 Learning Theory and Human Behavior (3-0) 3 crs.
Studies the basic principles of learning theory, particularly as they apply to human behavior. Includes application of these principles to the modification of human behavior.

Prerequisite: PSY 101.

PSY 245 Industrial/Organizational Psychology (3-0) 3 crs.
Studies psychological principles and theories of organizations. Topics include structure and management practices; individual and work group behavior; employee and employer culture; and socialization conflict.

IAI PSY 906

Prerequisite: PSY 101.

RAC Heating, Ventilation and Air Conditioning (HVAC)

RAC 101 Refrigeration Fundamentals (3-3) 4 crs.
Introduces vocabulary, concepts and scientific principles used in the refrigeration industry. Develops skills in pipe fitting, use of hand tools and operation of instruments used in the refrigeration trade.

RAC 102 Refrigeration Systems (3-3) 4 crs.
Continues to develop principles and concepts learned in RAC 101. Familiarizes students with components and accessories added to basic refrigeration systems for special applications. Develops trouble diagnosing procedures.

Prerequisite: RAC 101 with a grade of C or better.

RAC 103 Heating Principles (3-3) 4 crs.
Describes sources and methods of producing heat for residential, commercial and industrial systems. Develops skills in testing, adjusting and replacing heating system components.

RAC 104 Residential Comfort Systems (2-2) 3 crs.
Integrates concepts, principles and knowledge of equipment available for residential comfort systems including solar heat. Describes several residential systems and places emphasis on diagnosing system malfunctions.

Prerequisite: RAC 101 and RAC 103 with grades of C or better.

RAC 105 Heating and Cooling Controls (3-3) 4 crs.
Describes the purposes and principles of operation and causes of failure in electrical components common to residential and small commercial systems. Emphasizes wiring schematics and diagrams.

Prerequisites: RAC 103 with grades of C or better.

RAC 106 Advanced Controls (3-3) 4 crs.
Continues RAC 105. Includes electrical components. Emphasizes control systems, system malfunctions and proper repair procedures.

Prerequisite: RAC 105 with a grade of C or better.

RAC 108 Domestic Refrigeration Appliances (3-3) 4 crs.
Provides a comprehensive examination of the operation, problem solving and repair of residential refrigeration appliances.

Prerequisite: RAC 101 and RAC 105 with grades of C or better.

RAC 201 Refrigeration System Design I (3-3) 4 crs.
Considers the factors in the selection of refrigeration compressors, evaporators, condensers and compressor oil, as well as the accessories used in commercial refrigeration. Examines the thermo-dynamic properties of the common refrigerants.

Prerequisite: RAC 102 with a grade of C or better, or consent of instructor.

RAC 202 Refrigeration System Design II (3-3) 4 crs.
Continues consideration of factors in the selection of metering devices, pipe sizing, motors and controls. Develops concepts of lubrication, multi-staging and cascade freezer systems.

Prerequisite: RAC 201 with a grade of C or better, or consent of instructor.

RAC 203 Air Conditioning Principles (2-2) 3 crs.
Examines the properties of air through the use of the psychometric chart and tables. Studies methods of computing heat gains and losses for residential and light commercial systems.

Prerequisite: RAC 104 with a grade of C or better, or consent of instructor.

RAC 204 Air Distribution (2-3) 3 crs.
Considers the factors in the selection of a duct system for efficient air distribution. Studies fan laws and pressure drops for proper fan and duct size selection. Describes types of registers and their location for optimum performance.

Prerequisite: RAC 104 with a grade of C or better, or consent of instructor.

RAD Radiologic Technology

RAD 101 Introduction to Radiologic Technology (2-0) 2 crs.
Provides an introduction to the field of radiologic technology, health care delivery systems, issues related to the health care environment, importance of effective communication, team building, professionalism, and diversity in the health care center. The student will develop basic skills in radiography and patient care essential for providing quality health care. Professional development and lifelong learning will also be emphasized by introducing the students to various organizations and agencies within radiography and other health care systems. Additional fee charged for HealthStream testing. NOTE: Students must be admitted into the Radiologic Technology program to register for this course.

RAD 102 Radiologic Procedures I (2-2) 3 crs.
Examines radiologic anatomy and examination procedures for the upper appendicular skeleton, the chest and the abdomen. The basic concepts of radiologic positioning are presented. Students are taught techniques and procedures related to reading various types of technique charts and are able to program X-ray units for correct exposure for designated examination. NOTE: Students must be admitted into the Radiologic Technology program to register for this course.

Prerequisite: Prior or concurrent enrollment in HSC 104, HSC 107 and HSC 112 with grades of C or better.

Corequisite: RAD 101 and RAD 103.

RAD 103 Radiologic Principles I (2-2) 3 crs.
Introduces students to the principles of radiography and factors controlling radiologic production and radiation protection. Radiation production, prime factors, radiographic film, intensifying screens, picture archived communication systems/computerized radiography, laser printers, and film processing are presented. NOTE: Students must be admitted into the Radiologic Technology program to register for this course.

Prerequisite: Prior or concurrent enrollment in HSC 104, HSC 107 and HSC 112 with grades of C or better.

Corequisite: RAD 101 and RAD 102.

RAD 105 Radiologic Procedures II (2-2) 3 crs.
Examines the radiologic anatomy and examination procedures for the lower extremity and bony thorax. Students are taught to read various types of technique charts and program X-ray units for correct exposure for these examinations.

Prerequisite: RAD 102 and RAD 103 with grades of C or better.

Corequisite: RAD 106 and RAD 107.

RAD 106 Radiologic Principles II (2-2) 3 crs.
Provides supervised environment to provide the necessary skills needed to evaluate the radiologic image and provide appropriate recommendations for improving the diagnostic quality of the radiograph.

Prerequisite: RAD 103 with a grade of C or better.

Corequisite: RAD 105 and RAD 107.

RAD 107 Radiologic Clinical Education I (0-8) 2 crs.
Applies principles of radiologic positioning under the supervision of qualified registered American Registry of Radiologic Technologists (ARRT) technologist. Emphasizes appendicular and axial skeleton. Includes principles of exposure, image quality and other associated professional skills. Placement of clinical assignment by program coordinator. NOTE: American Heart Association Cardiopulmonary Resuscitation (CPR) certification must be completed prior to placement in a clinical rotation.
Prerequisite: RAD 102 and RAD 103 with grades of C or better.
Corequisite: RAD 105 and RAD 106.

RAD 201 Radiologic Clinical Education II (0-8) 2 crs.
Applies principles of radiologic positioning under the supervision of qualified registered American Registry of Radiologic Technologists (ARRT) technologist. Continued emphasis on contrasted procedures, appendicular and axial skeleton, the chest and bony thorax, and other radiologic skills. Placement of clinical assignment and seminar by program coordinator.
Prerequisite: RAD 107 with a grade of C or better.

RAD 202 Radiologic Procedures III (1-0) 1 crs.
Covers the radiologic anatomy and examination procedures for the digestive, urinary, and hepatobiliary systems. Students are taught to read various types of technique charts and program X-ray units for correct exposure for these examinations.
Prerequisite: RAD 102 and RAD 105 with grades of C or better.
Corequisite: RAD 201.

RAD 215 Principles and Procedures in Mammography (3-0) 3 crs.
Provides a detailed overview of the history, equipment and radiographic principles and their application to mammography. Course focuses on breast anatomy and physiology, mammographic techniques, positioning skills, critical equipment features, image receptor characteristics, and image quality management. Successful completion of this course along with RAD 216 will meet the required contact hours of documented learning required to sit for Mammography Technologist Certification exam. This course may be scheduled as (1) one week long (five days) course offered in fall and spring, (2) one full day per week for five weeks, or (3) two evenings per week for six weeks.
Prerequisite: Admission into the Mammography certificate program.

RAD 216 Mammography Externship (0-2) 1 cr.
Provides students with 32 hours of clinical experience to gain required skills to perform quality breast imaging mammograms in a health care setting under the direct supervision of a qualified practitioner. Emphasis on principles and procedures of mammography. Presented as a precepted clinical to complete in two weeks immediately following successful completion of RAD 215.
Prerequisite: Prior or concurrent enrollment in RAD 215.

RAD 222 Radiologic Procedures IV (2-2) 3 crs.
Covers the radiologic anatomy and examination procedures for the vertebral column, the cranium, paranasal sinuses and facial bones. Includes instruction on how to read various types of technique charts and program X-ray units for correct exposure for these examinations.
Prerequisite: RAD 102, RAD 105 and RAD 202 with grades of C or better.
Corequisite: RAD 225.

RAD 223 Advanced Radiologic Principles (3-0) 3 crs.
Provides a continuation of topics covered in RAD 106 such as the principles involved in diagnostic X-ray production and radiographic and fluoroscopic equipment. Topics include X-ray production, electromagnetic interactions with matter, X-ray devices, equipment circuitry, targets, filtration. Covers the application of physical concepts as related to X-ray image production. (Formerly RAD 203).
Prerequisite: RAD 106 with a grade of C or better.
Corequisite: RAD 222, RAD 224, and RAD 225.

RAD 224 Radiobiology (2-0) 2 crs.
Provides an in-depth study of radiation biology, radiation regulations and radiation measurements. Somatic and genetic effects of ionizing radiation is presented. Radiation safety practices for staff and patient/clients are covered. (Formerly RAD 204).
Prerequisite: RAD 106 with a grade of C or better.
Corequisite: RAD 222, RAD 223 and RAD 225.

RAD 225 Radiologic Clinical Education III (0-12) 3 crs.
Provides a continuation of radiologic experiences with emphasis on radiographic positioning of the cranial and facial bones; trauma; surgery and mobile procedures; and observation of radiologic interpretation. Placement of clinical assignment by program coordinator. (Formerly RAD 205).
Prerequisite: RAD 201 with a grade of C or better.
Corequisite: RAD 222, RAD 223, and RAD 224.

RAD 228 Digital Imaging (.5-1) 1 cr.
Provides an in-depth investigation of digital medical imaging including digital radiography systems, image acquisition, exposure principles, image processing and post-processing, image display and quality control, and picture archiving and communication systems. The student will gain a comprehensive understanding of computer system components and function, digital imaging systems (including comparison with film/screen systems), radiation safety principles, cassette-based compared with cassetteless systems, exposure factor and processing selections, quality assurance and acceptance standards.
Prerequisite: RAD 106 and RAD 223 with grades of C or better.
Corequisite: RAD 239.

RAD 236 Radiologic Pathology (3-0) 3 crs.
Examines the etiology and processes of trauma and disease. Emphasis placed on radiologic pathology of body systems. (Formerly RAD 206).
Prerequisite: RAD 222 and RAD 224 with grades of C or better.
Corequisite: RAD 240.

RAD 237 Radiologic Quality Assurance (.5-1) 1 cr.
Presents analytical and statistical concepts and tools necessary to plan and manage continuous quality improvement efforts in a health care setting. Emphasis is placed on analyzing radiological processes to ensure quality patient care and services, to improve departmental efficiency and to establish and maintain a nurturing work environment. (Formerly RAD 207).
Prerequisite: RAD 225 with a grade of C or better.

RAD 238 Sectional Anatomy for Imaging (2-0) 2 crs.
Studies human anatomical structures in multiple imaging planes. Reviews images created by MRI and Computed Tomography as well as gross anatomical images. Focuses primarily on identification of normal anatomy, but also includes some pathological conditions. Discusses the role of MRI in physiological imaging.
Prerequisite: BIO 161 with a grade of C or better.

RAD 239 Radiologic Special Procedures (3-0) 3 crs.
Emphasizes routine special procedures including cardiovascular imaging, neuroradiography, reproductive system radiography and special studies of the viscera. The course details portable and surgical radiography, pediatric and geriatric radiography and related imaging modalities such as computed tomography, magnetic resonance imaging, ultrasonography and neuroradiography. Includes interventional radiology procedures such as stent-coil placement and venous access placement. The student will be able to participate and function in each of these different special procedures. (Formerly RAD 209).
Prerequisite: RAD 222 with a grade of C or better.
Corequisite: RAD 236, RAD 237, and RAD 240.

COURSE DESCRIPTIONS

RAD 240 Radiologic Clinical Education IV (0-12) 3 crs.
Covers advanced clinical experiences with guided practice of special procedures. Experience with mobile units at bedside and in the operating room and emergency room. Placement of clinical assignment by the program coordinator. (formerly RAD 210).

Prerequisite: RAD 225 with a grade of C or better.

Corequisite: RAD 236, RAD 237, and RAD 239.

RAD 251 Radiologic Clinical Education V (0-12) 3 crs.
Provides a continuation of advanced clinical experiences with guided practice of special procedures. Experience with mobile units at bedside, in the operating room and in the emergency room. Placement of clinical assignment by the program coordinator. (Formerly RAD 211).

Prerequisite: RAD 239 and RAD 240 with grades of C or better.

RAD 258 Radiologic Seminar (1-0) 1 cr.
Provides a review and discussion of radiologic principles, techniques and methods, and film critique. Emphasis is placed on the interdependence of theory and principles in preparation for the American Registry for Radiologic Technology (ARRT) examination and resume writing and job search skills. (Formerly RAD 208).

Prerequisite: RAD 236 and RAD 240 with grades of C or better.

RDG Reading

RDG 080 Reading Skills I—Deaf/Hard-of-Hearing (4-0) 4 crs.
Presents instruction in the fundamental reading skills for deaf and hard-of-hearing students. Recognizing the unique learning needs of deaf/hard-of-hearing students, American Sign Language (ASL) will be used to promote development of reading skills. Vocabulary development will be stressed. This course will stress both academic reading development and reading in a vocational context. Carries no transfer credit.

RDG 085 Reading Skills II—Deaf/Hard-of-Hearing (4-0) 4 crs.
Continues the development of fundamental reading skills from RDG 080. The student's first language, American Sign Language (ASL), will be used to promote the development of reading skills. The curriculum materials will once again stress vocabulary development, academic reading development and vocational applications. Carries no transfer credit.

Prerequisite: RDG 080 with a grade of C or better, or consent of instructor.

RDG 090 Fundamentals of Reading (3-0) 3 crs.
Presents instruction in the fundamental skills of reading. Designed for students whose linguistic and reading skills are insufficient for successful college work. Enrollment is determined by a score below the required score on the Harper College reading assessment test. Prepares students for RDG 097 or RDG 099. Carries no transfer credit.

RDG 091 Bridge to CNA Success (2-0 to 4-0) 2-4 crs.
Prepares students for success in passing CNA 101 and the State of Illinois Nurse Aide Competency Exam. Includes instruction in Blackboard and other online instructional tools, reading comprehension strategies, study skills and time management techniques, CNA course vocabulary review, test-taking strategies and practice, supplemental instruction, and personal and classroom career counseling support. Carries no transfer credit.

Prerequisite: ENG 100 or ENG 101 with a grade of C or better; or ESL 073 with a grade of B or better; or RDG 090 or RDG 099 with a grade of C or better; or an ACT Reading score of 20 or higher; or required placement test scores.

RDG 097 Reading and the College Textbook (3-0) 3 crs.
Provides classroom instruction in reading strategies to improve comprehension and vocabulary development in the college text. Utilizes a specific text from a selected college course and related readings with the goal to bring textbook reading skills to college level. Student must enroll in an identified course that is paired with RDG 097. Successful completion of RDG 097 fulfills the reading proficiency requirement of the Harper College assessment policy. Carries no transfer credit.

Prerequisite: RDG 090 with a grade of C or better, or required placement test score.

RDG 099 Developmental Reading (3-0) 3 crs.
Provides classroom instruction in comprehension utilizing a wide variety of written materials for students who need assistance in bringing their reading skills to college level. Enrollment in RDG 099 is determined by obtaining a score below the passing score on the Harper College reading placement test. Successful completion of RDG 099 fulfills the reading proficiency requirement of the Harper College assessment policy. Carries no transfer credit.

Prerequisite: RDG 090 with a grade of C or better or required placement test score.

RDG 100 Reading for the Technologies (3-0) 3 crs.
Teaches reading, writing and problem-solving strategies appropriate to vocational/technical programs. Provides practice with applying skills necessary for success in specific career-vocational programs. Carries no transfer credit.

RDG 106 Critical College Reading Skills (3-0) 3 crs.
Develops the full array of mature, fluent reading skills, including critical and analytical comprehension, content area reading, predictive reading, vocabulary development, speed and flexibility. Also covers theories of comprehension and language development.

SCM Supply Chain Management

SCM 101 Supply Chain Management (3-0) 3 crs.
Provides an introduction and overview of the field of supply chain management. Topics covered include objectives, benefits, relationships with other functions, organization, planning, inventory control, production control, purchasing, just-in-time, receiving and stores, material handling, physical distribution, automation, implementation and pitfalls, measurement and control, and finance.

SCM 120 Production Control Concepts (3-0) 3 crs.
Describes the development, scope and objectives of production control. Specific attention will be given to scheduling, control, critical path, machine loading, materials requirements planning and other techniques, functions, and activities which are implicit in this aspect of material management operations.

Prerequisite: SCM 101 or consent of program coordinator.

SCM 121 Principles of Physical Distribution (3-0) 3 crs.
Movements of goods from production to delivery to distribution of channel intermediaries. Attention is focused upon distribution channels, traffic management, warehousing, inventories, organization, control and communication. Heavy emphasis is given to distribution system design and distribution system analysis.

Prerequisite: SCM 101 or consent of program coordinator.

SCM 122 Inventory Control (3-0) 3 crs.
Provides an overview of the dynamics of managing inventory in the constantly changing industrial and commercial environment. Topics include forecasting sales and inventory requirements, computer applications to inventory control problems, building inventory models, simulation and the relationships of inventory control to marketing management and production control.

Prerequisite: SCM 101 or consent of program coordinator.

SCM 123 Traffic and Transportation (3-0) 3 crs.
Provides an overview of transportation systems and the impact on cost and service that each system provides. Examines costs in various modes and routings. Reviews operational aspects of the transportation function.

Prerequisite: SCM 101 or consent of program coordinator.

SCM 124 Material Handling and Packaging (3-0) 3 crs.
Presents material handling and packaging as tools for use in a total system of material management. Material handling concepts include palletization, containerization, conveyor systems, fully automated warehousing and integrated production lines. Packaging is treated as a function with ramifications far beyond mere protection of a product.

Prerequisite: SCM 101 or consent of program coordinator.

SCM 125 Purchasing (3-0) 3 crs.
Covers the nature and importance of the procurement function in modern business organizations. Principles, tools, methods and techniques employed for the acquisition of materials, supplies and equipment.

Prerequisite: MKT 245 or SCM 101.

SCM 226 Material Requirements Planning (MRP) (3-0) 3 crs.

Covers computer based Material Requirements Planning (MRP) systems, important to modern material management. Focuses on using MRP systems to reduce inventories, set priorities, initiate orders, purchase requirements and develop master production schedules.

Prerequisite: SCM 122 or consent of program coordinator.

SCM 227 Just-In-Time (JIT) (3-0) 3 crs.
Provides a comprehensive study of the JIT philosophy/technique for improving manufacturing practices. Results in improved material flow systems, low inventories, improved manufacturing activities, increased capital turnover and maximized profits.

SCM 230 International Supply Chain Management (3-0) 3 crs.

Provides a comprehensive study of the supply chain management function related to the international environment: business/cultural customs, legal considerations, purchasing strategies, financial aspects, international distribution and counter-trade.

Prerequisite: SCM 101 or consent of instructor.

SCM 259 Advanced Purchasing (3-0) 3 crs.
Continues SCM 125. Emphasis to be given to managerial aspects of purchasing, contract negotiation and administration and speculative purchasing.

Prerequisite: SCM 125.

SCM 281 Topics in Supply Chain Management (1-0 to 3-0) 1-3 crs.

Studies selected problems or topics in supply chain management. The exact content and instructional methodology will vary semester to semester depending on the material to be studied. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. This course may be repeated to a maximum of six credit hours.

Prerequisite: Six (6) hours of SCM coursework (effective Spring 2012) or consent of program coordinator.

SGN Sign Language

SGN 101 American Sign Language I (4-0) 4 crs.

Introduces the student to American Sign Language with emphasis on comprehension and production of basic language functions, grammatical structures and level-appropriate vocabulary. Presents information about the Deaf community and culturally appropriate behaviors. Designed for students with no previous experience in American Sign Language.

SGN 102 American Sign Language II (4-0) 4 crs.

Reviews American Sign Language vocabulary, language functions and grammatical structures presented in SGN 101. Integrates material previously presented in SGN 101 and further develops language comprehension and production skills at increasing levels of complexity. Applies increasingly complex grammatical structures to language functions. Presents and integrates additional information about Deaf culture into language usage.

Prerequisite: SGN 101 with a grade of C or better, or consent of department chair.

SGN 103 Fingerspelling and Numbering Systems in American Sign Language (3-0) 3 crs.

Provides instruction in the rules of fingerspelling and numbering systems in American Sign Language. Students will have opportunities for practice in the development of expressive and receptive skills at increasing levels of complexity. Receptive skill development focuses on whole words and numbers in isolation, as well as reading fingerspelling and numbers embedded in signed sentences. Expressive skill development focuses on accuracy, fluency, clarity and speed.

Prerequisite: SGN 101 with a grade of C or better, or consent of department chair.

SGN 104 CASE: Signed English (1-0 to 3-0) 1-3 crs.

Provides instruction in conceptually accurate signed English and introduces students to deaf culture. Combines English grammatical structures with American Sign Language signs, initialized signs, fingerspelling and specific ASL linguistic principles. Designed for parents and teachers of the hearing impaired, other interested professionals and students preparing to enter the Sign Language Interpreting program.

One Credit: Covers introduction to the manual alphabet and numbers 1-20, basic linguistic principles including signing space, sight line, sign parameters, Time Line and questions, and basic vocabulary skill development and introduces the student to deaf culture.

Two Credits: Covers preceding content along with numbers 20-30, linguistic principles: negation, present and absent referent, person affix/agency, additional lexical items and information regarding myths and stereotypes and conversation regulators.

Three Credits: Covers preceding content along with numbers 30-100, directional verbs, number incorporation, noun-verb pairs, classifiers, lexical development and cultural information, including the deaf community and deaf education.

SGN 201 American Sign Language III (4-0) 4 crs.

Reviews American Sign Language vocabulary, language functions and grammatical structures presented in SGN 102 and focuses on grammatical and lexical expansion with emphasis on idiomatic usage and socio-cultural communicative functions.

Prerequisite: SGN 102 with a grade of C or better, or consent of department chair.

SGN 202 American Sign Language IV (3-0) 3 crs.

Reviews American Sign Language grammatical structures and lexical items presented in SGN 201. Focuses on conversational practice to develop expressive and receptive facility with the language. Includes culturally significant topics and interaction with members of the deaf community.

Prerequisite: SGN 201 with a grade of C or better, or consent of department chair.

SGN 205 American Sign Language V (3-0) 3 crs.

Provides an examination of the grammatical features of American Sign Language. Includes a contrastive analysis of English and ASL syntax and semantics. Further develops ASL discourse skills. Emphasizes ASL storytelling, analyzing, retelling, and translating ASL discourse. Designed for students interested or currently enrolled in the Sign Language Interpreting program.

Prerequisite: SGN 202 with a grade of C or better, or consent of department chair.

COURSE DESCRIPTIONS

SGN 210 American Sign Language Community: A Cultural Perspective (4-0) 4 crs.

Examines the history of American Sign Language, the emergence of the deaf community as a linguistic and cultural group, the cultural norms, values, traditions and rules of social behavior of the deaf community, minority dynamics and cross cultural interactions.

IAI H1 900

Prerequisite: SGN 201 with a grade of C or better, or consent of department chair.

SGN 212 Introduction to American Sign Language Literature (3-0) 3 crs.

Explores American Sign Language literature as an expression of the lives of deaf people in America. Introduces the tradition of the deaf community within historical, social and cultural contexts in works of folklore, nonfiction, fiction, poetry and drama. Designed to increase students' knowledge, skills and appreciation of American Sign Language, deaf culture, and deaf literature. Provides students with an appreciation of the diversity of American culture.

Prerequisite: SGN 205 with a grade of B or better, or consent of department chair.

SOC Sociology

SOC 101 Introduction to Sociology (3-0) 3 crs.

Analysis and description of the structure and dynamics of human society. Application of scientific methods to the observation and analysis of social norms, groups, intergroup relations, social change, social stratification and institutions.

IAI S7 900

SOC 120 The Family in Contemporary Society (3-0) 3 crs.

Examines the family as a social institution and as a dynamic interactive system. Topics include courtship, marriage, family systems, parenting, non-traditional forms of the family.

IAI S7 902

SOC 205 Social Problems (3-0) 3 crs.

Analysis of contemporary social problems. Investigation of theories dealing with conformity and deviance, racial and minority group prejudice, crime and delinquency, personality problems, urbanization and fundamental institutional problems due to social change.

IAI S7 901

Prerequisite: SOC 101 with a grade of C or better.

SOC 210 Social Institutions (3-0) 3 crs.

Primary social institutions, including family, religious, educational, economic and political. Questions considered: who participates, what are the functions, what are the consequences, and an evaluation of the effects of the institutions on the society.

SOC 215 Introduction to Social Psychology (3-0) 3 crs.

Introduces the methods used to understand, explain and predict how the thoughts, feelings and actions of individuals are influenced by the thoughts and actions of social groups. Investigates how attitudes, beliefs and behaviors are influenced by others within society and how society is influenced by the individual.

IAI S8 900

Prerequisite: PSY 101 or SOC 101 with a grade of C or better.

SOC 220 Topics in Social Science (1-0 to 6-0) 1-6 crs.

Studies selected problems or topics in social science. The exact content and instructional methodology will vary from semester to semester depending on the material to be studied. A syllabus or course outline containing additional information will be available with pre-registration materials each time that the course is offered. This course may be taken from one to six credit hours.

SOC 230 Sociology of Sex and Gender (3-0) 3 crs.

Examines the social processes in society which translate biological differences (sex) between men and women into social and psychological categories or gender roles. Various theories will be considered in an attempt to understand the existence of gender inequality and how the process of socialization influences the proper "place" for men and women in society. Gender roles and power are considered when analyzing the marketplace, politics, marriage and family, or in considering issues such as the feminization of poverty, violence in the home, and male sensitivity.

IAI S7 904D

Prerequisite: SOC 101 with a grade of C or better.

SOC 235 Race and Ethnicity (3-0) 3 crs.

Examines differential power relations between racial and ethnic groups. Analyzes the economic, political and cultural structures that produce and reproduce these power differences. Focuses on cultural diversity and various dimensions of prejudice and discrimination including an analysis of racial and ethnic inequality and its origins, conditions under which these forms of inequalities are (re)produced.

IAI S7 903D

Prerequisite: SOC 101 with a grade of C or better.

SPA Spanish

SPA 101 Elementary Spanish I (4-0) 4 crs.

Develops basic communicative skills in listening, speaking, reading and writing Spanish to familiarize students with the knowledge of cultures and people of the Spanish-speaking world. This course is the first of a two-semester sequence of courses designed for students with *no prior knowledge* of Spanish. This course is not for native speakers.

SPA 102 Elementary Spanish II (4-0) 4 crs.

Continues to develop basic communicative skills in listening, speaking, reading and writing Spanish to expand students' knowledge of cultures and people of the Spanish-speaking world. This course is the second of a two-semester sequence. This course is not designed for native speakers. Two years of high school Spanish are recommended.

Prerequisite: SPA 101 with a grade of C or better, or consent of instructor.

SPA 112 Heritage Spanish I (4-0) 4 crs.

Examines the dialectal and sociolinguistic variation present in Spanish-speaking communities in the United States as well as in Spanish-speaking countries. Students will become cognizant of the linguistic strengths they possess, develop a sense of pride in their heritage by studying their language and culture and expand their ability to use Spanish in new applications and contexts. Examines the concept of standard Spanish and explores the situations in which standard and non-standard Spanish should be employed and how to adjust language usage accordingly. This course emphasizes the orthography, pronunciation and lexical expansion in formal Spanish. This course is intended for Hispanic heritage students that comprehend spoken Spanish and may have varying degrees of speaking and writing ability.

SPA 113 Heritage Spanish II (4-0) 4 crs.

Examines the dialectal and sociolinguistic variation present in Spanish-speaking communities in the United States as well as in Spanish-speaking countries. This course is a continuation of SPA 112. Students will become cognizant of the linguistic strengths they possess, develop a sense of pride in their heritage by studying their language and culture and expand their ability to use Spanish in new applications and contexts. Examines the concept of standard Spanish and explores the social situations in which standard and non-standard Spanish should be employed and how to adjust language usage accordingly. This course emphasizes the study of formal grammatical aspects of Spanish. This course is intended for Hispanic heritage students that comprehend spoken Spanish and may have varying degrees of speaking and writing ability.

- SPA 121 Spanish for Law Enforcement Officers (3-0)** 3 crs.
Teaches basic Spanish phrases and questions necessary to carry out specific law enforcement protocols. Students will be able to aid victims and control offenders in potentially dangerous situations involving Hispanics. Discussions cover cross-cultural issues pertinent to relationships between non-Hispanic officers and the Hispanic community members. It is strictly non-grammar based and the focus is on immediate interaction.
- SPA 122 Spanish for Nursing (3-0)** 3 crs.
Teaches basic Spanish phrases and questions necessary to provide medical care and attention to Spanish-speaking patients in medical office settings and in hospitals. In addition to workplace Spanish language, discussions cover cross-cultural issues pertinent to relationships between health care workers and Hispanic community members. Emphasis is placed on enhancing the quality of patient care. It is strictly non-grammar based and the focus is on immediate interaction.
- SPA 201 Intermediate Spanish (4-0)** 4 crs.
Deepens the students' functional skills in comprehending, speaking, reading, and writing Spanish and provides an overview of Hispanic culture in various countries. This course begins the intermediate Spanish skills sequence and while reviewing the grammar at the elementary level, it extends the growth of communicative proficiency and furthers the understanding of Hispanic culture. Students will also be exposed to short pieces of Hispanic literature. This course is not designed for native speakers. Three years of high school Spanish are recommended.
Prerequisite: SPA 102 with a grade of C or better, or consent of instructor.
- SPA 202 Intermediate Spanish (4-0)** 4 crs.
Deepens the students' functional skills in comprehending, speaking, reading, and writing Spanish and provides an overview of Hispanic culture in various countries. This course completes the intermediate Spanish skills sequence and while reviewing the grammar structures previously covered, it uses an integrated skills approach to extend the growth of communicative proficiency in Spanish and to develop the understanding of Hispanic culture. Students will analyze short pieces of Hispanic literature and engage in a basic research project. This course is not designed for native speakers. Four years of high school Spanish are recommended.
IAI H1 900
Prerequisite: SPA 201 with a grade of C or better, or consent of instructor.
- SPA 205 Spanish Intensive Oral Practice (3-0)** 3 crs.
Focuses on conversational practice to develop oral facility; specially designed exercises in pronunciation, stress and rhythm. Individual readings of modern Spanish works discussed in class. Written and oral compositions based on readings. Designed to help students bridge the gap between the intermediate and advanced levels.
Prerequisite: SPA 202 with a grade of C or better, or equivalent or consent of instructor.
- SPA 210 Introduction to Modern Spanish Literature (3-0)** 3 crs.
Studies readings of selected 20th century masterpieces. Introduction to poetry. Oral readings stressing pronunciation and diction. Speaking based on discussion of works read. Writing based on readings and class discussions. Designed to help students bridge the gap between the intermediate and advanced levels.
IAI H3 917
Prerequisite: SPA 202 with a grade of C or better, or equivalent or consent of instructor.

SPE Speech and Theatre

- SPE 101 Fundamentals of Speech Communication (3-0)** 3 crs.
Theory and practice of oral communications. Development of poise, confidence and skill in speech organization and delivery. Emphasis on frequent speaking, development of standards of criticism and selection and organization of material.
IAI C2 900
- SPE 102 Advanced Public Speaking (3-0)** 3 crs.
Provides students with advanced practice of oral communication in public speaking and communication theory. Topics included are: an examination of informative, persuasive and special occasion speech preparation and delivery; effective use of visual aids; analysis of communication events and the effects of communication messages.
Prerequisite: SPE 101 with a grade of C or better, or consent of instructor.
- SPE 107 Oral Interpretation (3-0)** 3 crs.
Provides the student an opportunity to select, prepare and perform various types of literature. Emphasizes the use of body and voice in oral reading.
IAI TA 916
- SPE 111 Introduction to the Theatre (3-0)** 3 crs.
Introduces theatrical and dramatic art. Emphasis on providing the student with the tools of analysis which give him or her insight into the total imaginative process that makes up the art of the theatre.
IAI F1 907
- SPE 121 Ethnic Traditions in American Theatre (3-0)** 3 crs.
Examines how cultural perspective and minority expression shape theatre in the United States by exploring the roots of change in traditional theatre and the role of community in the formation of theatre companies. Specific focus will be given to African American theatre, Asian American theatre, Latino theatre, Native American theatre, feminist theatre, gay and lesbian theatre, political theatre, performance art and post-modernism as well as international trends.
IAI F1 909D
- SPE 180 Applied Forensics I (0-2)** 1 cr.
Provides practical experience in the preparation of public speeches, oral interpretation programs, acting scenes, group performances and/or limited preparation speaking situations for public presentation in forensics/speech competition.
- SPE 181 Applied Forensics II (0-2)** 1 cr.
Continues SPE 180. Provides practical experience in the preparation of public speeches, oral interpretation programs, acting scenes, group performances and/or limited preparation speaking situations for public presentation in forensics/speech competition.
Prerequisite: SPE 180 with a grade of C or better.
- SPE 182 Applied Forensics III (0-2)** 1 cr.
Continues SPE 181. Provides practical experience in the preparation of public speeches, oral interpretation programs, acting scenes, group performances and/or limited preparation speaking situations for public presentation in forensics/speech competition.
Prerequisite: SPE 181 with a grade of C or better.
- SPE 183 Applied Forensics IV (0-2)** 1 cr.
Continues SPE 182. Provides practical experience in the preparation of public speeches, oral interpretation programs, acting scenes, group performances and/or limited preparation speaking situations for public presentation in forensics/speech competition.
Prerequisite: SPE 182 with a grade of C or better.

COURSE DESCRIPTIONS

SPE 190 Applied Theatre Practicum I (0-2) 1 cr.

Provides practical experience in directing, acting, costuming, scene design, lighting and repertory.

Prerequisite: Consent of instructor.

SPE 191 Applied Theatre Practicum II (0-2) 1 cr.

Continues SPE 190. Provides practical experience in directing, acting, costuming, scene design, lighting and repertory.

Prerequisite: SPE 190 with a grade of C or better and consent of instructor.

SPE 192 Applied Theatre Practicum III (0-2) 1 cr.

Continues SPE 191. Provides practical experience in directing, acting, costuming, scene design, lighting and repertory.

Prerequisite: SPE 191 with a grade of C or better and consent of instructor.

SPE 193 Applied Theatre Practicum IV (0-2) 1 cr.

Continues SPE 192. Provides practical experience in directing, acting, costuming, scene design, lighting and repertory.

Prerequisite: SPE 192 with a grade of C or better and consent of instructor.

SPE 200 Interpersonal Communication (3-0) 3 crs.

Studies the nature and scope of interpersonal communication. Equips the student to manage the challenges of daily, one-on-one communication. Includes the study of identity and self as they relate to communication theory and practice as well as communication behaviors associated with the development, maintenance and termination of different types of relationships. Emphasis will be placed on practical communication skills such as listening, perception, language and nonverbal communication.

SPE 205 Group Discussion (3-0) 3 crs.

Provides experience and introduces students to the principles, techniques and types of group discussion including roles, goals, cohesiveness, listening, problem-solving, leadership and conflict.

SPE 212 Acting I (3-0) 3 crs.

Methods used in the art of acting; stress on practical acting situations.

IAI TA 914

SPE 213 Acting II (3-0) 3 crs.

Continues the development of acting skills introduced in SPE 212. Helps the student develop a believable character through play analysis and scene study. Introduces the student to acting styles.

Prerequisite: SPE 212 with a grade of C or better and consent of instructor.

SPE 216 Stagecraft (0-6) 3 crs.

Emphasizes the technical processes of the stage. Includes stage structures and scenery, construction processes, lighting theory and practices, costuming and related equipment and hardware. Laboratory work will be correlated with the College's theatrical productions.

IAI TA 911

WEB Web Development

WEB 101 Internet Fundamentals (.5-1.0) 1 cr.

Introduces the student to the capabilities of the Internet and the World Wide Web through the use of currently popular software packages. Students must have working knowledge of Microsoft Windows environment prior to registration.

WEB 150 Web Development I (2-2) 3 crs.

Introduces the student to creating web pages, utilizing XHTML and Cascading Style Sheets. Web design best practices, web site hosting, Internet protocols, graphics, media, security, and e-commerce are among the topics covered. Students utilize the skills learned to create a web site project of their choice and design. Recommended preparation: CIS 101, GRA 101 or equivalent experience.

WEB 170 Web Graphics (2-2) 3 crs.

Provides an introduction to creating, manipulating, and implementing bitmapped and vector based graphics in multimedia applications and web pages. Currently popular graphics applications will be used.

Prerequisite: WEB 150 with a grade of C or better.

WEB 180 Flash Multimedia I (2-2) 3 crs.

Introduces students to the Flash authoring environment as they utilize the basic features and functions of the application to combine graphics, music, video, and text in multimedia projects for the web. Provides a background in the terminology, growth, and application of multimedia. Recommended preparation: CIS 100 or CIS 101 or WEB 150, or equivalent experience.

WEB 185 Motion Graphics and Effects (2-2) 3 crs.

Provides a foundation in a popular motion graphics application. Uses animation, visual and special effects and motion graphics tools to output images and video sequences for the Web. Works with elements such as text and object animations, images, audio and effects, tracking, layer, keyframes, masks and the timeline to develop a solid foundation. Recommended preparation: WEB 180 or equivalent experience.

WEB 190 Web Authoring Tools (2-2) 3 crs.

Builds on web development skills learned in WEB 150. This course provides an introduction to a currently popular web authoring tool. Unique features of the authoring tool will be utilized.

Prerequisite: WEB 150 with a grade of C or better.

WEB 200 Web Development II (2-2) 3 crs.

Builds on web development skills learned in WEB 150.

Emphasizes the development of interactive web pages using JavaScript, Cascading Style Sheets, and XHTML. Students utilize the advanced skills learned to create a business-oriented web site of their choice and design.

Prerequisite: WEB 150 with a grade of C or better.

WEB 210 Web Accessibility (2-2) 3 crs.

Provides the student with the foundation in developing usable and accessible web sites. Topics include Section 508 Accessibility compliance, the Web Accessibility Initiative guidelines, usability testing, and applications that test for adherence to coding syntax and accessibility recommendations.

Prerequisite: WEB 150 with a grade of C or better.

WEB 220 Flash Multimedia II (2-2) 3 crs.

Provides an introduction to Action Script and to practical skills required to build Rich Internet Applications (RIAs) using Adobe's Flash platform. Covers design considerations for various formats including optimizing Flash multimedia for the Web. Includes interactive multimedia projects using video, graphics, audio and text.

Prerequisite: WEB 150 and WEB 180 with grades of C or better.

WEB 235 Interactive Scripting (2-2) 3 crs.

Provides an introduction to AJAX (Asynchronous JavaScript and XML) and types of AJAX toolkit and framework solutions that are well-established in the Web community. Uses advanced JavaScript techniques to create highly functional web pages. Develops a fully functional AJAX-driven website that supports rich content.

Prerequisite: WEB 200 with a grade of C or better.

WEB 240 E-Commerce Development (2-2) 3 crs.

Provides the student with a foundation in the fundamentals of Electronic Commerce development. Software, hardware, security, payment systems, promotion and support strategies, Electronic Data Interchange, web auctions, international issues, legal implications, ethical issues, and taxation are among topics covered in a lecture and lab-based format. Students must have working knowledge of Microsoft Windows environment and the Internet prior to registration.

WEB 250 Server-Side Scripting (2-2) 3 crs.
 Provides an introduction to server-side scripting and web data access using a currently popular server application platform and relational database. Includes variables, control structures, functions, arrays, files, and databases. Creates a data-driven web application that uses Structured Query language (SQL) to access and update information in a database.

Prerequisite: CAS 125 and WEB 200 with grades of C or better.

WEB 260 Interactive Multimedia (2-2) 3 crs.
 Provides an introduction to Flex. Builds highly interactive, expressive web applications using the Flex open source framework. Creates interactive user interfaces providing consistent experiences across browser platforms. Develops interactive Flex applications such as Web forms and data visualizations.

Prerequisite: WEB 220 with a grade of C or better.

WEB 299 Web Management Capstone (2-2) 3 crs.
 Applies and integrates skills from previous web courses as students work in groups to develop a web site while addressing topics integral to web management including web servers, establishing a presence on the web, web server configuration, and using server-side scripts. Project management issues and system development life cycle methodologies are discussed and practiced.

Prerequisite: WEB 190 and WEB 200 with grades of C or better.

Career Skills Credit Courses

Continuing Education and Harper College for Business courses often designated as "credit" are Career Skills credit and generally cannot be applied to credit certificates or degrees. No formal application or entrance assessments are required for enrollment in Career Skills credit classes. Contact the Continuing Education Division for more information. (Harper College for Business courses are offered on a contract basis to area businesses and employers.)

Discipline/Prefix

Below is an alphabetized list of disciplines followed by a prefix for these specific Career Skills courses.

CE Allied Health	LAH
CE CompTia.....	LAP
CE Business Solutions	LBS
CE Career Exploration.....	LCE
CE Cisco	LCI
CE Computer Training.....	LCT
CE Game Programming	LGP
CE International Trade	LGT
CE Personal Skills	LIC
CE Linux	LIX
CE Management Development.....	LMD
CE Microsoft.....	LNT
CE Health Care Professionals	LNU
CE Oracle DBA	LOR
CE Real Estate.....	LRE
CE Food Service	LRP
CE Sun Java	LSJ
CE Security Certified Personnel	LSP
CE Therapeutic Massage.....	LTM
CE Volunteer Management	LVM
CE AutoDesk.....	LVV
Harper College for Business.....	HCB

HCB 8121 Introduction to Local Area Networks (2-2) 3 crs.
 Provides students with a comprehensive introduction to local area networks. Includes the OSI model, media, topologies, protocols, network maintenance, upgrades, troubleshooting, and current network operating systems.

HCB 8122 Internet Protocols (TCP/IP) (2-2) 3 crs.
 Provides students with a detailed examination of internet addressing and protocols. Includes IP addressing, routing, IP, ICMP, ARP, TCP, UDP, DHCP, DNS, HTTP, FTP, and SMTP. Uses protocol analyzers to monitor and examine network traffic.

HCB 8135 AutoCAD Essentials (0-4) 2 crs.
 Provides students with a comprehensive introduction to AutoCAD essentials. Includes creating a simple drawing, making drawings precise, drawing organization and information, creating more complex objects, annotating your drawing, creating and organizing blocks, drawing setup and utilities, advanced object types, advanced blocks and attributes, referencing and sharing information, and drawing standards and system setup.

HCB 8160 Basic Supervisory Skill Development (.5-0 to 3-0) .5-3 crs.
 Studies selected problems or topics in supervisory management. Introduces the responsibilities of the first or second echelon supervisor in either the industrial or administrative environment. Leadership qualities, human relations skills, motivation, communications, training techniques, and problems of the work group are discussed.

HCB 8175 Business Image and Etiquette (.5-0 to 3-0) .5-3 crs.
 Provides students with the knowledge of how a professional image and good manners affect interpersonal relationships in the workplace. They will recognize the importance of first impressions and learn to manage themselves in a professional manner.

COURSE DESCRIPTIONS

HCB 8180 Customer Service, Customer Loyalty (.5-0) .5 cr.
Delivers the strategies and skills professionals need to be more effective in virtually every aspect of customer service planning and execution. Program will enable service people to be skilled, practiced, motivated and prepared in all customer contact.

HCB 8182 Effective Business Writing (.5-0) .5 cr.
Delivers the strategies and skills professionals need to be more effective in every aspect of business writing. Enables business people to be skilled, practiced, motivated and prepared in all writing that pertains to business interactions.

HCB 8184 Teambuilding (.5-0) .5 cr.
Delivers the strategies and skills professionals need to be more effective in aspects of teambuilding. Enables business people to be skilled, practiced, motivated and prepared to work as members of effective teams.

HCB 8185 Interviewing Skills (.5-0) .5 cr.
Builds the skills to plan and conduct interviews to elicit information needed to make sound hiring decisions.

HCB 8186 Customer Service Excellence (.5-0) .5 cr.
Delivers the strategies and skills customer service professionals need to provide excellence in every customer interaction. In this interactive workshop, participants will explore reasons why customer service is critical and will practice listening and positive communication skills.

HCB 8190 Integrity Service (1.5-.5) 2 crs.
Provides tools and skills to build and manage professional customer relationships more effectively, gain insight into business needs through effective communication and interpersonal skills, learn behaviors that demonstrate the value of customers as trusted business partners, and manage customer expectations more effectively regarding the delivery of solutions.

HCB 8192 Communication Skills (.5-0 to 3-0) .5-3 crs.
Provides an overview of effective business communications. Focuses on practical experience in the preparation and delivery of oral and written communications. Emphasizes the importance of active listening and effective body language. Reviews professional etiquette in the use of email and other forms of written communication and in meetings.

HCB 8194 Presentation Skills (.5-0) .5 cr.
Studies selected problems or topics in presenting information to others. Introduces the concepts of presenting in both informal and formal settings in a clear and concise manner.

HCB 8221 Wireless Networking (2-2) 3 crs.
Provides students with a comprehensive hands-on overview of wireless networking. Includes radio frequencies, wireless infrastructure, hardware, wireless standards, wireless LAN security, site surveys, and troubleshooting.

HCB 8222 Data Communications-Convergence+ (2-2) 3 crs.
Provides students with an introduction to telecommunications and data convergence. Topics include legacy telecommunications, voice telephony, public-switched telephone networks, data networking, Voice Over IP, quality of service and wireless communications.

HCB 8280 Network Security Fundamentals (2-2) 3 crs.
Provides students with a comprehensive hands-on overview of network security including authentication, encryption, digital certificates, perimeter topologies, remote access, cryptography, and operational security.

HCB 8301 ESL: Workforce Language Skills I (1-0 to 6-0) 1-6 crs.
Focuses on grammatical structures and patterns of English for high beginning English as a Second Language students. Emphasizes communicative activities. Includes listening, speaking, reading and writing skills.

HCB 8302 ESL: Workforce Language Skills II (1-0 to 6-0) 1-6 crs.
Continues grammatical structures and patterns of English for high beginning English as a Second Language students. Emphasizes communicative activities. Includes listening, speaking, reading and writing skills. Students must take a placement test prior to enrollment.

HCB 8303 ESL: Workforce Language Skills III (1-0 to 6-0) 1-6 crs.
Focuses on increasingly complex grammatical structures and patterns of English for intermediate English as a Second Language students. Emphasizes communicative activities. Includes listening, speaking, reading and writing skills. Placement exam required.

HCB 8304 ESL: Workforce Language Skills IV (1-0 to 6-0) 1-6 crs.
Continues increasingly complex grammatical structures and patterns of English for intermediate English as a Second Language students. Emphasizes communicative activities. Includes listening, speaking, reading and writing skills. Placement exam required.

HCB 8305 ESL: Workforce Language Skills V (1-0 to 6-0) 1-6 crs.
Focuses on increasingly complex grammatical structures and patterns of English for high intermediate English as a Second Language students. Emphasizes communicative activities. Includes listening, speaking, reading and writing skills. Placement exam required.

HCB 8306 ESL: Workforce Language Skills VI (1-0 to 6-0) 1-6 crs.
Continues complex grammatical structures and patterns of English for high intermediate English as a Second Language students. Emphasizes communicative activities. Includes listening, speaking, reading and writing skills. Placement test required.

8452 Imports and Exports (.5-0) .5 cr.
Provides a conceptual overview of the world marketing environment with emphasis on both global exporting and importing. Introduces students to marketing strategies and procedures to capitalize on domestic and overseas world trade potential.

HCB 8501 Occupational Spanish (1-0 to 4-0) 1-4 crs.
Studies selected problems or topics in Spanish as it relates to specific occupations. Includes three components: speaking in Spanish, listening in Spanish, and Latino culture. Introduces pronunciations of practical common phrases and questions in Spanish, comprehension of many basic and common expressions and phrases used in everyday Spanish. Also teaches some fundamental and generic and non-nationality specific aspects of Latino culture.

HCB 8503 Occupational German (1-0 to 4-0) 1-4 crs.
Studies selected problems or topics in German as it relates to specific occupations. This course is divided into three components: speaking in German, listening in German, and German culture. Introduces pronunciation and comprehension of practical common phrases and questions used in the German language.

HCB 8601 Basic Welding (1-4) 3 crs.
Covers fundamentals of oxyacetylene welding theory practices and beginning electric welding. Includes arc welding and gas welding, brazing and cutting in the horizontal position.

LAH 8010 Pharmacy Technician (3.5-0) 3.5 crs.
Provides students with a comprehensive introduction to the duties of pharmacy technicians. Includes overview of pharmacy measures, major classes of drugs, regulatory agencies and requirements, different pharmacy settings, IV solutions, retail operations, calculating doses and sterile techniques.

LAH 8015 Physical Therapy Aide (3.5-0) 3.5 crs.

Provides students with a comprehensive introduction to the duties of physical therapy aides. Includes evolution of physical therapy and an overview of ethical and legal issues, basic anatomy and the musculoskeletal system, range of motion, ambulation, strengthening exercises, direction of movement, patient position and transfer, and common anatomical issues.

LAH 8101 Professional Caregiver (1-0.5) 1 cr.

Teaches the universal worker skills for assisted, sheltered or skilled communities, and home health individuals or agencies. Discusses holistic health, physical and cognitive function, the importance of incorporating recreational activities and cultural change.

LAH 8235 Local Anesthesia in Dentistry (2-4) 2.5 crs.

Includes 24 classroom hours and 8 clinical hours where each participant will administer and receive a minimum of 27 injections. Dental hygienists successfully completing this 32-hour program will be able to administer local anesthesia as permitted by the Illinois Dental Practice Act.

LAP 8001 CompTIA A+ Technician Accelerated (2.5-5) 2 crs.

Provides accelerated and intensive hands-on training in PC installation, building, upgrading, repairing, configuring and troubleshooting. Reviews A+ certification exam objectives and prepares students for the CompTIA A+ certification exam. Benefits individuals who have extensive experience with PC hardware and troubleshooting.

LAP 8002 CompTIA Network (2.5-1) 3 crs.

Teaches planning, installation, and troubleshooting of networks in a business environment. Includes the OSI model, network card configurations, diagnosing network problems, and hands-on practice setting up a network environment. Must have A+ certification or equivalent prior to enrollment.

LAP 8008 CompTIA A+ Technician (5.5-1) 6 crs.

Provides hands-on training in PC installation, building, upgrading, repairing, configuring, and troubleshooting. Prepares students for A+ certification exams which can lead to a career in PC repair or help desk support or studies in advanced technology.

LAP 8010 CompTIA Security (2-1) 2.5 crs.

Provides vendor-neutral instruction on systems security, network infrastructure, access control, risk mitigation, cryptography, and organizational security. Covers workstation and server security, network vulnerabilities, risk assessments, monitoring tools, network security tools, authentication, rights and privileges, encryption, and disaster recovery. Helps prepare for the CompTIA Security+ certification.

LBS 8101 Supply Chain Management (1-0) 1 cr.

Provides an introduction and overview of the field of supply chain management. Includes objectives, benefits, relationship with other functions, organization, planning, inventory control, production control, purchasing, just-in-time, receiving and stores, material handling, physical distribution, automation, implementation and pitfalls, measurement and control, and finance.

LBS 8130 Transportation Safety I (3-0) 3 crs.

Introduces the responsibility of shippers, corporate entities, supervisors, material handlers and drivers to design and implement programs and policies that correct identified deficiencies to ensure safety compliance. Teaches how to administer drug and alcohol programs that meet federal requirements. Covers the development of programs to address issues of Comprehensive Safety Analysis (CSA).

LBS 8135 Transportation Safety II (3-0) 3 crs.

Introduces issues of transportation as they relate to insurance, cargo security and securement, vehicle inspection and maintenance, and warehouse material handling and storage. Teaches concepts of liability issues and mitigation strategies; legal weights and dimensions, oversized/overweight routing and permits; and theft reduction. Examines proper vehicle inspection techniques and the identification of unsafe vehicle components and material handling equipment; proper storage including hazardous materials, food grade products and overhead storage issues; and proper goods movement documentation.

LCE 8003 Professional Meeting/Event Planning (1.5-0) 1.5 crs.

Explores roles and responsibilities, budgets, program planning, speakers, site inspection, site selection, negotiations and contracts, risk management issues, marketing, exhibits, sponsorship, registration, transportation, catering, audiovisual technology and legal issues.

LCE 8005 Residential Decorator (1.5-0) 1.5 crs.

Studies room design, fabric selection, color themes, window treatments and floor coverings. Discover resources available for selling full-line products, how to consult with customers, and making choices to suit customer needs. Provides fundamental skills for entry-level work in businesses specializing in furniture, window covering and floor needs.

LCE 8006 Veterinary Assistant (5-3) 6 crs.

Prepares students to work at an entry-level position in a veterinary hospital. Includes veterinary clerical responsibilities, diagnostics, pharmacy, patient treatment, overview of surgery, anesthesia and emergency care, all within the scope of the law. Each topic includes a required clinical practicum at an area veterinary facility; competencies must be demonstrated prior to clinical placement and a preliminary interview is conducted onsite. Students must be at least 18 years old, high school graduate/GED, and proficient in reading, writing, and math. Attendance at an information session is mandatory; background checks and insurance will be discussed.

LCE 8008 Private Investigation Training (1-5) 1 cr.

Develops investigative and research techniques for pursuing a career as a private investigator. Includes professional surveillance, legal guidelines, missing persons, and research regarding the most common encountered types of investigations. Taught by a licensed professional, this course satisfies IDPR requirements. Successful students are qualified and eligible to apply for the Permanent Employee Registration card (PERC), the first step to becoming a licensed private investigator.

LCE 8009 Professional Wedding Consultant (1-0) 1 cr.

Provides information about negotiations, contracts, vendors, etiquette, wedding insurance, décor, destination or theme weddings, and cultural protocol. Provides marketing information for both self and business. Includes completion of a project portfolio.

LCE 8016 Truck Driver Training (3-9) 7 crs.

Includes classroom, yard, and over-the-road experience leading to a Class A license. Includes 40 hours of classroom instruction and 120 hours of yard and road skills in a four-week program. Students must attend a mandatory orientation session prior to beginning the course (NOTE: Yard and road skills are conducted at Eagle Training Service, Lake-in-the-Hills, IL.)

LCE 8019 Library Assistant (2-0) 2 crs.

Teaches library organization and operations. Provides an overview of how to order, process, catalog, locate and circulate library materials. Includes conflict resolution and customer service. Provides insight into library automation systems and how library departments interact to meet patron needs. Showcases skills with a completed portfolio. Recommended preparation: Basic keyboarding skills and familiarity with both Microsoft Word and the internet.

COURSE DESCRIPTIONS

LCE 8020 Security Guard/Security Contractor (1.5-0) 1.5 crs.
Teaches Illinois requirements to become an unarmed security professional. Shares insight in eligibility for employment with a certified agency or starting your own business. Includes the Illinois Private Security and Contractor Act, state criminal code, Code of Ethics, fire and accident prevention, patrol procedures, liabilities, report writing and use of force. Provides eligibility to apply for the Illinois PERC (Permanent Employee Registration Card). Requires computer access on or off campus.

LCI 8001 Cisco CCNA/Router Training (2-1) 2.5 crs.
Introduces standard networking terms, concepts and devices. Focuses on the selection, connection, configuration and troubleshooting of Cisco switches and routers as they are commonly used in small- to medium-sized networks. Helps students prepare for the CCNA certification exams. Must have Comp TIA Network+ training or equivalent experience prior to enrollment.

LCI 8002 Implement Cisco IOS Security (2-1) 2.5 crs.
Teaches installation, troubleshooting and monitoring of network devices to maintain integrity, confidentiality and availability of data and devices. Illustrates technologies that Cisco uses in its security structure.

LCI 8003 Cisco Wireless Networking (2-1) 2.5 crs.
Teaches students the information and practice activities to help design, install, configure, monitor and conduct basic troubleshooting tasks for a Cisco WLAN in SMB and Enterprise installations. Recommended preparation: Cisco CCNA.

LCI 8004 Cisco Voice Over IP (2-1) 2.5 crs.
Teaches students Unified Communication concepts, component definition and high level designs. Covers implementation and configuration of small to medium-sized IP Telephony solutions. Recommended preparation: Cisco CCNA.

LCT 8036 Photoshop (1-5) 1 cr.
Covers program interface, documentation navigation, application preferences setup, practical application of basic tools, layers and channels usage, selections, resolution, color spaces, file type/formats, and image modes. Includes Photoshop's extensive color manipulation settings, the pen tool, layer styles and bitmaps and duotones. Students should have general computer experience (daily usage), and Introduction to OSX or Introduction to Windows.

LCT 8040 InDesign (1-5) 1 cr.
Covers creation-adding/deleting pages, adjusting layouts, working with text boxes and the type tool-importing text, linking text boxes, text and paragraph formatting and styles, working with pictures and frames-importing pictures, text wrap, changing frame and content size, the links palette, working with shapes and color, use of the transform tools, working with document guides, tables, templates and master pages. Students need a strong background in Mac or PC usage and experience with word processing program recommended.

LCT 8055 Illustrator (1-5) 1 cr.
Develops skills in using the tool palette, color and image creation, and other features of Adobe Illustrator. Enhances documents created in Quark by working with paint effects, type, perspective drawing and creating artwork for the web. Strong Mac or PC skills and a previous computer graphic arts course such as QuarkXpress, is advised.

LCT 8071 QuarkXpress (1-5) 1 cr.
Demonstrates how to use palettes and how to set-up documents for printing. Teaches how to create master pages, develop style sheets, apply paragraph formats to documents, set tabs, wrap text, and use short cut keys. Includes how typeface and type styles are used, file formats and Quark document conversion to an EPS format. Strong MAC or PC experience and excellent mouse skills required.

LCT 8200 Apple Final Cut Pro 6: Intro (5-1) 1 cr.
Teaches basic video editing techniques using Final Cut Pro's powerful advanced features. Demonstrates aspects of video editing and finishing using actual broadcast footage. Explores marking and editing clips to create a rough cut. Includes methods to trim and refine the cut before moving on to complex tasks such as mixing sound, adding titles, creating transitions and motion effects, applying filters, real-time color correcting, and working with multi-format and multi-camera footage.
Prerequisite: LCT 0050 with an outcome of satisfactory (S), or consent of instructor or program coordinator.

LCT 8201 Apple Final Cut Pro: Beyond Basics (5-1) 1 cr.
Examines advanced video editing and finishing skills with hands-on projects. Teaches advanced trimming techniques, polished transitions, nested sequences, editing multi-camera projects, creating fantastic effects, color correction, and composition. Demonstrates how to manage your clips and media in Soundtrack Pro and improve editing workflow.
Prerequisite: LCT 0050 with an outcome of satisfactory (S), or consent of instructor or program coordinator.

LCT 8202 Apple Final Cut Pro: Editing (5-1) 1 cr.
Introduces advanced video editing and finishing skills with hands-on projects. Exhibits techniques for cutting dialogue scenes, fight and chase scenes, documentaries, comedy, music videos, multi-camera projects and more.
Prerequisite: LCT 8200 and LCT 8201 with an outcome of satisfactory (S), or consent of instructor or program coordinator.

LGT 8044 Import Regulations (1-0) 1 cr.
Provides a thorough understanding of importing with a step-by-step approach to the regulations governing the importing of merchandise, marking requirements, customs service, court rulings, civil and criminal penalties and import restrictions and duties.

LGT 8045 Import Problem Solving (1-0) 1 cr.
Examines a new import file problem in each session. Investigates what went wrong, how the mistakes were discovered, how the importer dealt with the problems and how the problems could have been avoided.

LGT 8100 Introduction to International Trade (2-0) 2 crs.
Includes an overview of the process of importing and exporting, terms and abbreviations commonly used in the industry, currency, metrics and math, Inco terms and documentation, world geography and an overview of the Harmonized Tariff Schedule. Industry job descriptions will also be reviewed.

LIC 8030 Enrolled Agent Exam Review (4-0) 4 crs.
Provides an intensive review of federal taxes that will help students prepare for the rigorous Enrolled Agent Exam administered by the Internal Revenue Service. Examines income taxes, partnerships, corporate, trusts, estates and others. Recommended preparation: Tax preparation experience.

LIX 8501 SUSE Linux Enterprise Server Fundamentals (1-1) 1.5 crs.
Includes the history of Linux, simple Linux installation, the Linux desktop, KDE, GNOME, accessing the command line interface, help resources, administration and hardware configuration using YaST, command shells, file system layout, permissions, text editors, processes, and network configuration. Students should have experience administering any operating system.

LIX 8502 SUSE Linux Enterprise Server Administration (2-1) 2.5 crs.
Includes updating and monitoring a SLES server, managing users and groups, providing basic system security, managing software installation, providing basic network services such as printing and web access, and remotely accessing the server.

LIX 8503 Advanced SUSE Linux Enterprise Server Administration (2-1) 2.5 crs.
Covers the installation of SLES, manual network configuration, security, backup and recovery, shell scripts, source code compilation, performance tuning, process monitoring, and management of hardware and component changes.

LMD 8082 Successful Management (1.5-0) 1.5 crs.
Teaches practical knowledge in how to make effective decisions, the value of teamwork and the power of delegation. Includes how to hire for results.

LNT 8047 Installing and Managing MS Exchange Server 2007 (1.5-1) 2 crs.
Teaches how to configure and manage a messaging environment in accordance with technical requirements for Microsoft Exchange Server. Covers installation, routing, addressing, mailboxes, groups, contacts, and back-up restoration. Requires experience with NTBackup, NSLookup, MMC, IIS, Windows, networks, Active Directory, and email technologies.

LNT 8051 Monitoring and Troubleshooting MS Exchange 2007 (1.5-1) 2 crs.
Teaches messaging specialists to monitor and troubleshoot an Exchange Server 2007 messaging system. Covers correlation of client and server issues, monitoring techniques, and report generation. Requires students to have experience with NTBackup, NSLookup, MMC, IIS, Windows, networks, Active Directory, and email technologies.

LNT 8061 MS Office SharePoint Server (1-1) 1.5 crs.
Teaches system administrators how to plan, deploy, administer, and maintain Microsoft Office SharePoint Server. Includes portal solutions, content management, business intelligence, and search and indexing solutions. Recommended preparation: work experience with SharePoint, Windows Server, and IIS.

LNT 8135 Configuring Exchange Server 2010 (2-1) 2.5 crs.
Covers configuration and management of an Exchange Server 2010 messaging environment. Discusses deployment preparation, installation, best practices, optimization, security and recovery. Prepares students for Microsoft MCTS Exam 70-662. Recommended preparation: experience with Active Directory, Windows Server, and IIS.

LNT 8147 Advanced SharePoint Solutions (2-1) 2.5 crs.
Covers planning, deployment and configuration of server form solutions with Microsoft Office SharePoint Server and Windows SharePoint Services. Focuses on key deployment and configuration tasks. Includes security, disaster recovery and capacity planning. Recommended preparation: LNT8060 and LNT8061 or equivalent knowledge.

LNT 8175 SharePoint Application Development (2-1) 2.5 crs.
Provides .NET developers with practical information and labs that enable them to build solutions on the Microsoft SharePoint 2010 platform. Includes an overview of the SharePoint 2010 development platform, Web Parts, server-side objects, data access using Business Connectivity Services, workflows, user interfaces, Silverlight integration, and content management services. Recommended preparation: LNT 8310 or equivalent experience.

LNT 8231 Maintain SQL 2008 Database (2-1) 2.5 crs.
Provides the knowledge and skills needed to maintain a Microsoft SQL Server 2008 database. Focuses on the use of SQL Server 2008 product features and tools related to maintaining a database.

LNT 8232 Implement SQL 2008 Database (2-1) 2.5 crs.
Covers implementation of a Microsoft SQL Server 2008 database. Focuses on the use of SQL Server 2008 product features and tools related to implementing a database.

LNT 8233 Exchange Server 2010 Messaging (2-1) 2.5 crs.
Examines requirements gathering and implementation of Exchange Server 2010 into an existing infrastructure. Covers server roles, security, policy and compliance. Includes high availability and disaster recovery options and how to develop a troubleshooting plan. Prepares students for Microsoft MCITP Exam 70-663. Recommended preparation: LNT 8135 or equivalent knowledge.

LNT 8234 SQL Server 2008 Analysis Services (1-5) 1 cr.
Teaches the implementation of an Analysis Services solution in an organization. Discusses how to use the Analysis Services development tools to create an Analysis Services database and an OLAP cube, and how to use the Analysis Service management and administrative tools to manage an Analysis Services solution. Recommended preparation: Experience with Microsoft SQL Server and Windows Server administration.

LNT 8235 SQL Server 2008 Integration Services (1-5) 1 cr.
Teaches the implementation of an Integration Services solution in an organization. Includes control flow, data flow, logging, error handling, checkpoints, transactions, management and security. Intended for IT professionals who need to implement data transfer or ETL solutions using Microsoft SQL Server 2008 Integration Services. Recommended preparation: Experience with Microsoft SQL Server and Windows Server administration.

LNT 8236 SQL Server 2008 Reporting Services (1-5) 1 cr.
Teaches the implementation of a Reporting Services solution in an organization. Includes report creation, manipulation of data sets, report models, subscriptions, administration, and custom applications. Recommended preparation: Experience with Microsoft SQL Server and Window Server administration.

LNT 8274 Managing Microsoft Windows Server 2003 Environment (2-1) 2.5 crs.
Introduces the management of accounts and resources in a Microsoft Windows Server 2003 environment. Covers network resources, printers, Active Directory, and group policies. Course serves as the entry point for other Windows Server 2003 courses. Intended for system administrators and system engineers with A+ and Network + certifications or equivalent.

LNT 8275 Maintaining Microsoft Windows Server 2003 Environment (1-1) 1.5 crs.
Covers maintenance of server resources, monitoring of server performance, and safeguarding of data running one of the operating systems in the Microsoft Windows Server 2003 family.
Prerequisite: LNT 8274 with an outcome of satisfactory (S) or equivalent knowledge.

LNT 8276 Implementing Server 2005 Network Infrastructure (1-5) 1 cr.
Covers configuration of Windows computers to operate in a Microsoft Windows Server 2005 networking infrastructure. Intended for entry-level IT professionals.
Prerequisite: LNT 8275 with an outcome of satisfactory (S) or equivalent knowledge.

LNT 8277 Microsoft Windows Server 2003 Network Services (2-1) 2.5 crs.

Covers Windows Server 2003 management and maintenance. Includes DHCP, DNS, WINS, IP traffic and security, and remote access.
Prerequisite: LNT 8276 with an outcome of satisfactory (S) or equivalent knowledge.

LNT 8285 Install, Configure, Administer Windows XP Professional (1-5) 1 cr.

Covers installation, configuration, and administration of Microsoft Windows XP Professional computers in a simulated Microsoft Windows Server 2003 production environment. Explains differences between Windows 2000 and Windows XP Professional.
Prerequisite: LNT 8277 with an outcome of satisfactory (S) or equivalent knowledge.

LNT 8292 Configuring Windows 7 (1-5) 1 cr.
Teaches how to install, upgrade and migrate to Windows 7 client. Includes configuration of Windows 7 client for network connectivity, security, maintenance and mobile computing. Recommended preparation: Experience installing PC hardware, basic understanding of TCP/IP, and basic familiarity with Windows and Active Directory.

COURSE DESCRIPTIONS

LNT 8294 Planning Windows 7 Deployments (2-1) 2.5 crs.
 Demonstrates how to plan and deploy Windows 7 desktops in large organizations. Covers design, configuration and management of the Windows 7 client environment. Includes imaging, deployment tools and migration of user states. Prepares students for the Exam 70-686, Pro: Windows 7, Enterprise Desktop Administrator. Recommended preparation: Experience installing PC hardware, basic understanding of TCP/IP, and basic familiarity with Windows and Active Directory.

LNT 8310 Developing Web Applications with Visual Studio 2008 (2-1) 2.5 crs.
 Teaches the fundamentals of web application development and best practices for Microsoft web development technologies, including ASP.NET 3.5, NET AJAX Extensions, and Silverlight. Focuses on using the Microsoft Visual Studio 2008 development environment and the Microsoft .NET Framework 3.5 to create a web application that delivers dynamic content to the web site.

LNT 8415 Network Infrastructure for Windows Server 2008 (1.5-1) 2 crs.
 Provides students with an understanding of network infrastructure technology in Windows Server 2008. Intended for IT professionals experienced with Windows Server 2000 or 2003 and who hold an MCSE or MCSA certification and/or equivalent knowledge. Requires MCSA, equivalent knowledge or consent of instructor or program coordinator.

LNT 8416 Active Directory for Windows Server 2008 (1.5-1) 2 crs.
 Provides students with an understanding of Active Directory technology in Windows Server 2008. Intended for IT professionals experienced with Windows Server 2000 or 2003 and who hold an MCSE or MCSA certification and/or equivalent knowledge. Requires MCSA, equivalent knowledge or consent of instructor or program coordinator.

LNT 8417 Application Platform for Windows Server 2008 (1.5-1) 2 crs.
 Provides students with an understanding of Applications Platform technology in Windows Server 2008. Intended for IT professionals experienced with Windows Server 2000 or 2003 and who hold an MCSE or MCSA certification and/or equivalent knowledge. Requires MCSA, equivalent knowledge or consent of instructor or program coordinator.

LNT 8420 Windows Server 2008 Fundamentals (2-1) 2.5 crs.
 Teaches basic fundamentals of networking, security and server administration with Windows Server 2008. Provides foundational knowledge needed to prepare for the Microsoft MTA exams. Includes TCP/IP, installing and configuring Windows Server, implementing Active Directory Domain Services, monitoring server performance, and virtualization. Recommended preparation: A+ certification, training, or equivalent experience required and an understanding of basic security, networking and administration recommended.

LNT 8421 Server 2008 Network Configuration (2-1) 2.5 crs.
 Teaches how to configure and troubleshoot a Windows Server 2008 network infrastructure. Covers secure network access, fault tolerant storage, server security, and update compliance. Discusses network technologies most commonly used with Windows Server 2008 and IP-enabled networks. Recommended preparation: Work experience with Windows Server, knowledge of Active Directory, understanding of security concepts, and basic knowledge of DHCP and IP sec.

LNT 8424 Fundamental 2008 Active Directory (1-1) 1.5 crs.
 Introduces Active Directory server roles and their basic functionality in Windows Server 2008. Covers directory, certificate, rights management, and federation services. Also covers creating user and computer accounts and creating an organizational unit infrastructure.

LNT 8430 Server 2008 Planning and Administration (2-1) 2.5 crs.
 Covers planning, management and maintenance of Windows Server 2008 servers. Includes deployment, server roles, configuration change planning, application, versioning, maintenance scheduling, monitoring, and troubleshooting of hardware, software, and network issues. Recommended preparation: LNT 8421 or equivalent experience.

LNT 8461 Windows Communication Foundation (1-5) 1 cr.
 Teaches the building and configuration of a Windows Communication Foundation (WCF) solution. Includes configuring services as a managed application, exposing a WCF service using behaviors adding error handling, implementing security, and protecting data integrity with transactions. Recommended preparation: Experience developing applications with web services using the .NET framework.

LNT 8463 Visual Studio 2008: ASP.NET 3.5 (1-5) 1 cr.
 Teaches the knowledge and skills to create a fully functional web application by using ASP.NET 3.5 Covers ASP.NET basics, creation of dynamic web pages, state management, user interface creation, data manipulation, application deployment, and programming for mobile devices.

LNT 8464 Visual Studio 2008: ADO.NET 3.5 (1-5) 1 cr.
 Teaches the knowledge and skills to access and modify data by using ADO.NET 3.5. Covers ADO.NET commands, querying and maintaining data using Datasets and LINQ, implementing an entity model, and using synchronization services.

LNT 8541 Core Data Access Microsoft Visual Studio 2005 (1-1) 1.5 crs.
 Provides workshop experience in the development of data-access applications using the Microsoft .NET framework and Microsoft Visual Studio 2005. Describes how to access and update data in a database by using ADO.NET. Also describes how to create, read, and write XML data.

Prerequisite: LNT 8544 with an outcome of satisfactory (S) or equivalent knowledge.

LNT 8542 Advanced Data Access with Microsoft Visual Studio 2005 (1-5) 1 cr.
 Covers advanced data access features and techniques in the Microsoft .NET framework and Microsoft Visual Studio 2005. Describes how to access data and how to implement database functionality by using Microsoft ADO.NET 2.0 and Microsoft SQL Server 2005. Includes how to locate, edit, and transform XL by using XPath and Extensible Style Sheet language for transformations (XLST).

Prerequisite: LNT 8541 with an outcome of satisfactory (S) or equivalent knowledge.

LNT 8543 Core Web Application Technology with Visual Studio 2005 (1-5) 1 cr.
 Provides the knowledge and skills to develop Microsoft ADO.NET 2.0 web applications using MS Visual Studio 2005. Focuses on user interfaces, website structure and functionality, and implementation details.

Prerequisite: LNT 8994 with an outcome of satisfactory (S) or equivalent knowledge.

LNT 8544 Advanced Web Application Technologies with Visual Studio 2005 (1-5) 1 cr.
 Provides the knowledge and skills to develop Microsoft ADO.NET 2.0 web applications using MS Visual Studio 2005. Focuses on advanced user interfaces, website functionality, and implementation details using the advanced features of ADO.NET 2.0 and VS 2005.

Prerequisite: LNT 8543 with an outcome of satisfactory (S) or equivalent knowledge.

LNT 8778 Queries SQL 2008 Transact-SQL (1-1) 1.5 crs.

Introduces Transact-SQL. Covers basic SELECT queries, grouping, joins, subqueries, data modification, transactions, and heterogeneous data sources. Teaches how to access and manipulate data in SQL Server 2008 databases and other data sources. Students should understand relational databases and be familiar with programming or scripting language.

LNT 8779 Implementing Microsoft SQL Server 2005 Database (2-1) 2.5 crs.

Focuses on teaching individuals how to use SQL Server 2005 product features and tools related to implementing a database. Students should have working knowledge of relational databases and Transact-SQL for this course.

Prerequisite: LNT 8778 with an outcome of satisfactory (S) or equivalent knowledge.

LNT 8780 Maintaining Microsoft SQL Server 2005 Database (2-1) 2.5 crs.

Focuses on SQL Server 2005 product features and tools related to maintaining a database. Students should have working knowledge of relational databases and Transact-SQL.

Prerequisite: LNT 8779 with an outcome of satisfactory (S) or equivalent knowledge.

LNT 8927 Managing Projects (1.5-1) 2 crs.

Provides students with the knowledge and skills to build, maintain, and control well-formed project plans. This is the first course in the Microsoft Office Project 2007 Official Curriculum series. Requires experience with Windows, Project, and Excel, plus fundamental knowledge of project management.

LNT 8928 Enterprise Project Management (1.5-1) 2 crs.

Teaches students to initiate, plan, execute, monitor and control, and close enterprise projects by using the Microsoft Office Project Server 2007 enterprise tool. This is the second course in the Microsoft Office Project 2007 Official Curriculum series and covers the Microsoft Enterprise Project Management (EPM) Solution. Requires experience with Windows, Project, and Excel, plus fundamental knowledge of project management.

LNT 8994 Introduction to Programming .Net Visual Studio 2005 (1-2) 2 crs.

Enables introductory-level developers who are not familiar with the Microsoft .Net framework or Microsoft Visual Studio 2005 to learn about VS 2005's development environment. Teaches basic skills using either MS Visual Basic or MS Visual C# as a programming language. Students need basic computer skills for this class.

LNU 8322 Current Nursing Practice Update (4-8) 7 crs.

Provides U.S. nurses out of clinical practice for five or more years with an opportunity to regain hands-on skills and confidence in order to renew or obtain a State of Illinois License. This course is also for nurses working in non-hospital settings, returning to the workforce, or wanting to further their education in the most current medical practices. Accredited by IDFP. Students must attend a mandatory information session.

LOR 8501 Oracle DB 10G: Introduction to SQL (2-1) 2.5 crs.

Introduces Oracle Database 10G technology, relational database concepts, and the SQL programming language. Teaches creation of database objects, queries and manipulation of data, and generation of reports. Students need basic computer skills and experience with relational database concepts for this class.

LOR 8502 Oracle DB 10G: Administration I (2-1) 2.5 crs.

Provides a foundation in database administration. Students create an operational database and learn about performance monitoring, security, user management, and backup and recovery techniques. This course counts toward the hands-on requirements for the Oracle 10G DBA certification.

Prerequisite: LOR 8501 with an outcome of satisfactory (S) or equivalent knowledge.

LOR 8503 Oracle DB 10G: Administration II (2-1) 2.5 crs.

Covers advanced administration tools including the Resource Manager, Scheduler, Automatic Resource Management (ASM), and VLDB features. Students set up a secure database using Virtual Private Database and learn how to move data between databases.

Prerequisite: LOR 8502 with an outcome of satisfactory (S) or equivalent knowledge.

LOR 8601 Oracle Database 11g: Introduction to SQL (.5-1) 1 cr.

Covers the fundamentals of SQL using Oracle Database 11g database technology. Explains concepts of relational databases and the powerful SQL programming language. Provides the essential SQL skills that allow developers to write queries against single and multiple tables, manipulate data in tables, and create database objects. Teaches single row functions to customize output, conversion functions and conditional expressions and group functions to report aggregated data. Demonstrations and hands-on practice reinforce the fundamental concepts. Utilizes Oracle SQL Developer as the main tool and SQL *Plus is introduced as an optional tool. Requires familiarity with data processing concepts and techniques.

LOR 8602 Oracle Database 11g: Administration Workshop I (1-2) 2 crs.

Demonstrates the installation and maintenance of Oracle Database 11g. Provides a conceptual understanding of the Oracle database architecture and how its components work and interact with one another. Teaches how to create an operational database and properly manage the various structures in an effective and efficient manner. Includes performance monitoring, database security, user management and backup/recovery techniques. Reinforces topics with structured hands-on practices.

LOR 8603 Oracle Database 11g: Administration Workshop II (1-2) 2 crs.

Explores concepts and architecture that support backup and recovery, along with varied situational implementation. Includes how to define and test your own backup and recovery scenarios. Teaches effective memory management, performance evaluation and tuning tasks, and the use of advisors. Includes flashback technologies, scheduling jobs inside and outside of the database, controlling system resource usage, and hands-on practices.

Prerequisite: LOR 8602 with an outcome of satisfactory (S) or consent of instructor or program coordinator.

LOR 8604 Oracle Database 11g: New Features for Administrators (1-2) 2 crs.

Teaches new change management features and other key enhancements in Oracle Database 11g. Emphasizes the benefits and use of the new features in managing change, diagnosing and recovering from problems, ensuring high availability, improving scalability and performance, strengthening security, and several other areas that concern database administrators. Prepares for the Oracle 11g DBA certification upgrade exam. Requires strong Oracle Database 10g concepts, consent of instructor or program coordinator.

LRE 8112 Home Inspection (3-0) 3 crs.

Prepares students for the State of Illinois licensing exam for home inspectors. IDFP. Approved course; students must attend all classes and pass this pre-licensing final exam with a score of 70 percent or better. This technical course requires a significant amount of study outside of the classroom. Students must have a working knowledge of the building trades industry.

COURSE DESCRIPTIONS

LRE 8140 Uniform Standards of Professional Appraisal Practices (1-0) 1 cr.
Covers the ten National USPAP standards and their implementation, and the ethical responsibility of licensed and certified appraisers. Required by the Appraisal Foundation; 2008 compliant. IDFPFR-approved pre-licensing course; requires attendance at all sessions. Knowledge of industry terminology or completion of LRE 8141 is strongly recommended.

LRE 8141 Basic Appraisal Principles (2-0) 2 crs.
Introduces an overview of the valuation process and appraisal principles. Establishes a basic understanding of appraisal theory and the context in which objective judgment is applied. USPAP is prefaced and the responsibility for rendering sound conclusions is stressed. IDFPFR requires attendance at all sessions (30 hours); this course is 2008 compliant. Requires a basic calculator with square root function.

LRE 8142 Basic Appraisal Procedures (2-0) 2 crs.
Covers the entire valuation process and the Sales Comparison, Cost, and Income Approaches to valuations. Also covers reconciliation. IDFPFR requires attendance at all sessions; this course is 2008 compliant. Knowledge of industry terminology or completion of LRE 8141 is strongly recommended. Requires a basic calculator with square root function.

LRE 8170 Broker Pre-Licensing (5-0) 5 crs.
Provides instruction in real estate fundamentals. Includes introduction to the License Law and real property; basics of agency, seller and buyer relationships and counseling; local, state and federal laws affecting real estate; brokerage, marketing and advertising, market analysis and appraisal; financing, contracts, independent contractor and employee status, occupational disciplines and business planning.

LRE 8171 Applied Real Estate Principles (1-0) 1 cr.
Provides real estate instructions and includes role play situations, case studies and demonstrations. Covers listing presentations, buyer representations, agency disclosure, purchase agreements, handling offers, negotiating, market analysis, closing costs, escrow money, fair housing and anti-trust.

LRE 8172 Broker Post-License (2-0) 2 crs.
Provides instruction in license law; local, state and federal laws; real property updates and risk management issues; agency issues, seller and buyer counseling; market analysis and appraisal; financing and distressed properties; contracts and conveyances; and closing a transaction.

LRE 8173 Managing Broker (3-0) 3 crs.
Provides instruction in licensing, operations and handling money; managing licensees including recruiting and ongoing support, marketing and advertising, and dispute resolution; risk management, laws and issues; company policy, disclosure issues and industry issues.

LRE 8240 Housing Market Issues (1-0) 1 cr.
Provides students with a comprehensive understanding of the housing crisis and the role of the real estate market in the U.S. economy. Concentrates on the factors that drive the current real estate market and the role of the subprime lender.

LRP 8005 Food Standards/Sanitation Exam Preparation (1.5-0) 1.5 crs.
Covers proper precautions, food contaminations, hazards, how food becomes unsafe, personal hygiene, cross contamination, following the flow of food (HACCP), and cleaning and sanitizing. The state approved NRA Education Foundation ServSafe exam is given the class period. Test meets certification requirement for the Illinois Department of Public Health (IDPH). By presenting your IDPH certification to the Chicago Health Department and paying additional fees, your certificate should be accepted by the city.

LRP 8500 Bartender Training (1-0) 1 cr.
Includes prepping the bar, free-pouring, mixing, blending, shaking, money handling, product knowledge, liquor laws and how to get hired. Covers basics of bar management and expertise on tip making. Must be at least 21 years of age.

LSJ 8700 Core Java (2.5-1) 3 crs.
Covers the essentials of object-oriented programming and core features of the Java programming language. Explains important Java syntax in detail and helps develop knowledge and skills needed by experienced programmers. Includes environment setup, program structure, strings, primitives, references, objects, arrays, control structures, classes, methods, interfaces, enums, access control, encapsulation, inheritance, polymorphism, exception handling, collections, generics, file I/O and concurrency. Recommended preparation: Academic or work experience in any programming language.

LSJ 8710 Advanced Java (1.5-1) 2 crs.
Explores basic Enterprise Java and related technologies essential to most Java jobs. Provides exposure to the Linux environment. Demonstrates how to implement and connect to a database using MySQL and JDBC, how to implement a web server using Apache Tomcat, and how to create dynamic web pages using JavaServer Pages, Servlets, and XML. Recommended preparation: LSJ 8700 (Core Java) or equivalent experience.

LSP 8000 Ethical Hacker (2.5-1) 3 crs.
Provides security professionals and site administrators with the same knowledge and tools used by professional hackers in order to understand vulnerabilities and build defenses against malicious attacks. Includes international hacking laws, reconnaissance, Google hacking, scanning, system hacking, Trojans and backdoors, viruses and worms, sniffers, social engineering, phishing, DoS attacks, session hijacking, SQL injection, wireless network hacking, Linux hacking, detection system evasion, cryptography, cyber warfare, spying, corporate espionage, software piracy, hacking and cheating online games, GPS hacking, web browser hacking and computer forensics. Recommended preparation: Two years of work experience in a security-related field or IT position involving security and strong familiarity with computer networking. (A+ and Network+ training or equivalent experience also recommended.)

LSP 8201 Tactical Perimeter Defense (1-2) 2 crs.
Covers the core issues of building a perimeter network defense system and advanced concepts of the TCP/IP protocol suite. Introduces secure design and configuration techniques. Presentations discuss wireless networks and Virtual Private Networks.
Prerequisite: LAP 0008 with an outcome of satisfactory (S) or consent of instructor or program coordinator.

LSP 8202 SCP: Strategic Infrastructure Security (1-2) 2 crs.
Examines core issues of cryptography, including public and private key concepts. Provides knowledge and hands-on tasks on most cryptography and data security technologies including ethical hacking attack techniques. Emphasizes the hardening of infrastructure elements, such as Windows and Linux servers.
Prerequisite: LSP 8201 with an outcome of satisfactory (S) or consent of instructor or program coordinator.

LSP 8203 Computer Forensics and Investigation (3-3) 4.5 crs.
Examines techniques and tools of computer forensics investigations. Explains how to use the most popular forensic tools. Maps to the objectives of the International Association of Computer Investigative Specialists (IACIS) certification to provide credible, standards-based information. Includes coverage of the latest technology including PDAs, cell phones, and thumb drives.
Prerequisite: LAP 0008 with an outcome of satisfactory (S) or consent of instructor or program coordinator.

LTM 8011 Therapeutic Massage Fundamentals (7.5-5) 10 crs.

Provides an overview and historical development of massage therapy and its relationship to health care. Covers the requirements for the practice of therapeutic massage, sanitary and safety issues, fundamental theory and hands-on application involving major massage approaches. Introduces theory and hands-on skills in Swedish massage, joint mobilization, range of motion, pre- and post-natal and infant massage, deep tissue massage, trigger-point therapy and neuromuscular therapy.

Prerequisite: LTM 0001 with an outcome of satisfactory (S).

LTM 8012 Therapeutic Massage Theory Application (6.5-7) 10 crs.

Covers anatomy, physiology, complementary bodywork systems and special populations as related to therapeutic massage. Includes biomechanics and the following body systems: intergumentary, cardiovascular, lymphatic, immune, respiratory, digestive, urinary and reproductive. Includes recordkeeping, assessment procedures, indications and contraindications, business considerations, and wellness education. Continues theory and joint mobilization, range of motion, pre- and post-natal massage, deep tissue massage, trigger point therapy, neuromuscular therapy and sports massage.

Recommended preparation: LTM 8011

LTM 8013 Therapeutic Massage Advanced Techniques (5.5-7) 9 crs.

Develops an overall understanding of clinical therapeutic massage including hygiene, sanitation, safety, body mechanics, massage manipulations and techniques, assessment procedures, biomechanic basics, complementary bodywork systems and medical terminology. Includes theory and demonstration of skills required for clinical therapeutic massage. Recommended preparation: LTM 8012.

LVM 8201 Non-Profit Boards (1-0) 1 cr.

Provides insight into a strategic planning process including goals, action steps, budgets and evaluation. Examines board-level legal considerations including legal filings for Illinois and the IRS, conflict of interest, directors' and officers' liability, and whistleblower policies as they apply to the management of non-profit organizations. Recommended preparation: LVM 0200 or knowledge of non-profit organizations.

LVM 8202 Fundraising for Non-Profits (1-0) 1 cr.

Provides insight into planned giving options, features and benefits to donors and institutions, and how to handle unique ethical challenges. Examines special fundraising events with best practices. Describes major gifts and capital campaigns and how to identify, cultivate and ask for funds. Defines annual giving; how to prepare a case support; how to cultivate, motivate and retain donors; and efforts for a long-range plan. Recommended preparation: LVM 0200 or knowledge of non-profit organizations.

LVV 8090 AutoCAD: Create/Present 3D Models (1-1) 1.5 crs.

Covers the creation of 3D models to help visualize and present designs. Includes visual styles, model walk-throughs, materials, lighting, and electronic distribution. Students will need some experience using AutoCAD software prior to enrollment.

LVV 8300 Autodesk 3DS MAX 9 Essentials (5-1) 1 cr.

Teaches fundamental skills with 3DS Max that can be applied to television, movies and video game development. Includes modeling techniques, materials, lighting, animation, and scene building. Basic computer skills are required for this class.

LVV 8311 3DS Max Essentials (1.5-1) 2 crs.

Covers the essentials of 3D design using Autodesk 3DS Max. Includes modeling, animation, materials, lighting, and rendering. Teaches skills and techniques that can be applied in a production environment, television, video game development or movie animation. Requires familiarity with Windows and experience with 3D art and design.

LVV 8312 3DS Max for Design Visualization (1.5-1) 2 crs.

Provides a fundamental understanding of using 3DS Max to create 3D environments for conceptual exploration, design validation, and visual communication. Includes hands-on exercises to demonstrate the modeling process. Teaches techniques that can be applied to mainstream drafting industries.

LVV 8314 3DS Max MAXScript Essentials (1.5-1) 2 crs.

Teaches you techniques for automating tasks in 3DS Max using MAXScript language. Demonstrates interacting with a 3DS Max scene and using scripts to automatically control actions.

Encompasses almost all of the 3DS Max features.

Prerequisite: LVV 8311 with an outcome of satisfactory (S) or consent of instructor or program coordinator.

LVV 8325 Texture Gaming Characters (1.5-5) 1.5 crs.

Delves into the subtleties of character texturing using 3DS Max. Shows how to unwrap a character quickly, minimize inconsistencies and generate normal maps. Covers techniques for using images to texture characters for use in games.

LVV 8330 3DS Max Advance Modeling and Mapping (1.5-5) 1.5 crs.

Focuses on creating both low-poly (in-game) and high poly models with particular attention paid to the normal mapping process. Includes use of the projection system in 3DS Max, tips on achieving the best results from your normal maps, how to edit normal maps using Photoshop, and using normal maps for both real time and pre-rendered projects.

LVV 8401 AutoCAD 2008 Level 1 (1-1) 1.5 crs.

Covers the creation of basic 2D drawings, organization of drawing objects on layers, addition of text and basic dimensions, and preparations for plotting. In addition to basic CAD skills, covers more sophisticated techniques for drawing setup and productivity. Students should be familiar with Windows environments and drafting concepts.

LVV 8402 AutoCAD 2008 Level 2 (1-1) 1.5 crs.

Builds on basic concepts from the Level 1 course. Includes boundaries, regions, templates, dimensioning, annotation, blocks, layouts, views, sheet sets, tables and an introduction to 3D models.

Prerequisite: LVV 8401 with an outcome of satisfactory (S) or equivalent knowledge.

LVV 8411 AutoCAD 2009 Essentials (1.5-1) 2 crs.

Covers the creation of basic 2D drawings using drawing and editing tools, organization of drawing objects on layers, addition of text and basic dimensions, preparations for plotting, and more sophisticated techniques for drawing setup and productivity.

LVV 8412 AutoCAD 2009 Intermediate (1.5-1) 2 crs.

Builds on the basic concepts of the AutoCAD 2009 Essentials course. Improves productivity when creating, annotating, and printing drawings with AutoCAD. Discusses boundaries, regions, templates dimensioning, annotation, blocks, layouts, views, sheet sets, tables, and an introduction to 3D models.

Prerequisite: LVV 8511 with an outcome of satisfactory (S) or consent of instructor or program coordinator.

LVV 8511 AutoCAD Architecture 2009 Essentials (1.5-1) 2 crs.

Provides comprehensive training in AutoCAD Architecture 2009. Includes hands-on lessons that cover features, commands, and techniques for creating, editing, and printing drawings.

Prerequisite: Previous AutoCAD experience required. Drafting, design, or engineering experience recommended.

LVV 8512 AutoCAD Architecture 2009 Advanced (1.5-1) 2 crs.

Covers many of the advanced features of AutoCAD Architecture 2009. Explains how to set-up a project, create tool catalogs and styles, export to different output formats, edit section/elevation objects, use ACE dimensions, display themes, and mask blocks.

Prerequisite: LVV 8511 with an outcome of satisfactory (S), or consent of instructor or program coordinator.

COURSE DESCRIPTIONS

LVV 8611 Autodesk Inventor 2009 Essentials (2-1) 2.5 crs.
Covers the fundamental principles of 3D parametric part design, assembly design, and creating production-ready part and assembly drawings using Autodesk Inventor. Instructs how to capture design intent by using the proper techniques and recommended workflows for creating intelligent 3D parametric parts; creating, placing, and constraining custom and standard components in an assembly; and simulating mechanisms, animating assembly designs, and checking for interferences. Requires familiarity with Windows, drafting, design, or mechanical engineering.

LVV 8625 Advanced Assembly and Machine Design (1-.5)1 cr.
Creates advanced 3-D assemblies using Autodesk Inventor. Explores proper techniques for skeletal modeling, adaptive design, derived design, and functional design. Teaches steel frame designs, welded designs, and custom parts using the Content Center. Includes hands-on exercises representing real-world, industry-specific design scenarios. Recommended preparation: LVV 8611.

LVV 8711 Autodesk Vault Essentials (1.5-1) 2 crs.
Covers all features in Autodesk Vault for managing files and projects. Teaches how to organize and share files, manage file versions, work in multi-user environments, and integrate Autodesk Vault with various Autodesk products. Includes hands-on exercises representing real-world design scenarios. Requires working knowledge of Autodesk Inventor and/or AutoCAD, AutoCAD Mechanical, AutoCAD Electrical, or Autodesk Civil 3D.

LVV 8720 Revit Architecture Essentials (1.5-.5) 1.5 crs.
Teaches building information modeling and the tools for parametric building design and documentation. Includes fundamental features of Revit Architecture, schematic design and construction documentation, and design visualization.

LVV 8721 Revit Architecture Intermediate (1-.5) 1 cr.
Builds on concepts introduced in Revit Architecture Essentials. Covers advanced techniques for creating complex designs and professional-looking renderings, conceptual designs, creating and customizing objects, and team collaboration tools. Recommended preparation: LVV 8720 or equivalent experience.

LVV 8722 Revit Architecture Advanced (1-.5) 1 cr.
Explores advanced features of Revit Architecture that streamline the design process with a central 3-D model. Includes Conceptual Design (massing studies, space planning, visualization and rendering) and BIM Management (setting up Revit and creating custom families. Recommended preparation: LVV 8721 or equivalent experience.